SOAIS
Putting Customers First

Fast Formula in Oracle HCM Cloud

Aligned to *Your* Success

ORACLE Gold Partner

Agenda

- Introduction to Fast Formula
- Formula Creation and Components
- Formula Syntax
- Sample Fast Formula

What is Fast Formulas

- Oracle Fast Formula is a tool to write formulas using English words and basic mathematical functions
- You can write generic expressions for any calculation or comparison you may want to repeat

Uses of Fast Formula

Fast Formulas can be used across various Fusion HCM products to:

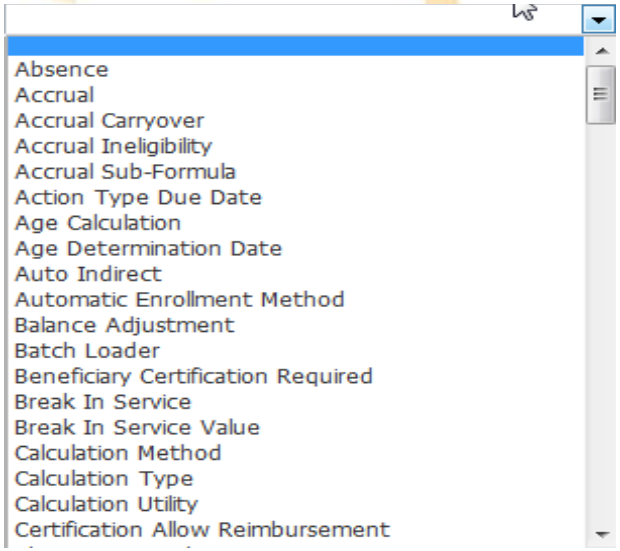
- Perform Payroll Calculations
- Define rules for paid time off (PTO) accruals
- Calculate absence duration
- Define custom calculations for benefits administration
- Edit rules for object group population for elements or people
- Validate Element Input Values or User-Defined Tables
- Validation and HCM Extracts

Uses of Fast Formula

- Different formula types are used across various parts of Fusion HCM applications:
  - Payroll
  - Benefits
  - Human Resources HCM Extracts
  - Compensation Management
  - Absence Management
  - Time and Labor

Fast Formula Types

- Each formula must have a type which determines:
  - How the formula can be used
  - What contexts are automatically available to the formula
  - Which rules about the inputs and outputs apply



Formula Types

- There are more than 120 formula types available in Fusion HCM:

• Auto Indirect	• Element Skip	• Oracle payroll
• Balance adjustment	• Extract Advanced condition	• Payroll access to HR
• Calculation Method	• Extract criteria	• Payroll relationship group
• Calculation type	• Extract record	• Payroll run proration
• Calculation utility	• Extract rule	• Rate Conversion
• Deduction Component Group	• Legislative check	• User table validation
• Element Input Validation	• Net to gross	• Work relationship group
		• And more...

Formula Creation Methods

- Predefined
  - Delivered with Oracle Fusion HCM
  - Specific to the localizations (for example US tax calculation)
  - Cannot and should not be modified
- User-Defined
  - Users create their own fast formulas (for example Absence Duration)
- Generated
  - User setup and system generated from legislative templates (for example HCM Extract generates formulas for blocks and items, element templates generate fast formula for main and hidden elements)

Formula Levels

Fast formulas can be defined at global or legislation level:

- Global
  - Can be used at any legislation. These formulas do not have legislation data group assigned to them (CALC_ARREARS)
- Legislation
  - If formula is applicable to only one legislation it has legislation data group assigned to it (US_TAX_MEDICARE)

Usage of Fast Formula in Fusion HCM

- In Payroll Processing fast formulas are used to:
  - Calculate element run results
  - Prorate payroll results
  - Perform legislative checks during the payroll run
  - Specify rules for skipping an element during payroll processing

Usage of Fast Formula in Fusion HCM

- Benefits Administration formula usages
  - Create rules, for example eligibility determination
  - Post-election edits
  - Service calculation
  - Coverage amount limits
- Compensation Management formula usages
  - Specify compensation worksheet defaults
  - Process only specific employees
  - Create unique hierarchy for compensation

Usage of Fast Formula in Fusion HCM

- In Absence Management formulas are used to:
  - Determine Accrual terms
  - Calculate how much time is accrued, and how much time can be carried over to the next accrual term
  - Determine Vesting criteria
- Oracle Time and Labor
  - Transform incoming data from a third party time keeping system for a payroll batch loader
  - Error and Warning validation of time entries
  - Generate process results from employee reported entries

Usage of Fast Formula in Fusion HCM

- Validation formula usages
  - Check that element entry values are valid for the element
  - Check element entries to a user defined tables
  - Extract HCM data for archiving and reporting

Agenda

- Introduction to Fast Formula
- Formula Creation and Components
- Formula Syntax
- Sample Fast Formula

Creating Fast Formulas in Fusion HCM

- Navigation: Payroll Calculation > Manage Fast Formulas or through Manage Fast Formulas task through Setup and Maintenance work area

Creating Fast Formulas in Fusion HCM

- Create a formula with appropriate Type

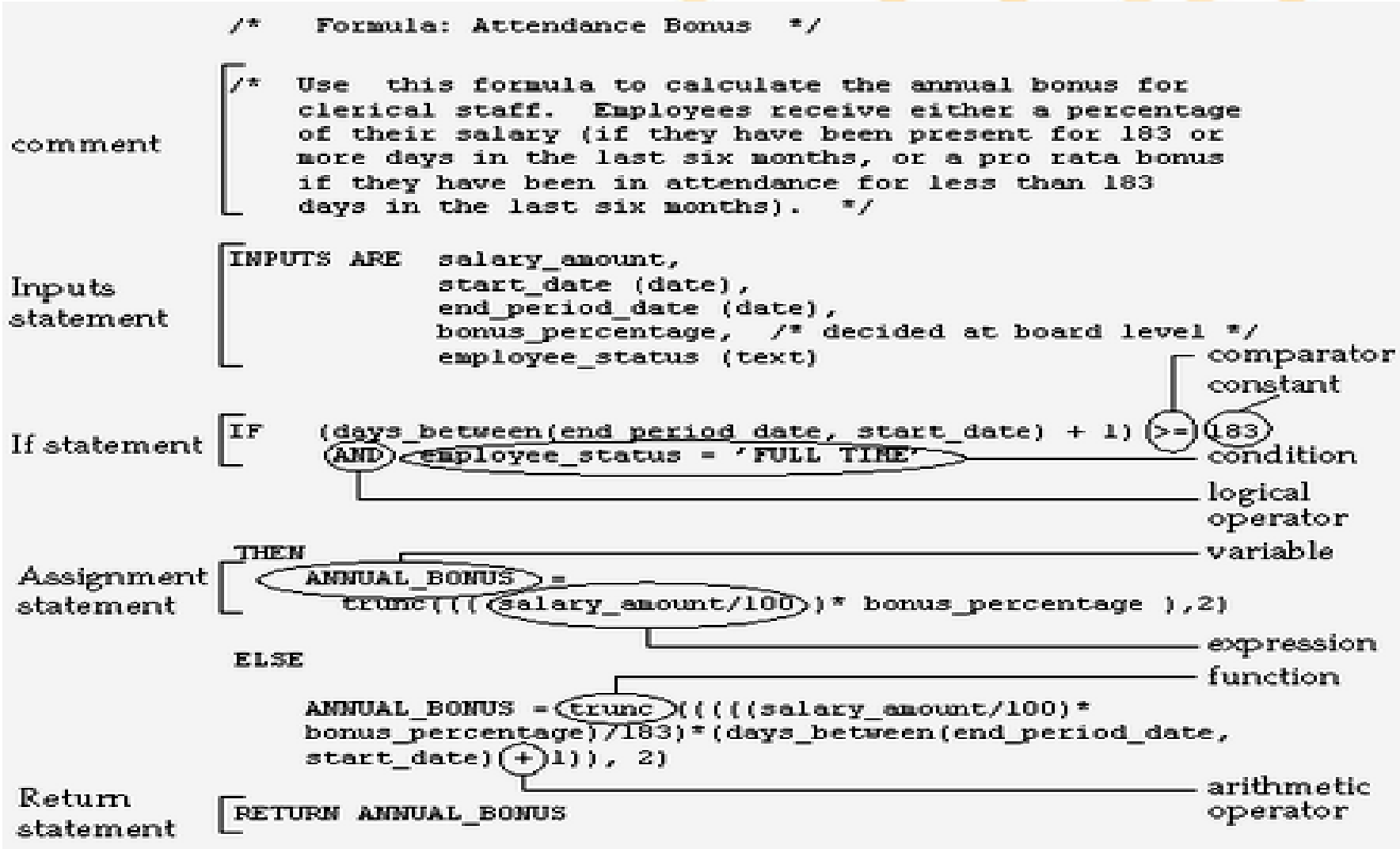
- Case Study: Fusion Payroll: How to Create and Modify a Fast Formula(1579738.1)

Formula Structure

Each formula may have five sections:

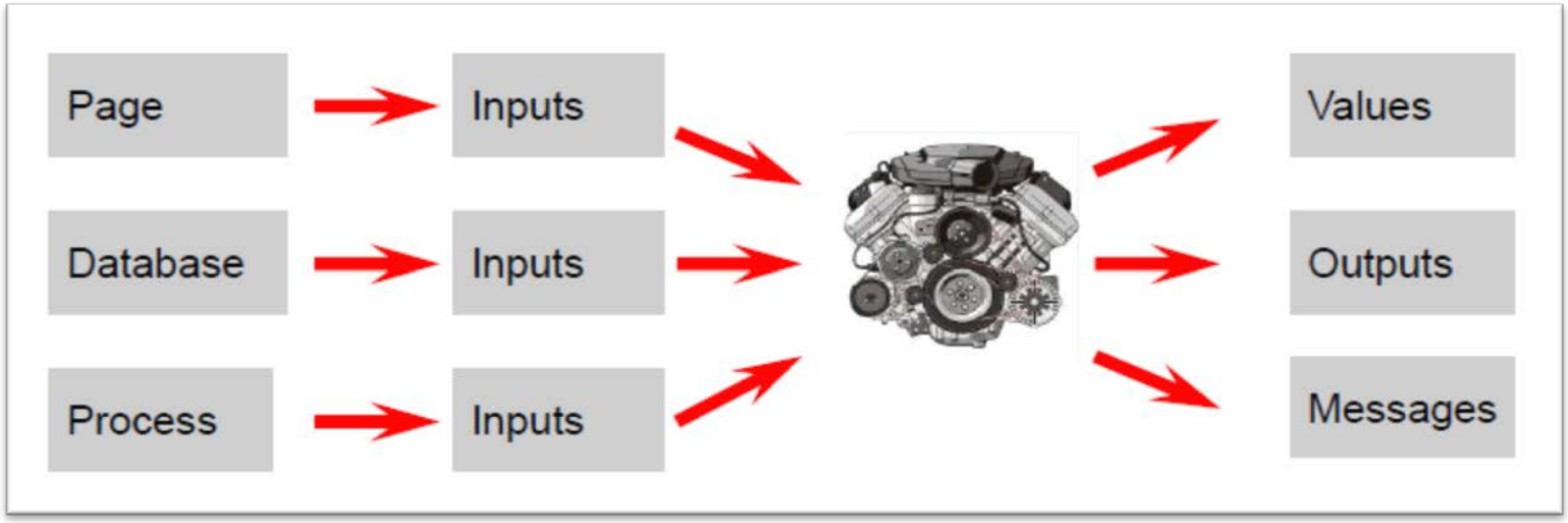
ALIAS variable1 as var1	Alias section
DEFAULT for var1 is CONSTANT	Default Section
INPUTS ARE hours, rate	Inputs Section
var1 = expression IF expression1 THEN statement section [ELSE statement]	Calculation Section
RETURN return1, return2	Return Section

Components in a sample Formula



Formula Inputs and Outputs

- Formulas can take input from the window, database, or a process such as a payroll run and can return values or messages.



Three Types of Inputs

- Input Statements
  - Values are passed at runtime
  - Contents of inputs statement depends on formula type
- Database Items
  - Values from the database
  - Browse a list of database items from the Formula window or the Add Database Items page of the Fast Formula Assistant
- Global Values
  - Used for information that changes infrequently, but is often referenced
  - Can be loaded via Batch Loader

List of Database Items

- There are more than 10,000 database items in the Fusion HCM
- List of DBIs and user Entities (UEs) for are available in
  - Note 1565118.1 for release 5
  - Note 1546399.1 for release 7 and above
- DBIs are used in various extracts, archives and reports across Fusion HCM

SOAIS
Putting Customer First

Agenda

- Introduction to Fast Formula
- Formula Creation and Components
- Formula Syntax
- Sample Fast Formula

Documentation on Fast Formulas

- Oracle Online Documentation Oracle Fusion Applications FF Guide http://docs.oracle.com/cd/E38454_01/doc.1117/e36894.pdf (Release 7)
- Fusion Payroll: FF Frequently Asked Questions (FAQ) (Note 1579739.1)
- Fusion Payroll: FF Troubleshooting Guide (Note 1560556.1)
- Case Study : Fusion Fast Formula: How to Create Fast Formula For Element Entry Input Value Validation (Note 1615323.1)
- Benefits Fast Formula Reference Guide for Oracle Fusion Benefits (Note 1456985.1)

Documentation on Fast Formulas

- Loading Data using Payroll Batch Loader - Technical Essay (Note 1590004.1)
- How to Enable Logging for Oracle Fusion Global Payroll (Note 1536245.1)
- How To Create New Global Values To Be Used In FF (Note 1637426.1)
- Extracts: Database Items (DBIs) and User Entities (UEs)(Note 1546399.1)
- Database Items for Extracts and Formulas in Oracle Fusion HCM (Note1565118.1)
- HCM Communities https://community.oracle.com/community/support/fusion_applications/human_capital_management_%28hcm%29

Fast Formula Syntax

- Variable:
  - Input variables appear on INPUT statements and bring value into a formula
  - Output variables appear in RETURN statements and return values from a formula.
  - A variable can be both input and output.
  - Local variable can be used inside the formula
- Global Values:
  - Global Values are used for information that changes infrequently, but is often referenced
  - Documentation: How To Create New Global Values To Be Used In FF (Note 1637426.1)

Fast Formula Syntax

- Contexts:
  - Context is information that is always available to each formula type at run
  - Contexts are available for certain formula types
  - Examples of contexts:
    - EFFECTIVE_DATE for effective date the formula is executing
    - PAYROLL_ID for the running payroll
    - PERSON_ID identifying the person for whom the formula is executing
  - Context values act as SQL bind values when database item values are fetched from the database.
  - They can also be passed into formula function calls.
  - Related methods for the context are:
    - GET_CONTEXT : To find the value from the context
    - CONTEXT_IS_SET: To find whether a context is set
    - SET_CONTEXTS: to set one or more contexts

Fast Formula Syntax

- Array processing
- Looping
  - WHILE-loop type is supported
- Working Storage Area
  - The working storage area is a mechanism for storing global values across formulas. The values are accessed by name. The names are case-independent.
  - There are four working storage area call methods:
    - WSA_EXISTS
    - WSA_DELETE
    - WSA_SET
    - WSA_GET

Fast Formula Syntax

- Functions in Fast Formula:
  - Full list of functions in Fusion HCM is available in Fast Formula Guide
  - Text functions to manipulate the data:
    - GREATEST, INSTR, LEAST, LENGTH, LOWER, LPAD, LTRIM, REPLACE, RPAD, RTRIM, SUBSTR, TRIM, UPPER
  - Numeric formula functions:
    - ABS, FLOOR, GREATEST, LEAST, MOD, POWER, ROUND, ROUNDUP, TRUNC
  - Date formula functions:
    - ADD_DAYS, ADD_MONTHS, ADD_YEARS, DAYS_BETWEEN, GREATEST, LAST_DAY, LEAST, MONTHS_BETWEEN, NEW_TIME, NEXT_DAY, ROUND, TRUNC

Fast Formula Syntax

- Calling Formula from a Formula :
  - A formula can be called from another formula
  - There are 4 methods available:
    - **IS_EXECUTE**(formula name)
    - **EXECUTE**(formula name)
    - **SET_INPUT**(input [,value])
    - **GET_OUTPUT**(output, default-value)
  - Example:

```
RELIGION = 'BBB'
assignment_id = GET_CONTEXT(HR_ASSIGNMENT_ID,1)

SET_INPUT('hr_asg_id',assignment_id)
EXECUTE('GET_RELIGION_FORMULA')
RELIGION  = GET_OUTPUT('RELIGION','AAA')
```

  - Case Study: Fusion Absence Management: Unable To Access Religion Related DBI In CORE_ABSENCE_DURATION Fast Formula (Doc ID 1670627.1)

Agenda

- Introduction to Fast Formula
- Formula Creation and Components
- Formula Syntax
- Sample Fast Formula

Sample Fast Formula

```
/*****************************************************************************
FORMULA NAME: AUF_ABSENCE_DURATION
FORMULA TYPE: Global Absence Type duration Formula
DESCRIPTION: This formula returns days between absence
Change History:
Name          Date                        Version        Comments
-------------------------------------------------------------------------
Oracle        24-Nov-2017 DRAFT 1A        Initial Version
*****************************************************************************/

DEFAULT FOR IV_START_DATE IS '4712/12/31 00:00:00' (date)
DEFAULT FOR IV_END_DATE IS '4712/12/31 00:00:00' (date)


INPUTS ARE IV_START_DATE (date), IV_END_DATE (date)


/*Duration =  to_num(to_char(DAYS_BETWEEN(IV_END_DATE , IV_START_DATE)))+1-.354*/
Duration =  DAYS_BETWEEN(ADD_DAYS(IV_END_DATE,1) , IV_START_DATE)

RETURN Duration
```

Oracle FastFormula User's Guide:
https://docs.oracle.com/cd/E18727_01/doc.121/e14567/T1774T1776.htm

Thank You

Sourav Pal

Email: sourav.pal@soais.com

Website: www.soais.com