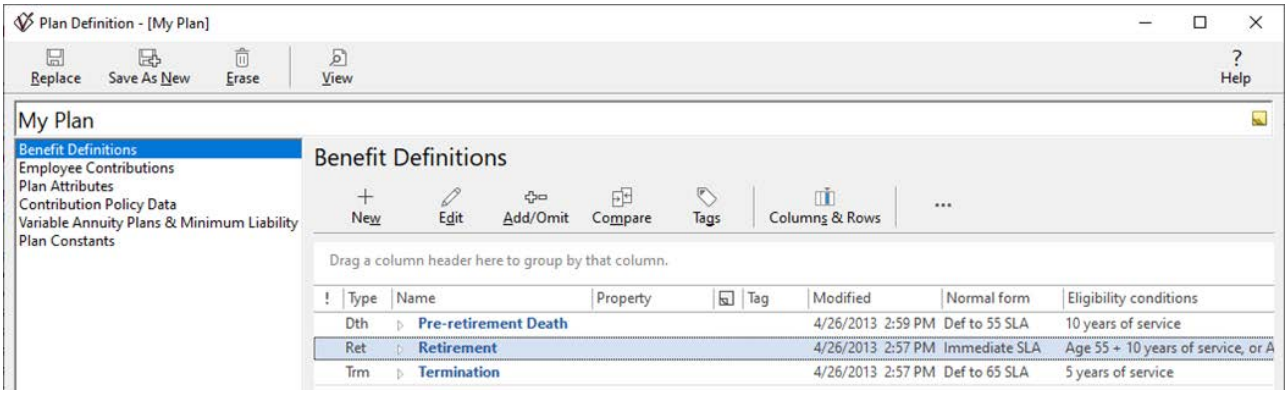
What's New in version 3.16 July 2021

ProVal version 3.16 introduces a new plan editor interface, an improved status reconciliation tool, sample life summary and projected benefit payment reports, and allows you to specify OPEB claims assumptions in Valuation Assumptions. Full details plus many other new features below.

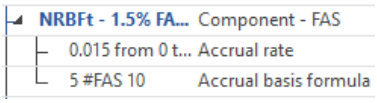
Interface

- **Plan editor interface.** The interface for plan setup and review is richer and more interactive than ever before. It is easy to:

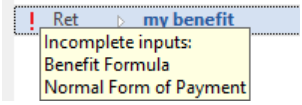


  - **See the forest.** You can compare properties across benefits, such as normal form, eligibility conditions, etc. Click Columns & Rows to select properties you want to view.
  - **See how pieces fit together.** Expand a benefit to see its formula and components.

  - **Drill into details.** Expand a component to see its properties. You can even double-click it to edit it directly without having to go through its benefit.

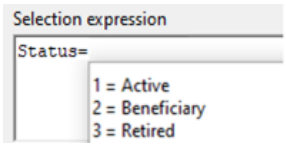


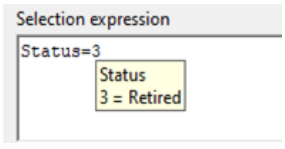
  - **See what's missing.** Easily spot where inputs are incomplete by looking for **!**.



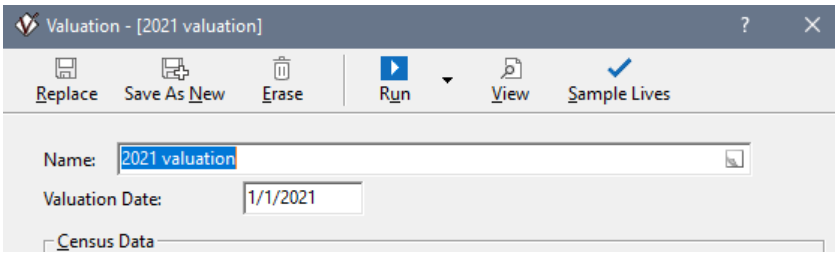
  - **Organize.** You can sort or group benefits by any property, such as by selection expression.

- **Autocomplete for codes.** When using a coded field in an expression, e.g., "Status=…", a list of valid codes now appears to choose from. You can even hover over a code to see its label.

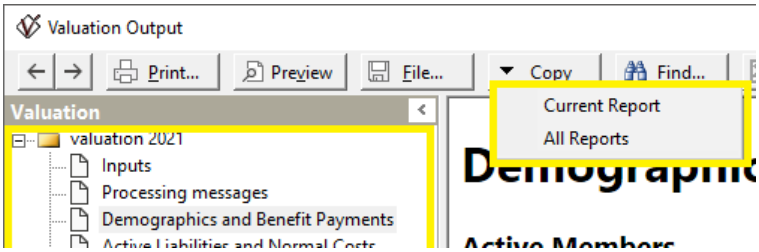




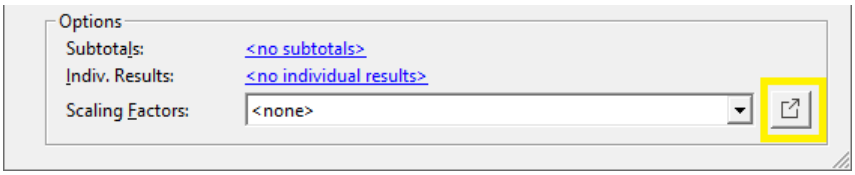
- **Library entry buttons.** Standard buttons for library entries (Replace, Save As New, Erase, …) have been moved to the top for a more modern look and placed next to related buttons such as Sample Lives.



- **Copy all reports.** A new option is available for most multi-report output (such as viewing Output within a Valuation) that lets you copy the current report or all reports with a single click.



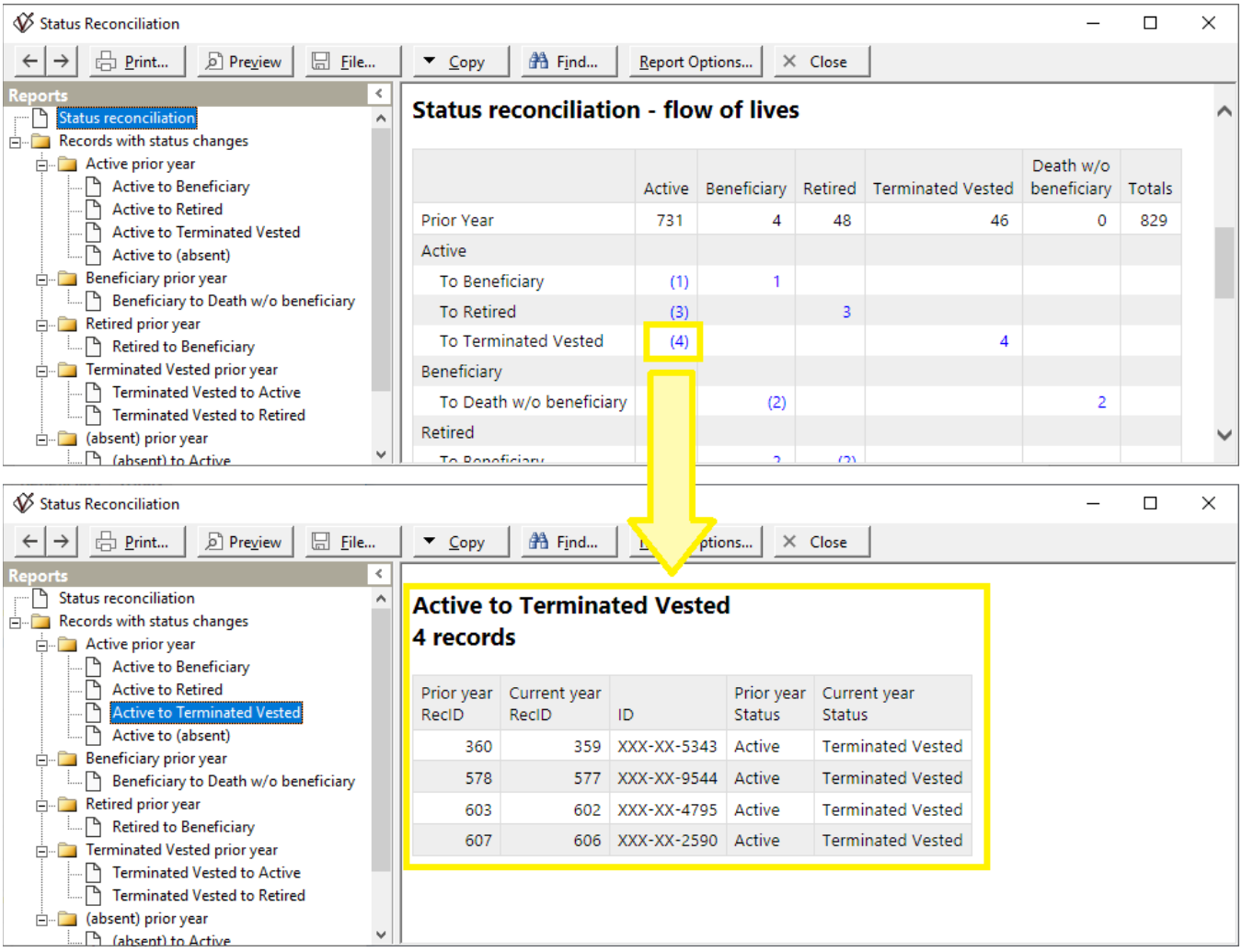
- **Scaling factor backdoor buttons** were added to let you edit Scaling Factors directly from within Valuations and Core Projections.



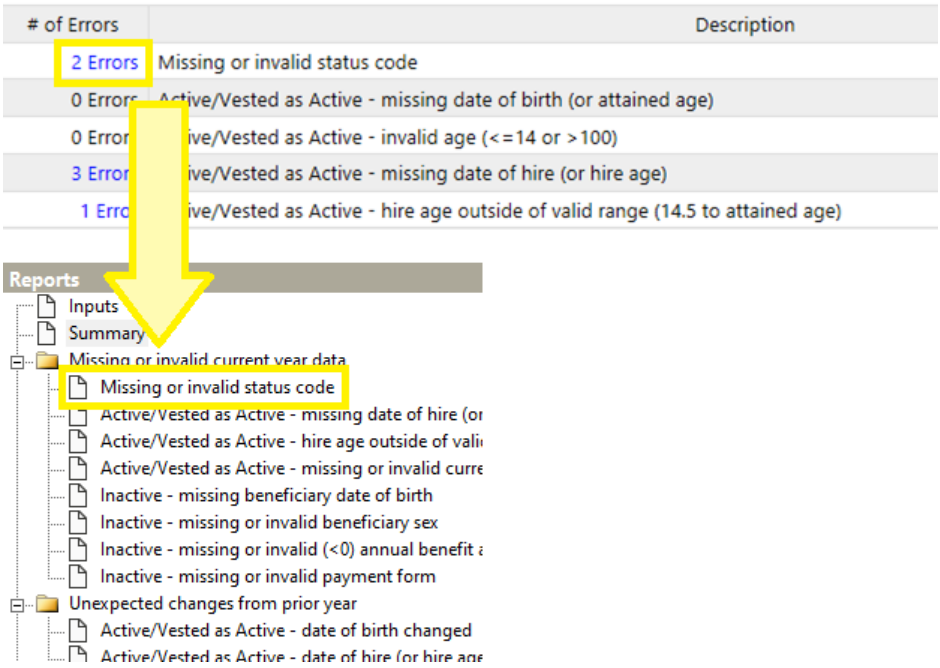
Census Data

- **Status reconciliation.** The status reconciliation tool now lets you:
  - Rename and group database statuses into natural reconciliation statuses as opposed to database status codes, e.g., “lump sum” and “non-vested term” mapped to “cashed out”
  - Exclude non-participating statuses, e.g., exclude “cashed out” and “missing value” statuses so they don’t show as separate columns and total rows show only participants
  - List records with a change in status. You can customize these lists, for example, to include date of death for retirees that died during the period. These lists are useful for verifying things like:
    - For new actives, date of hire and service are reasonable
    - For vested terminations no longer reported, confirm paid out
    - For new vested terminations, benefit matches benefit calculated at termination
    - For retirees that have been removed, confirm that they are no longer in receipt (e.g., death, expired guarantee period)
    - For new retirees, check payment form, amount, and spouse information match election forms
  - Save your status reconciliation settings for easy recall or importing into other clients. The most recently used style is automatically loaded every time you open the tool.

  What’s more, the status reconciliation output is now interactive, e.g., you can click on a group’s count to see the list of records in the group.



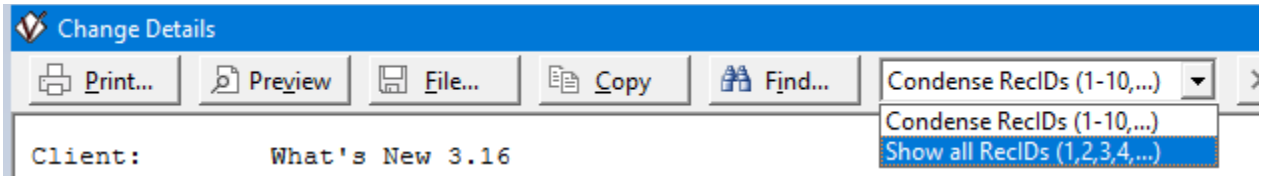
- **Screen data output.** Screen Data output is now more interactive, for example, links in the summary report let you jump to listings by record.



- **Alternate keys.** When matching records with key fields, you can now specify alternate keys to match records even where a key legitimately changed. For example, if an ID was corrected in the current year data or switched from the member's ID in the prior year data to the beneficiary's ID in the current year data. Only records where you want to create a match with differing primary keys need to have a value in the alternate key field.

Example	Prior year ID	Current Year ID	Current year AltID
Corrected ID	1112	1111	1112
Switch from member to beneficiary ID	2222	9999	2222
Ordinary match in primary key	3333	3333	

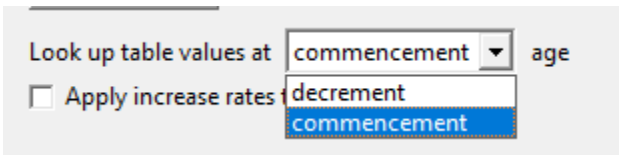
- **Expression set selection.** You can now apply a selection expression to an expression set, in addition to the individual selection expressions for each expression. This might be useful, for example, if you add missing records to your database after an expression set was run, and you don't want to re-run the expression set for the entire database. Or, if you want to re-run an expression set only for the records with certain data changes instead of the entire database.
- **ID search.** When searching a RecID or Soc. Sec. # field in a database (e.g., Ctrl+F), ProVal now defaults to searching "IN" a list of values rather than "=" a single value. This makes it quicker to search for a list of IDs since you no longer have to change the condition from "IN" to "=".
- **Alphabetizing fields.** When reordering fields in a database, a new option lets you alphabetize the selected fields. For example, you might select a set of fields, move them to the bottom, and then alphabetize them.
- **Data defaults interface.** In Census Specifications, data defaults are now listed with the field and default expression in separate columns. This allows for sorting on any column, e.g., to find defaults for a particular field. Additionally, deleting an entry is much more direct – simply select the defaults and press the Delete key or Erase button.
- When viewing a specific entry in a database's Change History, a new option lets you view the full, uncondensed list of affected RecIDs, e.g., "1,2,3,4" instead of "1-4". This is useful for copying and pasting the list into a selection expression, as in "RecID #in (1,2,3,4)".



- In the Resolve Duplicates tool, when condensing records into one and keeping all data values in separate fields, you can now specify existing data dictionary field names if not already present in the database.

Pension Plans

- **Table lookups at commencement age.** A new option lets you look up table values at commencement age, rather than only at decrement age.



Some of the potential uses include:

  - Early retirement reduction and conversion factors in deferred annuity benefits

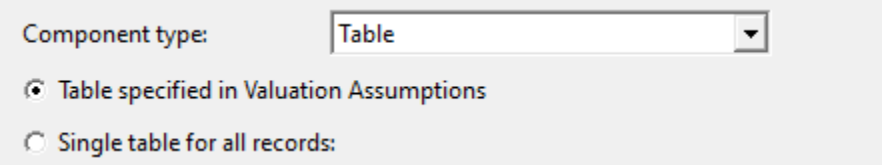
- Early retirement reduction factors in post-termination retirement benefits. Previously, early retirement reduction factors were specified within the post-termination retirement parameters and applied to the entire benefit. Now you can code early retirement reduction factors directly in the benefit formula, applying reductions to specific parts of the benefit (such as a cash balance plan without reduction compared to a frozen annuity with reduction).

- **Variable annuity plans.** A new Plan Definition option in U.S. Qualified Pension and Universal Pension modes lets you specify if the plan is a variable annuity plan. If so, ProVal will value the liabilities at the hurdle rate and calculate contribution and expense requirements using the valuation interest rates. For more information, see Variable Annuity Plans on page 12.

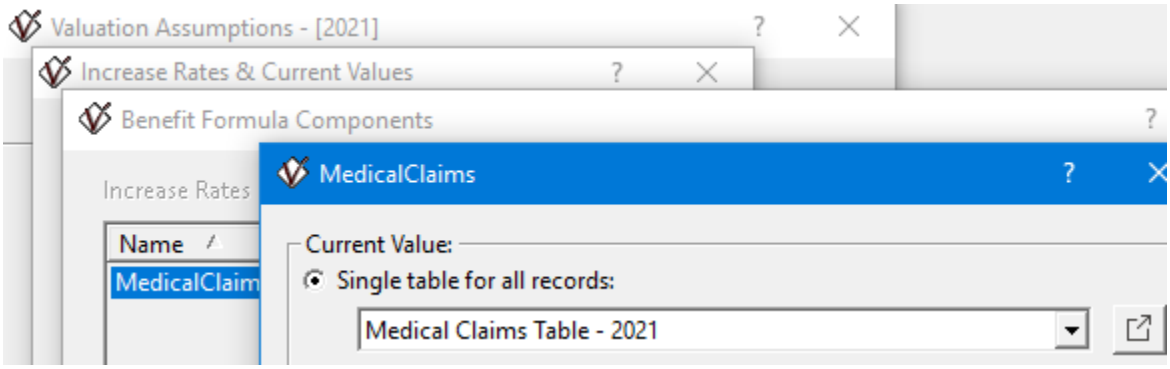
- **Pension equity plans.** A new benefit formula component type called "Accrual – Pension Equity" is available to value pension equity plan designs. For more information, see Pension Equity Plans on page 14.

OPEB Plans

- **Claims curves in Valuation Assumptions.** Constant and Table Benefit Formula Components can now have their values set in Valuation Assumptions. This avoids creating a new Plan Definition each year just to update claims assumptions.



The values for these components are set in the Increase Rates & Current Values topic of Valuation Assumptions. This feature is available in all modes, but particularly useful for OPEB plans.



- **LTD mortality tables**
  - Three new LTD mortality tables are now available:
    - U.S. 1987 NAIC GLTD Tables (6 month elimination period)
    - U.S. 2005 SOA Life Waiver Tables
    - CIA 1988-1997 LTD Study
  - All LTD mortality tables can now:
    - Apply constant scaling factors to death and recovery rates, separately.
    - Assume zero mortality and recovery for selected members. This is useful for short-term monthly benefits.
  - The CIA 2009-2015 Study mortality table can be extended for 20 years beyond the last published recovery and mortality rates.

- In OPEB payment forms, the deferral and temporary member and spouse age can now be defined by a database field. This is consistent with existing functionality for payment forms in pension modes, and is especially useful for streamlining the number of benefits needed for LTD plans.

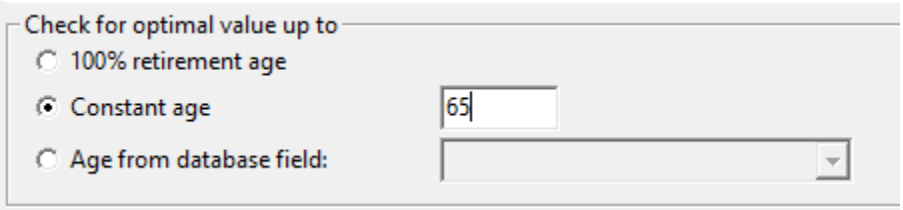
US Qualified Plans

- **American Rescue Plan Act.** In case you missed it, updates to 3.15 added the following features to support the American Rescue Plan Act:
  - Single Employer Plans
    - In PPA Valuation Assumptions, the lookup button reflects revised funding interest rates effective with 2020.
    - A new checkbox in PPA Deterministic Assumptions > Future Valuation Interest Rates reflects the revised corridors, the interest rate floor, and allows you to select the adoption year from 2020-2022.
    - A new checkbox in PPA Stochastic Assumptions > Legislated Interest Rates reflects the revised corridors, the interest rate floor, and allows you to select the adoption year from 2020-2022.
    - Interest rates calculated in PPA Deterministic Assumptions with the Calculate segment rates button reflect adoption of the updated corridors and interest rate floor effective in 2020.
    - A new checkbox in the PPA Asset & Funding Policy > Shortfall Amortization topic allows you to choose a year to wipe out existing bases and switch from a 7 year to 15 year amortization period.
  - Multiemployer Plans – Asset & Funding Policy
    - A new checkbox in the PBGC Premium and Administrative Expenses topic will reflect revised PBGC premiums beginning in 2031.
    - In the Minimum Funding Amortization Bases topic, the 431(b)(8)(A) relief parameters have been extended to plan years beginning in 2019, 2020, and 2021.
    - In the ERISA Asset Valuation Method, the 431(b)(8)(B) relief parameters have been extended to plan years beginning in 2019, 2020, and 2021.

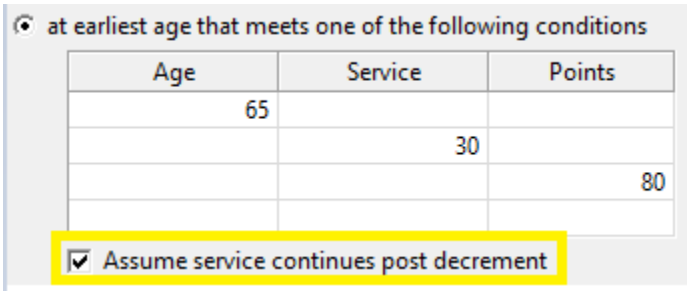
- For PPA valuations and core projections, ProVal now outputs the PPA Present Value of Future Benefits and Actuarial Liability Present Value of Future Benefits projected benefit payments separately. Previously, if the actuarial liability assumptions differed from the Not-at-Risk assumptions only the Actuarial Liability Present Value of Future Benefits projected benefit payments were available.

Canadian Registered Pension Plans

- **Solvency optimal age.** In Valuation Assumptions, a new option lets you control the last age checked for optimal values for solvency and windup liabilities. Previously, ProVal checked up to the 100% retirement age as determined on a going concern basis. Now, the 100% retirement age for this purpose is calculated using frozen service. This eliminates the need for separate ongoing and solvency valuations when the retirement decrement had a service component.

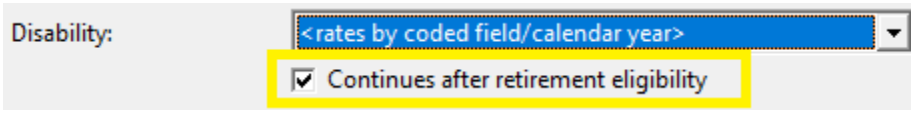


- **Unreduced age benefits.** For payment forms that are payable at the earliest age that meets specified age/service/points conditions, a new checkbox lets you assume service continues after decrement. This is useful for plans that determine benefit rights at date of hire based on assumed service.

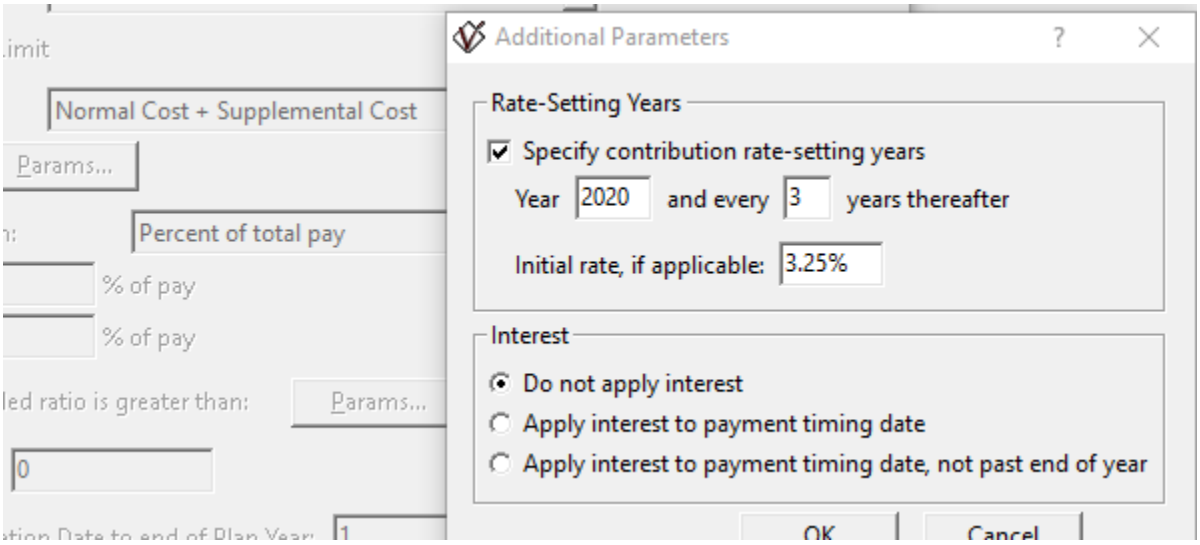


US Public Pension Plans

- **Disability rates after retirement eligibility.** You can now shut off disability rates when participants reach retirement eligibility. Previously, disability rates were assumed to continue until the 100% retirement age. This feature is available in all modes, though more common amongst U.S. Public Pension plans.

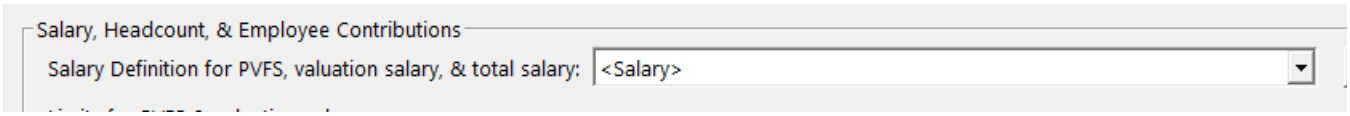


- In Public mode, the Normal Cost + Supplemental Cost contribution policy has two new options.
  - Rate-Setting Years sets the contribution rate as a percent of valuation payroll in specified years. That rate is used until the next rate-setting year.
  - Interest can be optionally applied to the contribution until the payment timing date or until the payment timing date, not past the end of year.



All Plans

- **Valuation salary.** In Valuation Assumptions, a new option lets you define Valuation Salary separately from the salary defined in Census Specifications. The default is <Salary> which refers to the definition in Census Specifications.

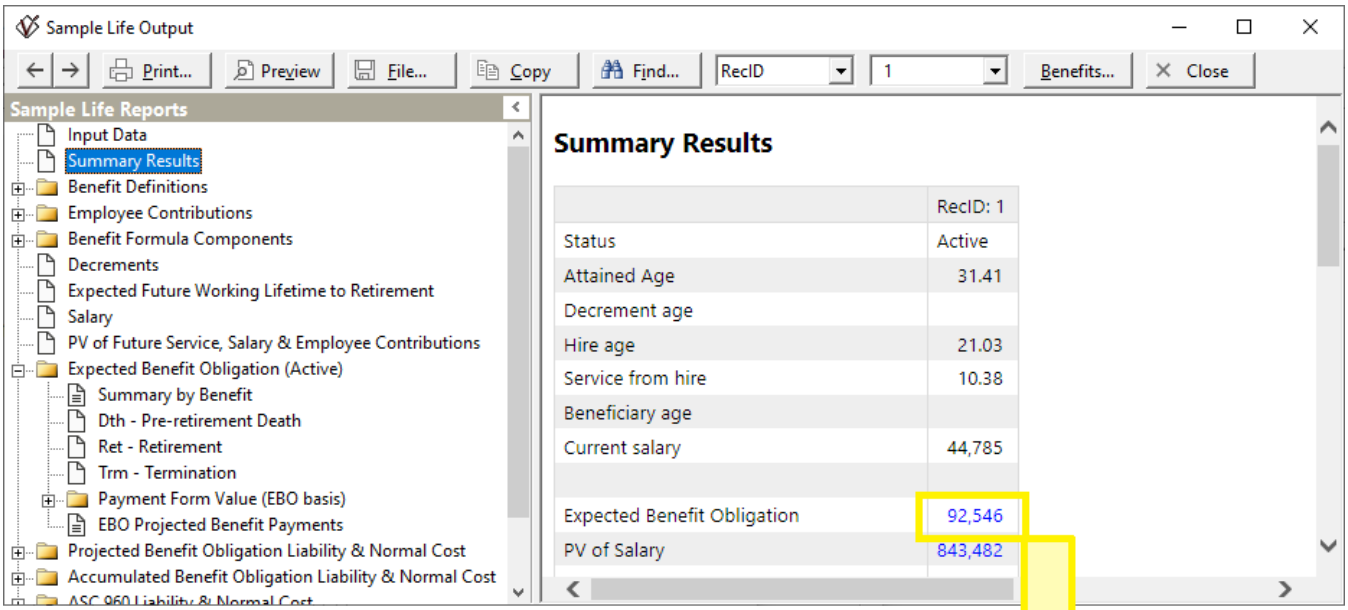


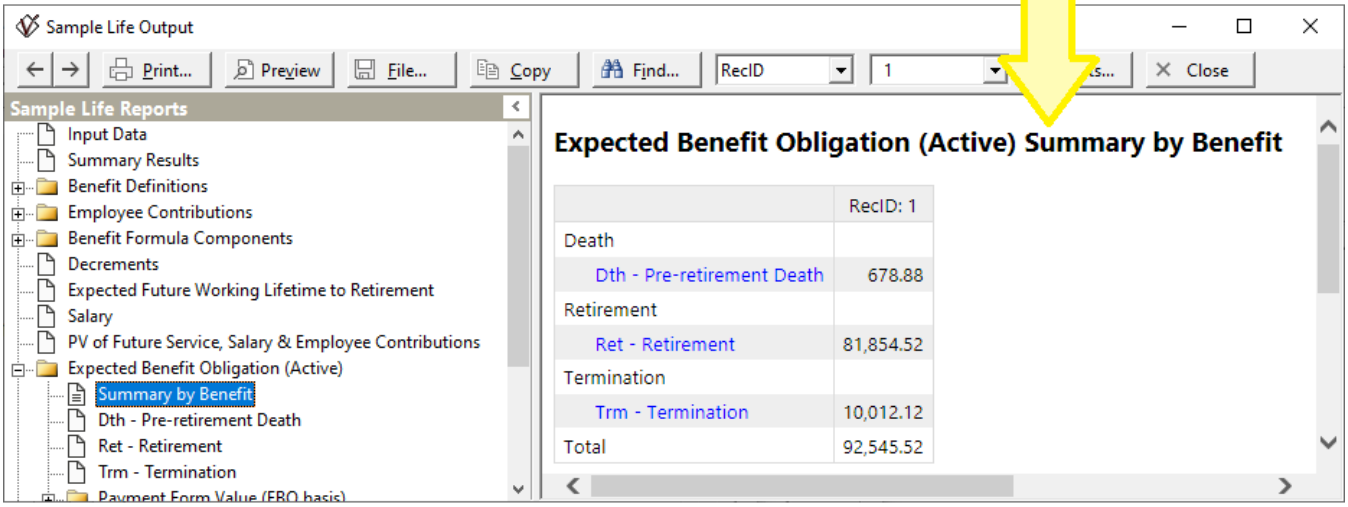
- **Valuation salary service cap.** In Valuation Assumptions, a new parameter lest you apply a service cap, specified in a service definition, to the calculation of present value of future salaries and valuation salary.

- **N-Year Adjusted Market Values method.** In Asset & Funding Policies, a new Funding Asset Valuation Method, called the N-Year Adjusted Market Values method, averages historical market values projected to the valuation date.

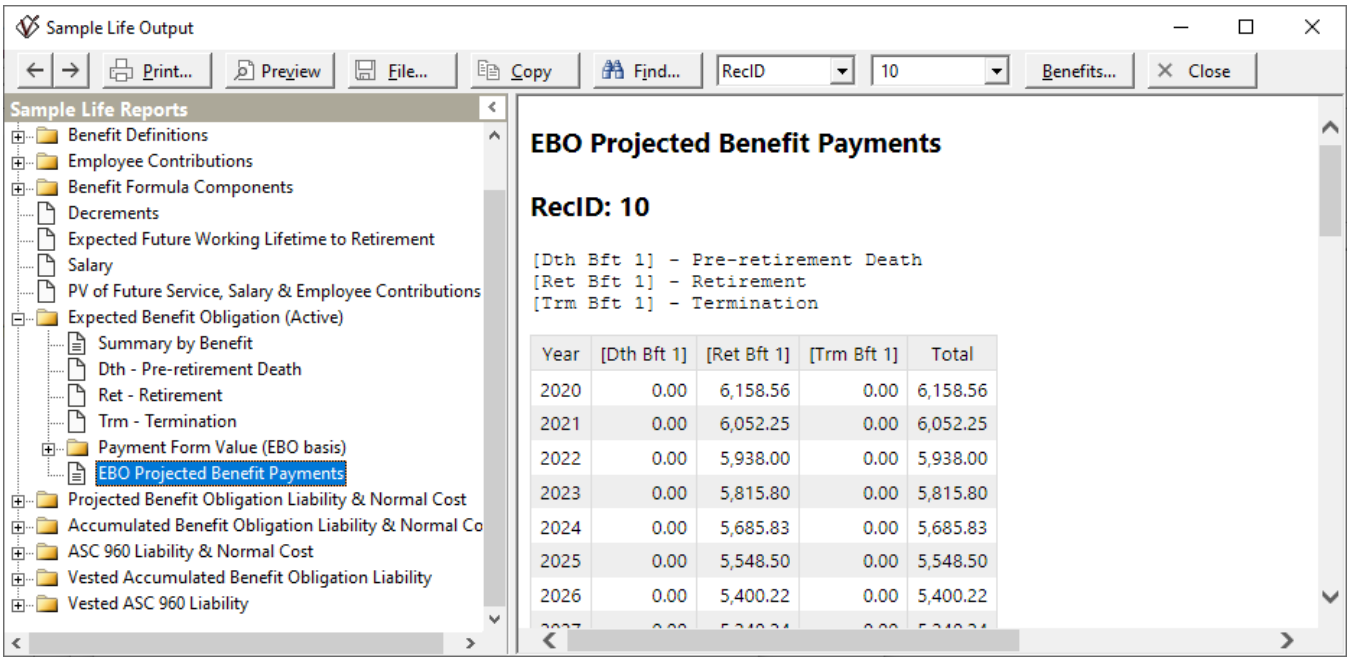
Sample Lives

- **Summaries by benefit.** In Valuation sample lives, the Summary Results report links to new "Summary by Benefit" liability reports, which in turn link to the existing liability reports by benefit. This lets you use the Summary Results report as a home page to drill into as much detail as desired. The "Summary by Benefit" liability reports also appear in Core Projection sample lives.



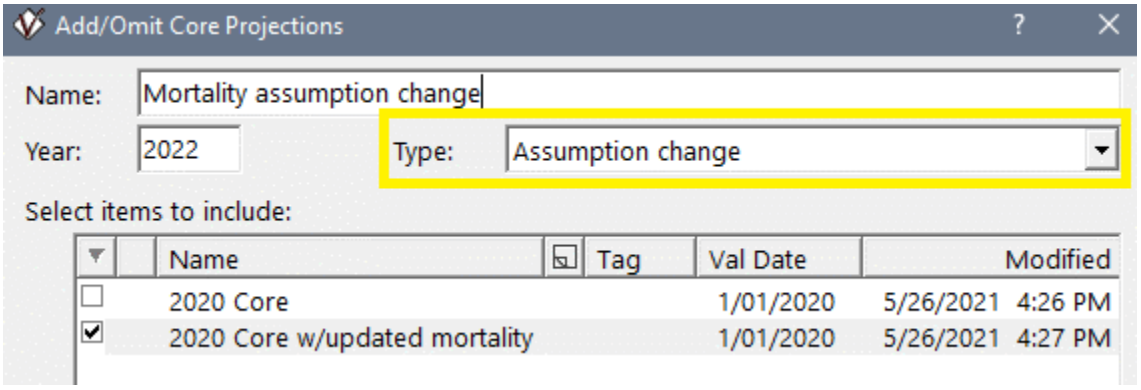


- **Projected benefit payments report.** In Valuation sample lives, a new projected benefit report displays the benefit payments underlying each liability.

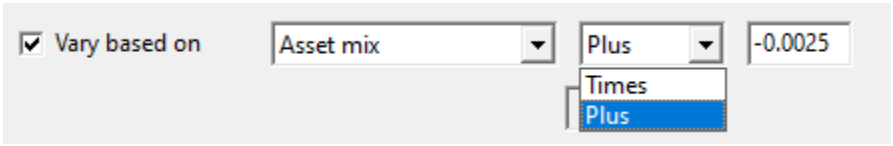


Forecasting

- **Known asset values.** You can now enter known asset values for any date up to two years past the initial valuation and measurement dates. ProVal will project the known value to the end of the year. For more information, see Known Asset Value Overrides on page 16.
- **Forecast events.** You may now specify that a forecast event is an assumption change, rather than always a gain or loss. This is useful if amortization periods differ between the two types of events.



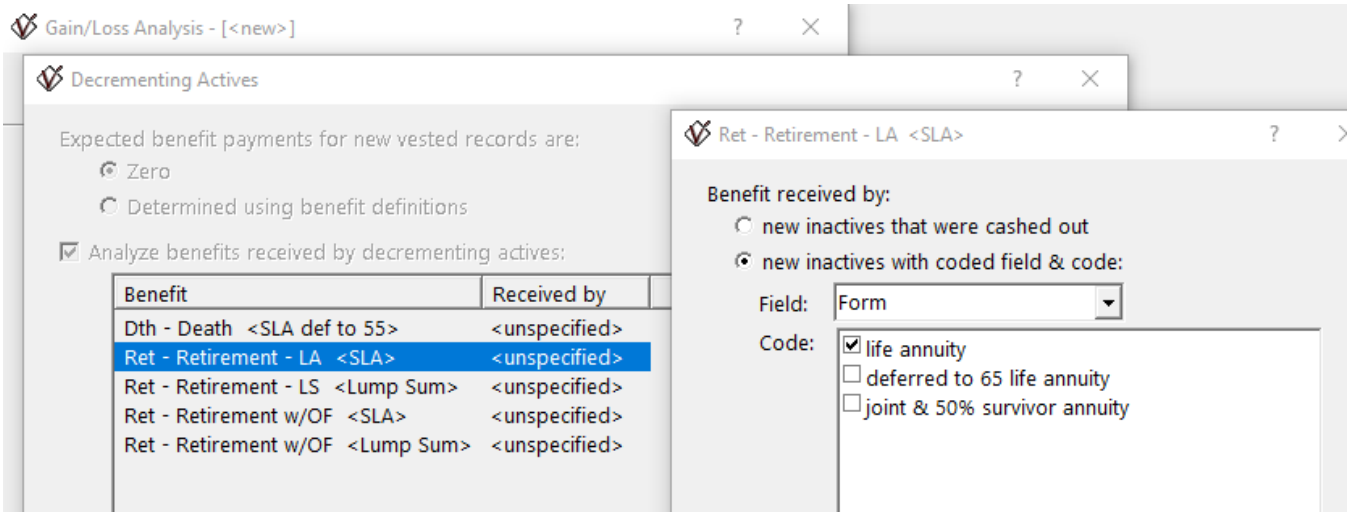
- **Stochastic interest rates**. An additive adjustment may now be applied to the funding interest rates in Public and Canadian modes and to the accounting expected return on assets when derived based on asset mix. Previously, only multiplicative adjustments were permitted.



Gain/Loss Analysis

- **New source for election probabilities**. You can now capture the gain/loss due to the difference between the assumed probability of receipt and the actual benefit received. These assumed probabilities include election probabilities, percent of total decrement for benefits that

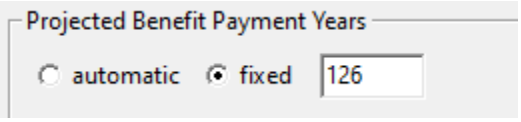
have rates by benefit, and percent married for death benefit payable to married only and OPEB spouse benefits.



- When selecting different valuations to analyze (e.g., for a new valuation year), ProVal now retains the settings for the Non-Participating Status topic, where possible. Previously, the non-participating status information was lost and had to be reset after an end of year valuation was changed.

Output & Reporting

- **Grouping subtotal output.** You can now aggregate multiple subtotals within Valuations or Core Projections.
- **Projected benefit payments.** In Core Projection output, you can now customize the projected benefit payment display to show a fixed number of years rather than cutting off after the last payment, facilitating the setup of spreadsheets based on this output. (This feature already existed for Valuation Output).



- **Exhibits**
  - GASB accounting standard:
    - A new accounting sensitivities exhibit is available in Valuation Sets for the GASB end of period liability that displays the liability sensitivities (baseline, high and low) if available. The liability sensitivity exhibit is also available in Valuation Sets based on the IAS 19 accounting standard.
    - The accounting balance sheet exhibit and accounting expense exhibits display the salary scale used when rolling liabilities forward, if applicable.
    - The accounting balance sheet exhibit now displays the end of period liability split between active and inactive. In a Valuation Set, if the liability is rolled forward to the measurement date, the active and inactive liability roll forward is displayed separately. The roll forward split is also displayed for all other accounting standards when the effective discount rate interest cost method is selected.
  - The Expected Return on Contributions exhibit, previously only available in U.S. Qualified mode, is now available in all modes. It details the accounting expected return on contributions if a schedule of employer contributions is entered in the Asset & Funding Policy.

- The accounting balance sheet exhibit now separately reports assumption changes and experience (gains)/losses. Previously, assumption changes were included with the experience (gains)/losses.
- U.S. Qualified Minimum Required Contribution and Pre-MAP 21 Minimum exhibits now display all three segment rates used in the underlying Valuations, if applicable.

♦ In Valuation or Core Projection output, a new input item is available to display the runs' selection expressions. Selection expressions can also be displayed as a column in the Valuation and Core Projection libraries by clicking the Columns button.

Mortality

♦ ProVal now supports the ERISA 4044 Mortality (dynamic) table.

Performance

♦ **#IF … #THEN expressions** now evaluate much faster, especially when there are #ELSEIF conditions. In one example, a valuation with complicated expressions now runs about 1.1x faster.

♦ **Status reconciliations** now run much faster. In one example with 350,000+ records per database, the tool previously ran in 30 seconds and now takes about 3 seconds.

ProVal PS

♦ The following variables are now automatically available in newly built .pvps files: PBGC Premium, PBGC Premium flat $ portion, PBGC Premium variable $ portion, Service cost, Interest cost, Expected return on assets, (Gain)/Loss amortization, Prior service cost amortization, Fiscal year contribution, and Funding target normal cost.

ProVal API

♦ The ***ImportCSVData*** function now allows a record layout to be read as an optional argument.

System

♦ Extended Error Logging is now available to help WinTech track down hard-to-reproduce issues, typically with the interface. If directed by ProVal support, you can use File > Options > Extended Error Logs to capture logs for specific errors.

Variable Annuity Plans

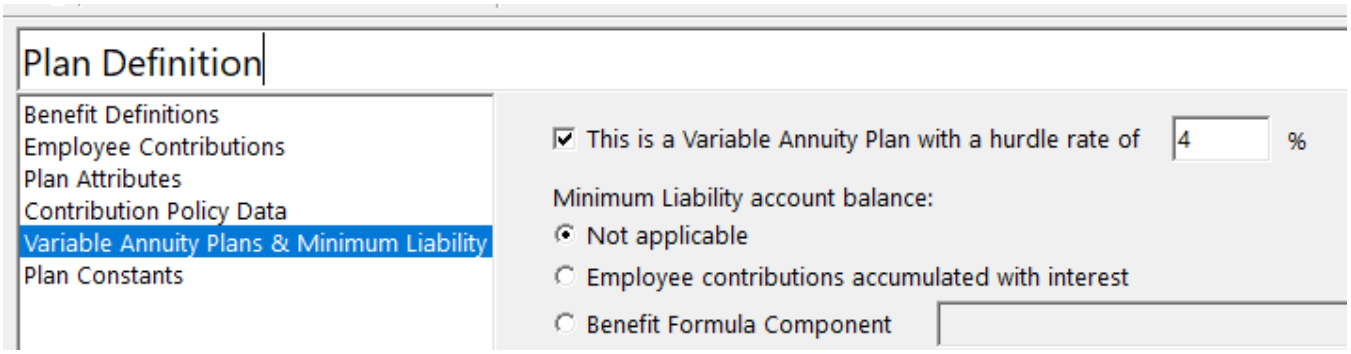
Background

A variable annuity plan is a defined benefit pension plan where benefits change based on the return of the plan's assets. In a variable annuity plan design, the plan establishes a conservative assumed investment return, or hurdle rate. If the plan's investment returns equal the hurdle rate, the plan functions exactly like a traditional DB plan. However, if the plan's investments earn more or less than the hurdle rate in a plan year, all benefits earned in prior years are adjusted up or down by the difference between the actual investment return and the hurdle rate. The result is a plan that is largely interest rate independent.

Previously, variable annuity plans could be valued in ProVal in one of two ways. First, you could set the interest rate to the hurdle rate. This produced an accurate liability but was not usable in a Valuation Set or Forecast, especially if combined with liabilities valued at the plan's valuation interest rate. Second, you could use increase and crediting rates and COLAs to account for the difference between the valuation interest rate and the hurdle rate. This was problematic since the adjustments were interest rate independent. Therefore, a new run was required for each set of interest rates.

Enhancement

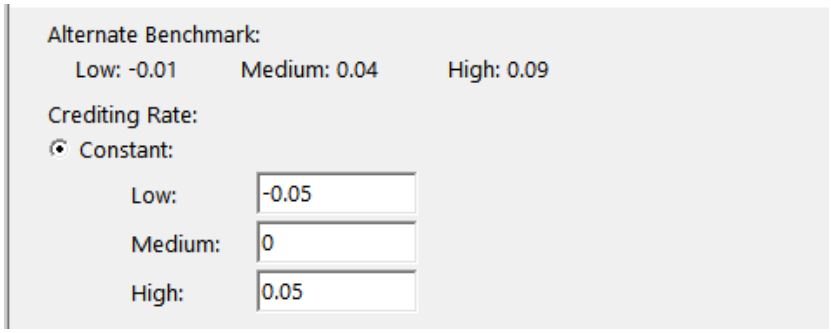
ProVal 3.16 adds a new Plan Definition option to U.S. Qualified and Universal modes to specify if the plan is a variable annuity plan. In the Plan Definition > Variable Annuity Plans & Minimum Liability topic, check "This is a Variable Annuity Plan with a hurdle rate of x%" and enter the hurdle rate.



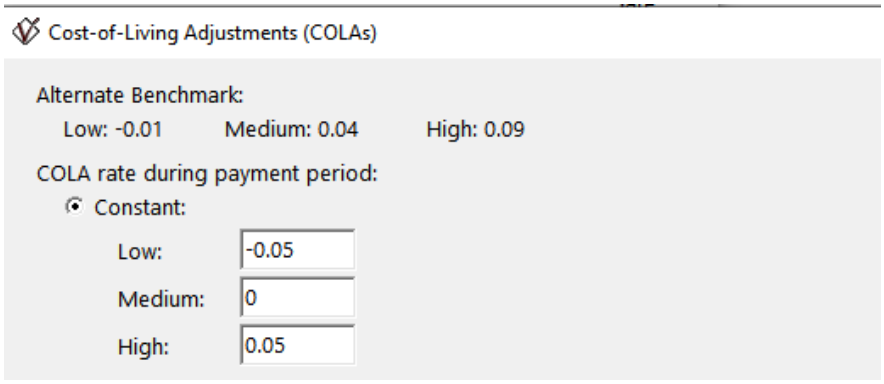
The valuation assumptions should still contain all applicable valuation interest rates. ProVal will value all liabilities using the hurdle rate but will use the valuation interest rates when calculating funding and expense results in a Valuation Set or Forecast.

Forecasting

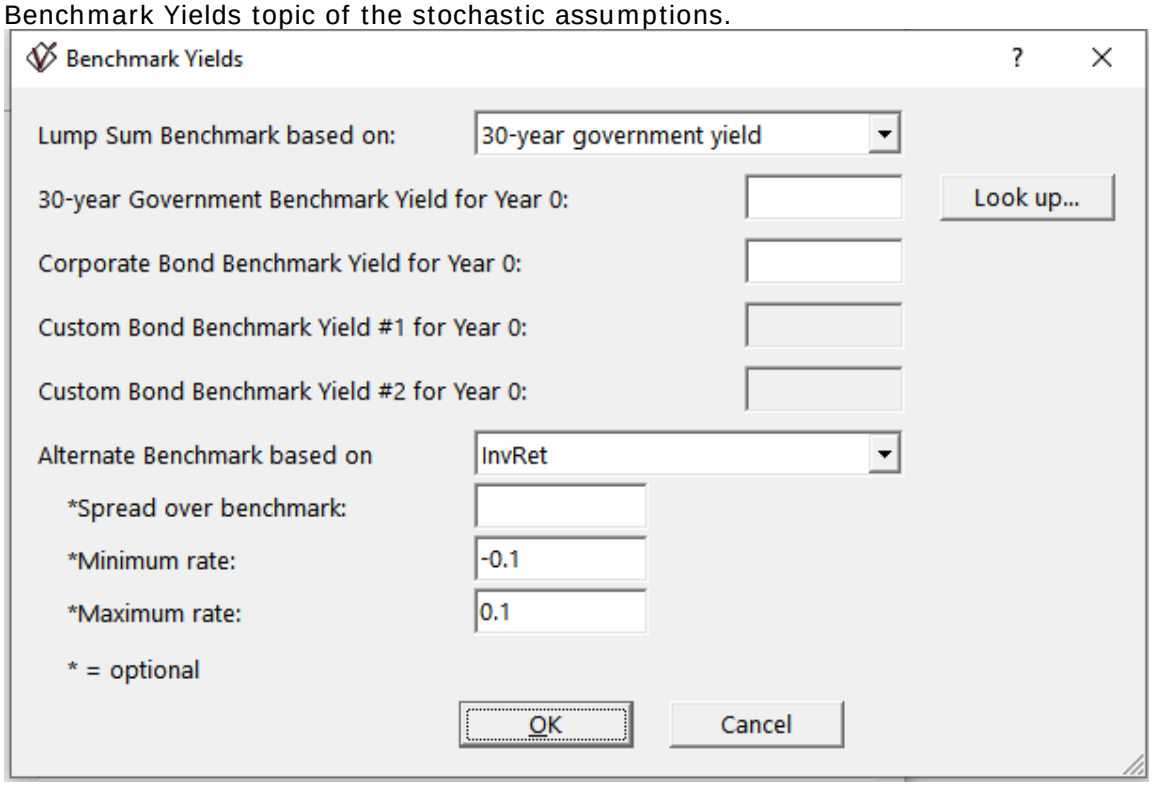
To reflect actual investment return for active benefits, vary the experience increase & crediting rate on the benefit with the alternate benchmark in projection assumptions. Set the medium alternate benchmark to the hurdle rate and the medium increase & crediting rate to 0%. We suggest varying the low and high inputs +/-5% from the medium inputs.



To reflect actual investment return for inactive and active post-decrement benefits, vary the experience COLA with the alternate benchmark in projection assumptions. Set the medium alternate benchmark to the hurdle rate and the medium COLA rate to 0%. We suggest varying the low and high inputs +/-5% from the medium inputs.



In a stochastic forecast, a maximum annual increase or decrease can be reflected in the Benchmark Yields topic of the stochastic assumptions.



Pension Equity Plans

ProVal 3.16 adds a new benefit formula component type called "Accrual - Pension Equity." The accrued benefit of a pension equity plan can be expressed as a basis x (sum of rates) / annuity factor.

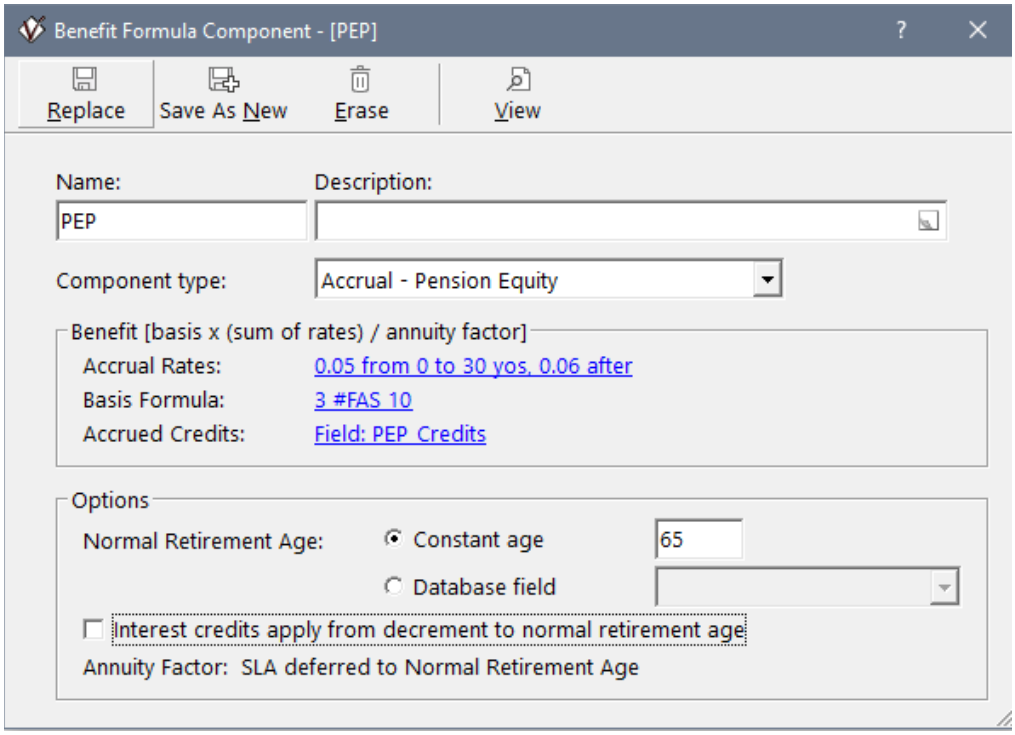
Previously, pension equity plans were coded as a basis only accrual definition x a career average accrual definition / lump sum factor. This set-up produced the correct accrued benefit and liability but required a workaround to produce an accurate normal cost. This workaround had additional drawbacks since the lump sum factor tables were hard coded. This meant annually updating the plan definition as interest and mortality varied and imprecision in a forecast.

The new “Accrual – Pension Equity” component is a straightforward set-up that eliminates all previous drawbacks.

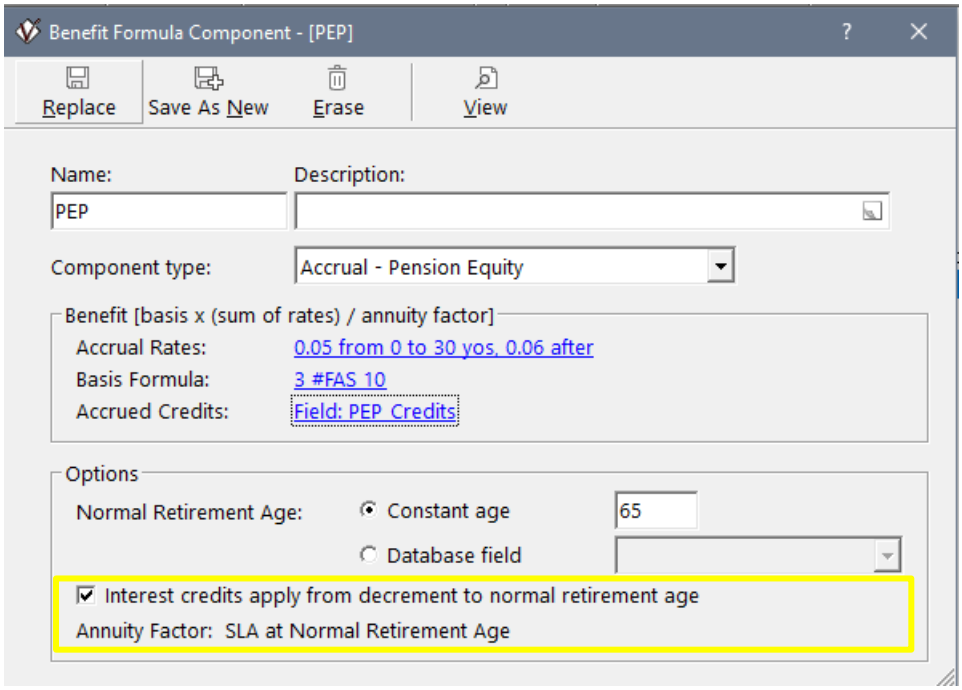
The pension equity component calculates the accrued benefit at normal retirement age (NRA) as an annuity that is the actuarial equivalent of (Total pay credits) x (Final average earnings). The Accrual Rates, Basis Formula, and Accrued Credits screens are parallel to other accrual definitions.

Normal retirement age can be specified as a constant value or read from a database field. The interest and mortality used to calculate the annuity factor will be defined in Valuation Assumptions > Conversion Factors, just like lump sum factors.

For an implicit interest pension equity plan, leave the box “Interest credits apply from decrement to normal retirement age” unchecked to divide the basis x (sum or rates) by a life annuity deferred to normal retirement age.



For an explicit interest pension equity plan, check the box “Interest credits apply from decrement to normal retirement age” to multiply the basis x (sum of rates) by interest from decrement to normal retirement age and then divide by a life annuity factor at normal retirement age.



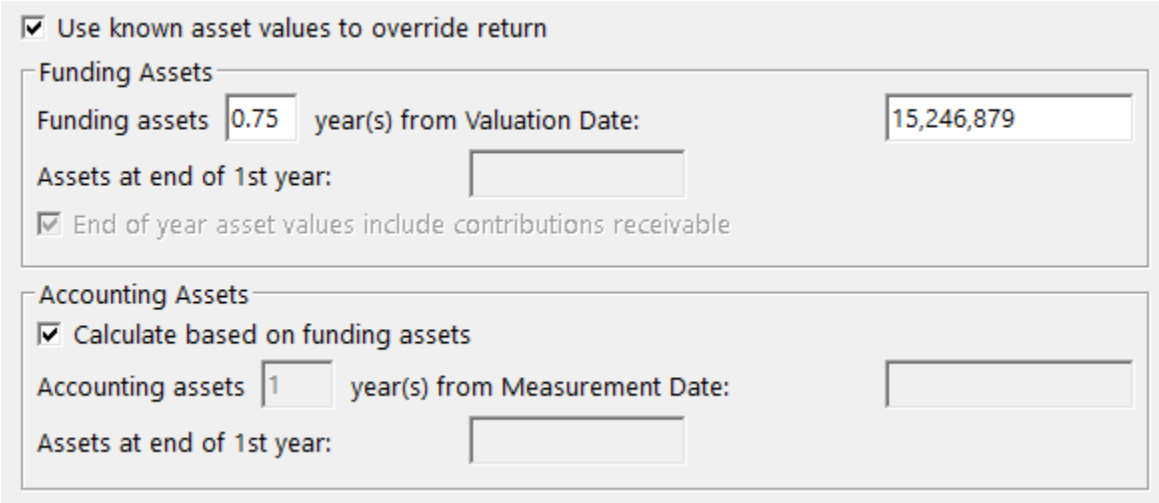
The interest crediting rate assumption, to be applied after decrement until commencement, is defined in the Valuation Assumptions > Increase and Crediting Rates.

Known Asset Value Overrides

In Version 3.15, Deterministic and Stochastic Assumptions allowed you to enter a known asset value at the end of the first valuation and measurement year. This allowed you to reflect actual experience, rather than an assumed return, when the experience for the year was already known.

In Version 3.16, this functionality has been enhanced to reflect a known asset value at any point during the first two years. If partial year assets are entered, ProVal will do a fractional year projection, based on the assumptions, to get assets at the end of year. Additionally, there is a new option to calculate accounting assets based on funding assets, providing for streamlined inputs where only a single known asset value is required.

Here is an example, with a January 1st valuation date (for funding), a January 1st measurement date (for accounting), and an October 1st interim asset value is known.



Comments on ProVal's calculations:

- Inputs are entered as durations instead of dates because ProVal's Deterministic and Stochastic assumptions can be used with any valuation or measurement date.
    - ProVal uses the #YEARDIF operator to convert between fractions and dates. The expression 10/1/2020 #YEARDIF 1/1/2020 which yields 0.7486338798 is the precise fraction ProVal assumes between those two dates.

- If you select the option to calculate accounting assets based on funding assets, the known asset value will be used to generate both funding and accounting asset values by projecting the known value to both the end of the valuation and measurement years.

- If asset values are entered as of the end of the first or second valuation year (duration of exactly 1 or 2 years)
    - the asset values can either include or exclude contributions receivable. If excluded, ProVal will calculate the contributions receivable based on the asset & funding policy inputs and add it to the entered known asset values for funding purposes.
    - ProVal will back into the rate of return that produces the known end of period asset value.

- If partial year asset values are entered
    - ProVal will do a fractional year projection. Aside from known contributions (assuming a contribution schedule is reflected), ProVal will ratio the annual cash flows (such as benefit payments) based on the fractional period remaining.

    - The Market Asset exhibits will display the known asset value as the initial asset value. Then, a fractional year's cashflow will be displayed to develop the end of year market value.

- If the known asset value is during the second valuation or measurement year, ProVal will require the asset value at the end of the first valuation and measurement year to be input, to generate funding and accounting results for the first forecast year.

- End of year additional contributions are not calculated for the first year when a duration greater than 1 is entered.