What's New!

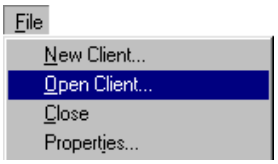
ProVal

ProVal version 2.16 **June 2000**

ProVal version 2.16 introduces several new features including generational mortality and the individual aggregate cost method. You'll find details about these and other new enhancements to ProVal below.

General

- The File menu now uses the familiar Windows convention, "New, Open, Close", for client files



- Drop-down list boxes now expand when they're open to show long names.

- ProVal "accounts" have been renamed "projects" to better describe their intended use.

Database

- Comments are now allowed in expressions. They're started by a semicolon (;) and extend to the end of the line. If a line ends with an ampersand, the ; belongs after the &. For example:

```
; The EntryDate is found by advancing the HireDate to the next
; half-year mark (either 1/1 or 7/1) and adding 1 year.  However,
; if the HireDate is 1/1 or 7/1, don't advance to the next half-year
; mark; just add 1 year.

h:=HireDate-1 &           ; back up 1 day to avoid advancing 1/1 to 7/1
y:=#YEAR h &              ; year of hire (e.g., 1985)
by:=1/1/1900 #DATEPLUS ((y-1900)*1y) &
                          ; ^ hire year as a date (e.g., 1/1/1985)
m:=#MONTH h &             ; hire month (e.g., 4)
by #DATEPLUS {            ; begin of hire year
  [1y6m * (m<7) ] +       ; plus 1.5 yrs if hired before or on 7/1
  [2y   * (m>=7)]   }     ; or plus 2 years if hired after 7/1
```

- A new #MONTHROUND operator rounds dates up or down to the start of a period (12=annual, 6=semi-annual, 3=quarter, 1=month). For example, using #MONTHROUND the expression above can be simplified to read:

```
6 #MONTHROUND (HireDate #DATEPLUS 1y)
; 1/1 or 7/1 following 1 year of service
```

- Expression lines can be as long as you like; ProVal no longer forces line wrapping. Instead, press Enter to start a new line.
- When searching for a value in Spreadsheet Edit, the cursor now jumps to the cell containing the search value.

Census Specifications

- Data defaults are now defined using expressions (with optional selection expressions) instead of constant values.
- Data defaults can now be defined for absent fields, i.e., fields that are not in the database. This creates a "temporary definition" just for the valuation or core without cluttering the database with valuation-only fields. For example, you might create a special service field for purposes of the valuation. Note, however, that these fields will still need to be defined in the data dictionary.

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- Data defaults are now easy to identify in sample lives – the Input Data report marks them with an asterisk (*).

Benefits

- As in database expressions, comments are now allowed in benefit formulas.
- Component names can now be as long as 20 characters.
- Benefit components have been condensed into four types: "accrual definition," "table," "constant," and "database field." In addition, table components can now vary by a coded database field (for example, to choose medical claims tables by division).
- In pension modes, end of period annuity payments (a.k.a. "annuity immediate") can now be chosen under the "Attribs…" button in Plan Definitions.

Valuation & Projection Assumptions

- Generational mortality tables (age-based tables with a projection scale) can now be created in the mortality rates library. To help you get started, the "UP-1994 Table with Projection Scale AA" has been added to the default mortality tables that appear when creating a new ProVal client. For details about Generational Mortality, see the article on page 5.
- Salary merit scale tables can now vary by calendar year or coded field.

Valuations and Core Projections

- The Individual Aggregate cost method is now available in valuation sets. Assets are allocated according to the method specified in your valuation assumptions. For details about Individual Aggregate, see the article on page 4.
- Historical Canadian Year's Maximum Pensionable Earnings (YMPE) has been added to ProVal's regulatory data along with two new accrual basis operators: #YMPE and #AVGYMPE.
- Expected benefit payment calculations are now uniformly cash payments. Previously, valuations and core projections provided the present value of expected benefit payments for actives, and valuation sets and forecasts converted these amounts to cash using a mid-year payment assumption. Inactive expected benefit payments are unchanged and continue to be the cash payments.
- Core projections with valuation COLAs now include the valuation COLA in the projected liabilities for emerging inactives, so emerging inactives are now treated the same as initial inactives throughout the system.

Valuation Sets

- A schedule of contributions can now include both current and prior year contributions. Prior year contributions paid after the beginning of the plan year may reduce the credit balance available for quarterly contributions.
- If a schedule of contributions is entered, ProVal will now reflect actual contribution dates (for both current and prior year contributions) in the determination of the accounting expected return on assets.
- When in a surplus position, a new option allows the contribution policy of "normal cost plus supplemental cost" to revert to normal cost only until there is a non-zero unfunded liability again.
- In an Asset & Funding Policy, an override amount can now be specified for current liability and accounting expected benefit payments. This gives more control over full funding limit calculations and FAS, CICA, and IAS roll-forward and expense calculations.
- CICA 3461 terminology has replaced Proposed CICA 3460 throughout ProVal. In addition, the methodology for calculating expected future service accruals for the maximum balance sheet asset for both 3460 and 3461 has been changed to the traditional approach of converting the service cost to a perpetuity. A new discount rate parameter has been added to specify the desired perpetuity rate.
- A new Asset & Funding Policy parameter has been added for Canadian SMEP plans exempt from maximum tax deduction limits.
- Several new timing options have been added for calculation of the funding period in ProVal's public plan mode.

Stochastic Forecasts

- The RPA '94 current liability rate is now available by trial during a U.S. qualified mode stochastic forecast. Similarly, the solvency rate is available in Canadian Registered plan mode.

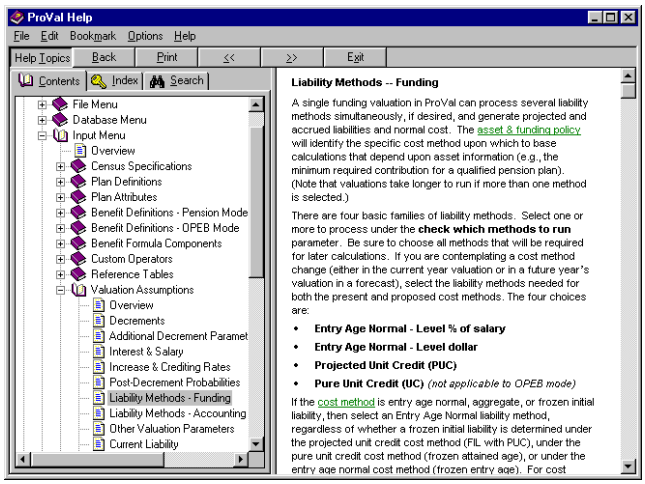
- The Capital Market Simulation view now displays the simulated correlations for real and nominal returns. The calculated term premium parameter is also displayed for multi-factor term structure simulators.
- COLA and active plan amendment parameters can now vary by calendar year if desired.
- Asset mix returns can now be calculated on an arithmetic basis rather than a geometric basis. ProVal's traditional geometric basis can be thought of as approximating continuous re-balancing while the arithmetic basis is more in line with annual rebalancing. The arithmetic basis will produce higher returns. The geometric approach, however, produces compound real and nominal portfolio returns that are consistent with ProVal's efficient frontier expected returns.

A portfolio of:
50% bonds: 7% expected return
\+ 50% stocks: 11% expected return

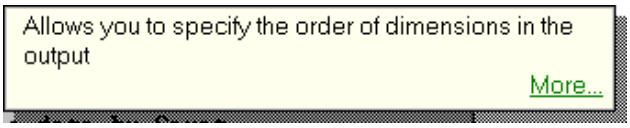
= 9% arithmetic approach return:
(.07*.5) + (.11*.5)
= 8.98165% geometric approach return:
[(1.07^.5) + (1.11^.5)]-1

Help

- Help now displays the contents and help topics side-by-side for easier navigation.

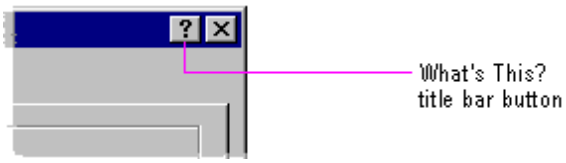


- You can now access Commend Reference help by pressing F1 (exception: when in an expression, pressing F1 displays expression help instead of command reference help).
- Context-sensitive or What's This help is now complete and answers questions such as "What is this?" and "Why would I use it?".



A 'More...' link takes you directly to the command reference topic to see a longer discussion.

You can access context-sensitive help by clicking the What's This? title bar button on dialog boxes or by pressing Shift+F1.



- Command Reference help has been added for gain/loss analysis, experience studies, and capital market simulations. Also, we've added several new FAQs and Technical Reference articles.

Changes Log

- Be sure to read the changes log (see What's New in Help or the CHANGES.LOG file in the ProVal directory) about updates to certain calculations which change results.

WinTech's Virtual Back Office!

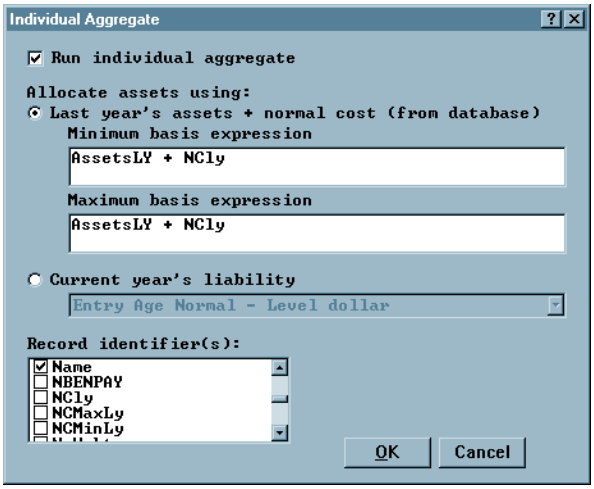
A little-publicized service offered by WinTech to our clients is a kind of virtual back office. Need help bringing up new clients, converting cases or just help during the busy season? Why not call upon WinTech's experienced actuaries to fill in?

Contact Debbie Benner at (203) 661-0275 for details or to request a quote.

Individual Aggregate

ProVal now has the facility to make calculations under the individual aggregate cost method on either a level dollar or a level percent basis. Using this method will typically involve three steps:

1.) In your Valuation Assumptions, turn on Individual Aggregate and specify the basis for the initial asset allocation. These parameters are found by pushing the Individual Aggregate button on the Liability Methods screen.

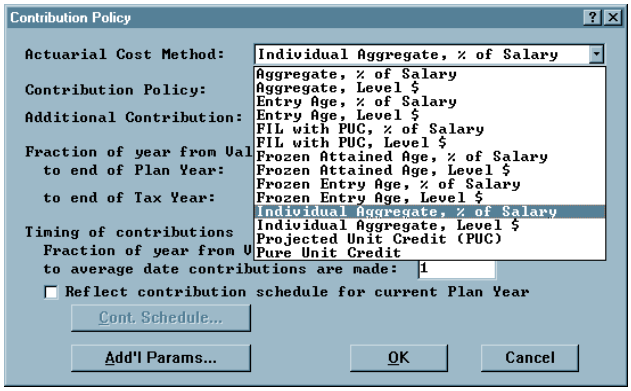


The initial asset allocation for each participant will typically be the sum of the prior year's assets and normal cost, which will be one or more database fields on the valuation database. Provision is made for maximum and minimum assets that differ due to a Credit Balance, etc.

In the first year the method is used for a plan it will be necessary to specify an initial asset allocation basis. ProVal provides for any one of the individual method liabilities or the total present value of future benefits to be used for this purpose.

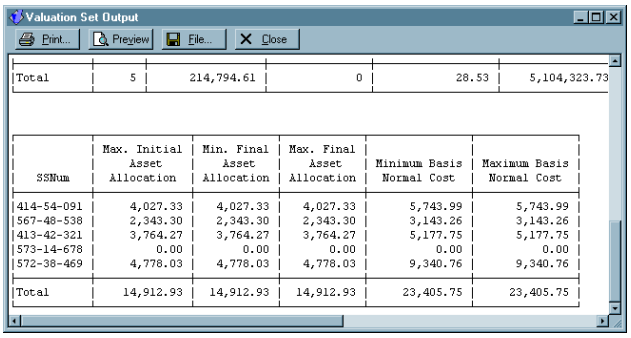
Once you have run the valuation, a display of these by-participant inputs to the individual aggregate cost method is available under the View button.

2.) In your Asset & Funding Policy, specify the Individual Aggregate, % of Salary or the Individual Aggregate, Level $ Actuarial Cost Method under the Contribution Policy topic.



ProVal will initially allocate net active assets (all inactives are assumed to have assets equal to their PVFB) in proportion to the valuation asset allocation basis. However, the final asset allocation may differ if necessary to avoid negative normal costs.

Once you have run the Valuation Set, a display of the initial and final individual aggregate results is available under the View button. In addition, a detailed calculation of the minimum and maximum basis normal cost for each participant under each Valuation Set Event is available under Valuation Set Exhibits.



3.) Merge the final Individual Aggregate allocated assets and normal cost values into the next year's database using the new Merge Individual Aggregate command under the Database | Import / Export Data menu.

Generational Mortality

Generational mortality tables (mortality tables with a projection scale) have three types of values:

base year = reference year for projecting mortality rates, e.g., 1994

$q_x^{\text{base year}}$ = mortality rate for a person age x in the base year

PS_x = annual improvement factor in the mortality rate for age x

For example, the male values of the UP-1994 table (base year is 1994) between ages 65 and 75 are:

Age	**Base Rates**	**Projection Scale**
(x)	(q_x^{1994})	(PS_x)
65	0.015629	0.014
66	0.017462	0.013
67	0.019391	0.013
68	0.021354	0.014
69	0.023364	0.014
70	0.025516	0.015
71	0.027905	0.015
72	0.030625	0.015
73	0.033549	0.015
74	0.036614	0.015
75	0.040012	0.014

To produce the mortality rate for a person age *x* in year *base year+n*, the following formula is used:

$$q_x^{\text{base year}+n} = q_x^{\text{base year}} \cdot (1 - PS_x)^n$$

Note that n will be negative for years prior to the base year.

For example, the UP-1994 mortality rate for a male age 65 in year 2000 is:

$$\begin{aligned} q_{65}^{2000} &= q_{65}^{1994} \cdot (1 - PS_{65})^6 \\ &= 0.015629 \cdot (1 - 0.014)^6 \\ &= 0.014361 \end{aligned}$$

The ProVal Team is Growing!

You may have heard new voices recently on the support help line. Jeanette Scott and John Meehan have joined our ProVal team in the past few months. Jeanette will be answering your support calls, running training sessions, and helping enhance ProVal. John is an actuarial programmer who will be helping enhance ProVal.

WinTech

500 West Putnam Avenue
Greenwich, CT 06830

tel: (203) 661-0275
fax: (203) 661-0659
email: support@winklevoss.com
website: www.winklevoss.com