Introduction

- Mars Exploration Rover
HRMS 11i Upgrade and PTO Process Automation

Presenter: Chris Park  
Co-Presenter: Krishna Kunamaneni

chris.v.park@jpl.nasa.gov  
Krishna.P.Kunamaneni@jpl.nasa.gov
Introduction

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- JPL has approximately 5,500+ employees on a bi-weekly payroll.
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Introduction

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Introduction

The Jet Propulsion Laboratory, managed by the California Institute of Technology, is NASA's lead center for robotic exploration of the solar system.

- JPL implemented 10.7 of Oracle HRMS and financial modules in late 1998 and upgraded to 11i in December 2001
- JPL has approximately 5,500+ employees on a bi-weekly payroll
Agenda

- PTO plans at JPL
- 10.7 PTO Issues
- What is new in 11i?
- 11i PTO functionality
- What we achieved in 11i
- 11i PTO overview
Background

- PTO balance information is available on-line to employees
- JPL uses element-entry-based PTO accruals, not absence formula
- PTO accruals are carried over based on a calendar year, not bi-weekly pay period
- Some PTO entitlements expire at the end of a calendar year
- Some PTO balances roll over to another plan at the end of a calendar year
10.7 PTO Functionality

- Fast formulas were not available for defining PTO plans.

- Oracle used a PL/SQL based solution. PTO plans followed the payroll period cycle for accrual and carryover using effective date from start date of pay period inclusive of 01-JAN(Effective 12/27/04 for 2005 carry over)
10.7 PTO Issues

- PTO balances were computed based on effective start and end dates of PTO element entries. Mid-period balances were not available.

- Customizing PTO functionality was difficult and time-consuming. Retroactive adjustments were manual.

- Bi-weekly payroll had challenges carrying over balances using the calendar year cycle.
• Introduced the new input value ‘Entry Effective Date’ for each element included in the PTO net calculation.

• Provided fast formula based solutions for accrual, absence, carryover, and ineligibility business rules.

• Provided formula functions to be used by formulas. (Oracle function is a program unit that returns a value based on the given parameters.)
PTO Functionality

- The new input value, ‘Entry Effective Date’, was created as not required:
### PTO Functionality

- **Employee Accrual as of 2/8/04:**

![Accruals: 08-FEB-2004 (PARK, CHRIS Y.)](image)

<table>
<thead>
<tr>
<th>Element Name</th>
<th>Input Value Name</th>
<th>Total Entitlements</th>
<th>Units</th>
<th>Effect On Net</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTO Vacation Accrual</td>
<td>Accrual Plan</td>
<td>0</td>
<td>Hours</td>
<td>Add</td>
</tr>
<tr>
<td>Carried Over PTO Vacation</td>
<td>Hours</td>
<td>78.95</td>
<td>Hours</td>
<td>Add</td>
</tr>
<tr>
<td>Deceased Vacation</td>
<td>Hours</td>
<td>0</td>
<td>Hours</td>
<td>Subtract</td>
</tr>
<tr>
<td>JPL EE Vacation</td>
<td>Hours</td>
<td>0</td>
<td>Hours</td>
<td>Subtract</td>
</tr>
<tr>
<td>JPL FMLA Family Vac</td>
<td>Hours</td>
<td>0</td>
<td>Hours</td>
<td>Subtract</td>
</tr>
<tr>
<td>JPL FMLA Vacation</td>
<td>Hours</td>
<td>0</td>
<td>Hours</td>
<td>Subtract</td>
</tr>
</tbody>
</table>
HiPTO Functionality

- Take out the date from Entry Effective Date to see its impact on the balance:
PTO Functionality

- Vacation balance is reduced by 1.85:
PTO Functionality

- When creating a PTO element, make ‘Entry Effective Date’ a mandatory input value.

- If the input value was delivered by Oracle upgrade script, you can make the input value mandatory to avoid the data entry error.
PTO Functionality

PTO Balances:

- Dynamically calculate based on your PTO plan setups and input values in element entries.

- You can customize the way PTO balances are calculated and are carried over using fast formulas.
PTO Functionality

- In 11i, Oracle delivers seeded PTO-type fast formulas.

- Each seeded accrual formula has an associated carryover formula.

- Review seeded accrual and carryover formulas.
PTO Functionality

- **PTO_PAYROLL_CALCULATION/CARRYOVER**

- An accrual term of one year following the bi-weekly period cycle. Carryover is effective as of 12/27/04 and expires on 12/25/05 for 2004 carryover.

- An accrual frequency based on the assignment’s payroll period.

- Accrual amounts, maximum carryover, and ceilings can be defined in Accrual Bands.
II PTO Functionality

- PTO_SIMPLE_MULTIPLIER/CARRYOVER

- An accrual term of one year starting 01-JUN

- An accrual frequency of one month (so it is not dependent on a payroll)

- Accrual amounts and ceilings are defined within the formula (so the Accrual Bands window is not required)
PTO Functionality

- **PTO_ROLLING_ACCRUAL/CARRYOVER**

- An accrual term of one year with no fixed start date. Accruals are calculated for the previous 12 months.

- An accrual frequency of one month (so it is not dependent on a payroll)

- The formula sets accrual amount at two days per month, an accrual ceiling of 20 days.

- Carryover is not relevant since the accrual term never ends, but rolls forward.
11 PTO Functionality

- Choose one of the seeded formulas which is the closest to your rules and create your custom formula.

- Custom fast formulas can be used to make the PTO functionality work according to your company policies.

- Examples …
PTO Functionality

- The accrual formulas are made up of a main formula (LOV on the Define Plan screen) and a sub-formula that is called by the main formula.

- The main formula includes the necessary checks, and any rules you require for the plan.

- It then calculates PTO accrued up to the required calculation date by calling the sub-formula for each PTO period from the start of the term to the calculation date.

- The sub-formula calculates the PTO accrued in the specified period and adds it to a running total.
PTO Functionality

- The following formula types are for use with PTO Accruals:

  - **Accrual** - Top level formula
  - **Accrual Subformula** - Used by other Accrual type formulas.
  - **Accrual Carryover** - Used by the Carryover process
  - **Accrual Ineligibility** - Used by BEE to determine if an assignment is eligible to use accrued PTO.
PTO Functionality

- Accrual Plans:
Hi PTO Functionality

- Creating your own formulas:
  - Use the same inputs and return statements as the seeded formulas.
  - Create formula functions and use them in your custom formulas. Formula functions provide the necessary contexts: ASSIGNMENT_ID, DATE_EARNED, ACCRUAL_PLAN_ID, BUSINESS_GROUP_ID, PAYROLL_ID
PTO Functionality

Inputs and Outputs for Accrual Type Formulas

INPUTS ARE calculation_date (date)
<your custom code-formula body>
RETURN total_accrued_pto, effective_start_date, effective_end_date, accrual_date
Hi PTO Functionality

Inputs and Outputs for Carryover Type Formulas

INPUTS ARE calculation_date (date), accrual_term (text)
<Your custom code -Formula body>
RETURN max_carryover, effective_date, expiry_date

accrual_term – (PREVIOUS or CURRENT)
Inputs and Outputs for Ineligibility Type Formulas

INPUTS ARE calculation_date (date)
<Formula body>
RETURN assignment_eligible

assignment_eligible – Y or N
BEE will create a warning on the batch line if ‘N’
PTO Functionality

- Use Oracle PTO formula functions:

  - **GET_CARRY_OVER**(start_date, calculation_date): calculates the amount of carryover

  - **GET_OTHER_NET_CONTRIBUTION**(start_date, calculation_date):
    - Calculates any PTO contributions other than absence and carryover between the two input dates.
PTO Issues

- Issues with the seeded fast formulas:
  - Do not meet user requirements
  - Each PTO plan may require different rules
  - Custom processes may need a stored procedure
  - Slow performance
  - Unnecessary user messages pop up
PTO Customization

Steps taken to resolve the issues with the seeded fast formulas:

1. Reviewed the functionality of the seeded fast formulas

2. Modified PTO_PAYROLL_CALCULATION as the accrual formula

3. Replaced the call of sub formula PTO_PAYROLL_PERIOD_ACCRUAL with a custom formula function:

```c
/*E = LOOP_CONTROL('PTO_PAYROLL_PERIOD_ACCRUAL')*/
TOTAL_ACCRUED_PTO = jplff_pto(Calculation_Date)
```
Steps taken to resolve the issues with the seeded fast formulas: cont’d

4. Changed the carryover effective date to 01-JAN from the first payroll period’s start date (i.e. 27-DEC-2004) and expiration date (25-DEC-2005) to 31-DEC.

5. Assigned the correct values to the required result values:
   - Accrual Formula: Total_Accrued_PTO, Effective_start_date, Effective_end_date, Accrual_end_date
   - Carryover Formula: Max_Carryover, Effective_date, Expiry_Date, Process
Hi PTO Customization

Carryover fast formula example:

DEFAULT FOR ACP_CONTINUOUSIService_DATE IS '4712/12/31 00:00:00' (date)
DEFAULT FOR ACP_SERVICE_START_DATE IS '4712/12/31 00:00:00' (date)

INPUTS ARE
Calculation_Date (date),
Accrual_term (text)
Max_carryover = 320
Effective_date = Calculation_date
Expiry_date = to_date('3112' + to_char(add_years(Calculation_date, 1) , 'YYYY'), 'DDMMYYYY')

Process = 'YES'
RETURN Max_Carryover, Effective_date, Expiry_Date, Process
### HiPTO Customization

- Using a custom fast formula; **JPLPTO_PAYROLL_CO**

<table>
<thead>
<tr>
<th>Element Name</th>
<th>Effective Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carried Over PTO Vac</td>
<td>27-DEC-2004</td>
</tr>
<tr>
<td>Residual PTO Vacation</td>
<td>09-JAN-2005</td>
</tr>
<tr>
<td>Basic LTD Ins</td>
<td>27-DEC-2004</td>
</tr>
<tr>
<td>Basic Life Ins</td>
<td>09-JAN-2005</td>
</tr>
<tr>
<td>Delta Dental ER Liability</td>
<td>01-JAN-2004</td>
</tr>
<tr>
<td>Delta Dental Pre Tax</td>
<td>01-JAN-2004</td>
</tr>
<tr>
<td>FE Life Ins Supplement</td>
<td>01-JAN-2004</td>
</tr>
<tr>
<td>Fidelity</td>
<td>01-JAN-2004</td>
</tr>
</tbody>
</table>

**Notes:**
- Period: 1-2005
- Entry Effective Date: 01-JAN-2005
- Expiration Date: 31-DEC-2005
- Hours: 150.000
PTO Customization

- Accrual Form using Oracle seeded fast formula; PTO_PAYROLL_CARRYOVER
PTO Customization

- Accrual Form using a custom fast formula:

<table>
<thead>
<tr>
<th>Name</th>
<th>Accrual Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTO Vacation Fixed</td>
<td>Vacation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dates</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Entitlement Calculation</td>
<td>01-JAN-2004</td>
<td>29-DEC-2004</td>
</tr>
<tr>
<td>Last Accrual</td>
<td>26-DEC-2004</td>
<td></td>
</tr>
<tr>
<td>Net Entitlement</td>
<td>158</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Entitlement Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Element Name</td>
</tr>
<tr>
<td>JPL EE Vacation</td>
</tr>
<tr>
<td>JPL FMLA Family Vac</td>
</tr>
<tr>
<td>JPL FMLA Vacation</td>
</tr>
<tr>
<td>Vacation Accrual</td>
</tr>
<tr>
<td>Vacation Entitlement</td>
</tr>
<tr>
<td>Vacation Fixed Wipeout</td>
</tr>
</tbody>
</table>
PTO Customization

Custom fast formulas accomplished the following:

- Replaced a custom stored procedure with Oracle PTO Carry Over.
- Implemented the company’s PTO policies using fast formulas
- PTO data is consistent from Oracle forms to custom programs
- Accrual balances as of 29-DEC-04 don’t double up since the carry over is effective as of 01-JAN-05 not 27-DEC-04
III. PTO Customization

Lessons learned using custom fast formulas:

- As long as you satisfy the return values, the custom fast formulas can handle any customizations you need for PTO accrual or carryover.

- The accrual fast formula is used by Statement of Earnings for sick and vacation balances in addition to Employee Accrual Form.
11. PTO Customization

- Other benefits of using the custom fast formulas

  - Custom programs or reports can use external functions used by formula functions to get PTO balances the same way the PTO formulas do.

  ```
  select
  jplper_get_accrual_calc
  (52632,1,to_date('26-DEC-2004'))
  from dual;
  ```

  - Improved performance of View Accrual, Statement of Earnings and Carryover.
PTO Customization

- Other improvements made to PTO processes in 11i:
  - PTO hour adjustment to the prior years
  - Exceeded entitlement recovery process
  - Rollover from one plan to another in each term
In Conclusion

Overview of 11i PTO functionality

- 11i provided flexibility, data integrity, and process improvement opportunities with regard to PTO. Take full advantage of it!

- Each PTO plan can have its own custom fast formula for accrual and carryover in addition to absence formula.

- More PTO functionality changes are expected in HRMS PF.H family pack (July). Stay tuned!
Questions and Answers

Applause