# What's New in version 3.14 — February 2020

ProAdmin version 3.14 introduces plan constants, actuarial equivalence (AEQ) by benefit definition, retroactive payments, 417(e) early retirement adjustment for minimum AEQ, salary projection overrides, switching repository files in ProAdmin Server and many other features listed below.

## Interface

♦ **Plan constants.** Plan constants, specified by coded field, can be referenced in various locations such as Eligibility Definitions and accrual rates. The result is equivalent to specifying those parameters by coded field. This design reduces the complexity associated with coding plans that have many groups and allows the user to easily see all of the key provisions applicable to a group in one place.

For more see Plan Constants on page 15.

♦ **Shortcut menu structure.** The shortcut menu structure has changed to group things more logically around benefit calculation setup and processing.
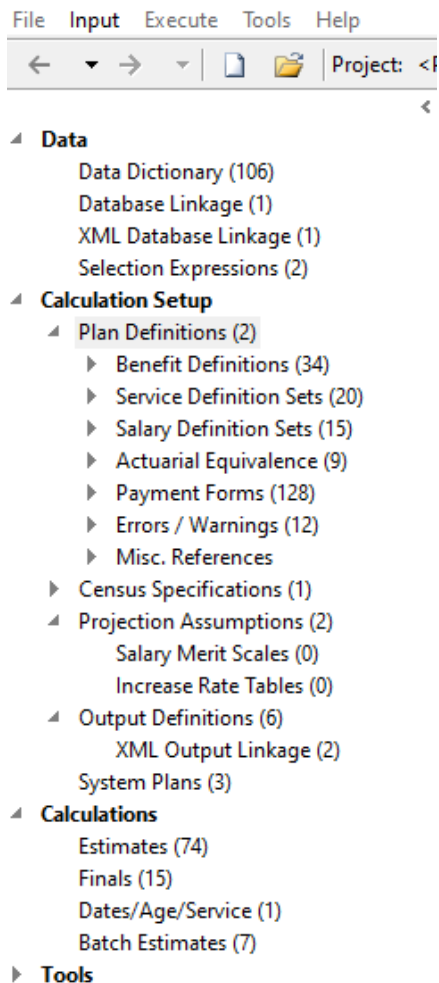
♦ **Data Review tool tips.** Tool Tips are now available on the Data Review dialog box. When you mouse over any field the description for that field, as defined in the Data Dictionary, is displayed.

♦ The Numeric Rounding library has been renamed to Service Rounding.

## Plan Definitions

♦ Benefit Definitions can now be compared from within a Plan Definition by selecting two or more Benefit Definitions from the list and clicking on the Compare button.
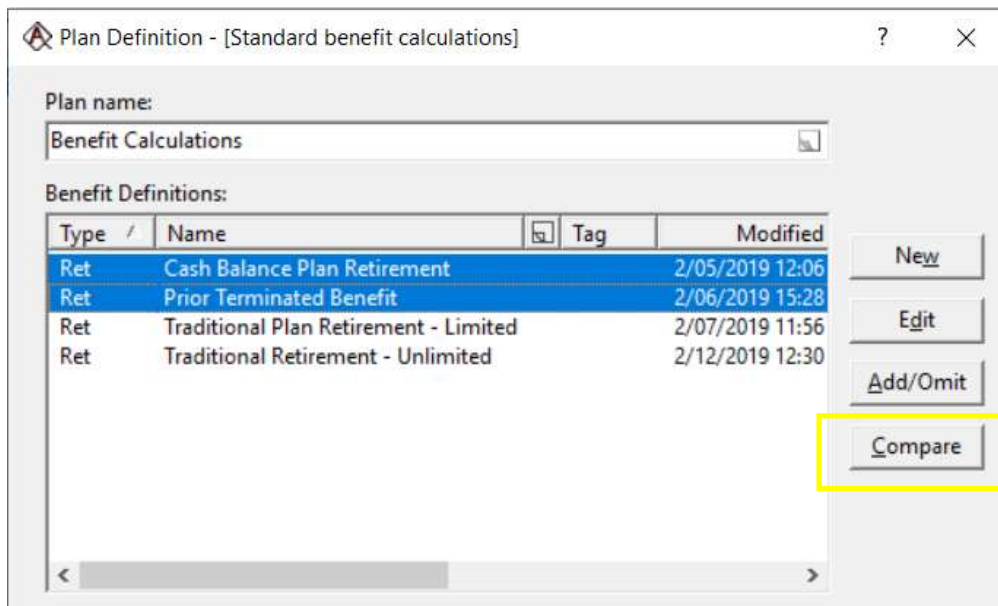


♦ **Actuarial Equivalence by Benefit Definition**. You can now alter the plan's actuarial equivalence by Benefit Definition. This allows more flexibility when setting up plans, particularly those that have experienced mergers and acquisitions. For example, some prior frozen plan benefits may have their own actuarial equivalence basis. In another case, if you have a small benefit cash out that is based on the 417(e) requirements but the plan's normal conversion basis is UP-1984 at 6%, you can now use this new feature under the Plan Attributes as illustrated below.
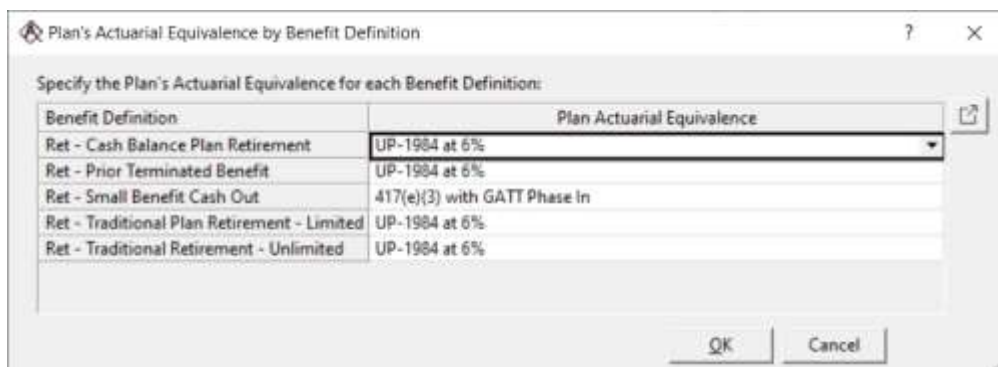
♦ **Calculated Dates**. The calculated dates topic now allows you to assign standard dates that are automatically calculated by ProAdmin to a field. These standard dates are the plan's normal retirement date (as defined under the Plan Attributes topic), the participant's Social Security normal retirement date, and the participant's minimum required distribution date (April 1 of year after age 70.5, if attained by 12/31/2019, otherwise age 72). In addition, any calculated date can be used as an additional commencement date for final, estimated, or both types of calculations.



♦ **Retroactive Payments.** Recognizing the administrative lag between the commencement date(s) at which actuarial equivalence is determined and the later retroactive payment date at which benefit payments actually commence, a new topic for retroactive payments calculates the lump sum of cumulative missed payments to be paid.

For more, see Retroactive Payments on page 12.

## Benefit Formula Components

♦ **Annuity Factors**.  You can now specify static segment-style spot rates for annuity factor components. This avoids having to maintain a dummy table of static rates.



♦ **Capped service can recognize accrual rate changes.**  ProAdmin can now directly handle a retroactive increase in accruals for plans that have a service cap and have been amended to increase the accrual rate. In other words, if a plan recognizes only 30 years of service, ProAdmin can now either evaluate that service as it is earned ("forward from hire") or

retroactively such that the accrual rate for the last 30 years worked is reflected rather than that applicable to the first 30 years worked.
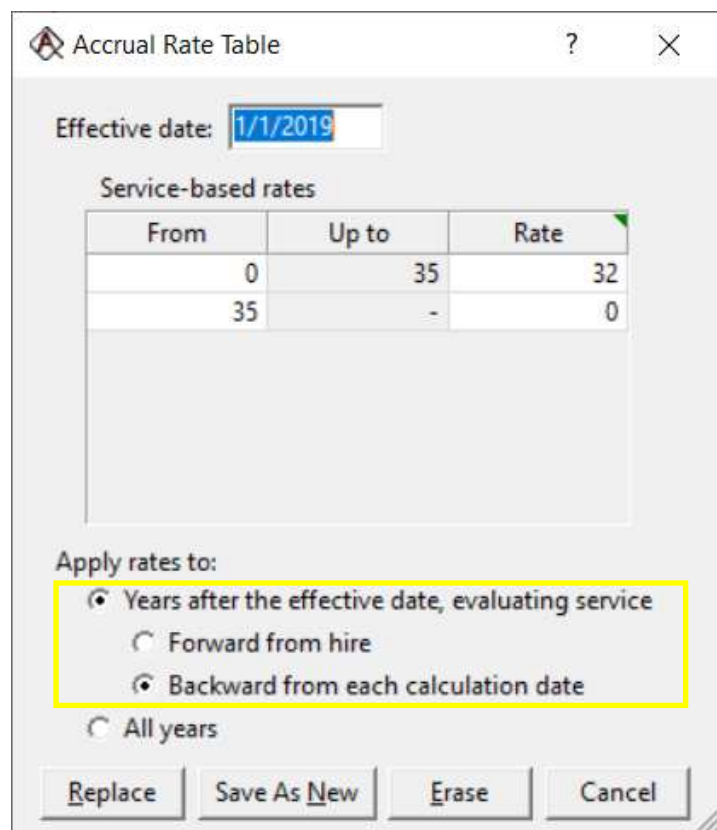


♦ A covered compensation custom operator can now reference a database field to specify the freeze date.

## Expressions

♦ **#MPSUM/#MPNET/#MPMUL.** The left argument to these measurement period operators used to manipulate arrays can now be an array of non-decreasing dates, created by assignment, with a date for each value in the right argument field. When this new left argument type is used, all values with the same date are considered to be in the same measurement period. Additionally, Data Defaults no longer require these operators to be the last line of the formula; therefore, a calculation that previously took multiple data defaults to accomplish can now be defined as a single Data Default expression.

♦ **#START/#STOP/#VALUE**. These expression operators used to create arrays may now use a number as the left argument. When the number is negative, it will return the nth previous row for dates before the current row. When the number is positive, it will return the nth next row for dates after the current row. The left argument is capped at 100. Additionally, these operators are now available in salary and service transformation expressions; therefore, it may be possible to avoid certain data defaults altogether.

♦ **#INARRAY2.** This new operator is similar to #INARRAY except that it returns an array result rather than a scalar. The expression a #INARRAY2 b returns a 1 or 0 for each value in the left argument (a) indicating whether that value is in the right argument (b). By contrast, the expression a #INARRAY b returns 1 if any value in the left argument (a) is in the right argument (b), else 0.

♦ **#BCDATE.** You can now use 99 as the right argument for #BCDATE (returning an array of all commencement dates) throughout ProAdmin: service and salary transformation expressions, benefit formulas and component expressions, Benefit Formula Components, and Accrual Basis Components. This enhancement was driven by the new feature allowing a Calculated Date to be

designated as a commencement date and all benefit commencement dates may not be known when the Data Defaults are evaluated. In Data Defaults, #BCDATE 99 returns a simple array of commencement dates; but, in other locations, a commencement data value (possibly 0) is returned for each calculation date. Additionally, #BCDATE now has two additional available right arguments:  #BCDATE 98 returns the previous commencement date at each point in time and #BCDATE 100 returns the next commencement date at each point in time.

♦ **Character operators.** In Data Defaults, new #CONCAT, #LEFT, #RIGHT, #LEN, #FIND operators have been added to support defining character fields.  For example, separate fields for first and last name can be easily concatenated into one field for output purposes.  These operators are also available in other expressions throughout ProAdmin, where appropriate.

```
Character Operators
_____

a #CONCAT b       combines a and b into one character string
a #LEFT b         returns a characters from the start of string b
  #LEN a          returns the number of characters in string a
a #FIND b         returns the position of string a within string b
a #RIGHT b        returns a characters from the end of string b
```

## Service Definitions

♦ **Alternative Service Calculation.**  You can now specify the calculation method for alternative service calculations for hours and reported units service definitions that use elapsed time as the alternative. Previously only a date adjustment was allowed.
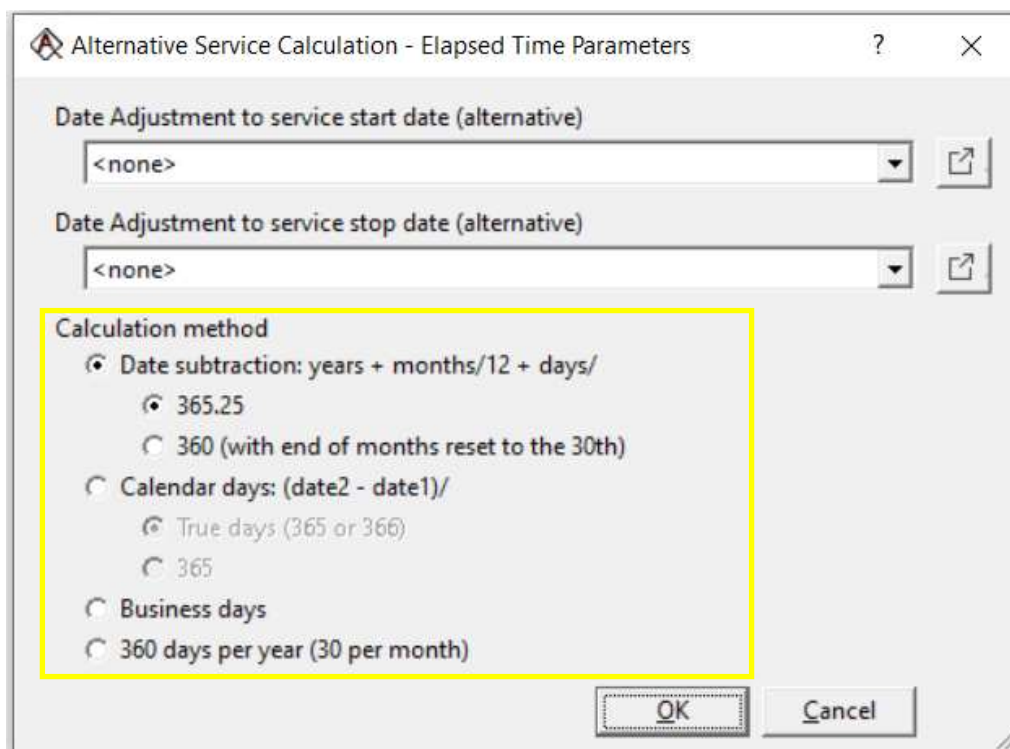
## Payment forms

♦ **417(e) ERF adjustment for minimum actuarial equivalence.** When applying minimum actuarial equivalence, you can now automatically adjust the benefit for a payment form to reflect early retirement based on the 417(e), rather than the plan, assumptions. You can also specify up to three (3) actuarial equivalence bases to be compared. These options are used to satisfy the IRS requirements for payment forms with decreasing payments.



For more see 417(e) Minimum Actuarial Equivalence on page 17.

♦ **Static Segment Rates in Actuarial Equivalence.** Actuarial Equivalence will now allow for static rates that are based on segment style rates.

## Projection Assumptions

♦ Certain salary projection parameters can now vary by Salary Definition Set. It is also possible to define these override assumptions simultaneously for multiple Salary Definition Sets.

## Detailed Results

♦ **Easier-to-read tables.** Table rows are now formatted with alternating row colors and cell borders to make it easier to read across rows in detailed results. Additionally, if you hover over a row, the entire row highlights in blue. Furthermore, clicking on a row, or multiple rows, adds a yellow highlight to the row(s) which remains in place while using the scroll bars and is valuable for reviewing wide tables. Click again to remove the highlight.

| Date | Member Age | Benefit Service | Accrual Rate | Accrual Basis | Period Accrual | Interest Rate | Accrual Interest | Balance Interest | Benefit Component |
|---|---|---|---|---|---|---|---|---|---|
| 12/31/2006 | 52y 8m | 21.833333 | 0.015000 | 675.00 | 10.12 | 0.011700 | 0.41 | 38.67 | 3,389.64 |
| 3/31/2007 | 52y 11m | 22.083333 | 0.015000 | 495.88 | 7.44 | 0.012125 | 0.00 | 41.10 | 3,438.18 |
| 6/30/2007 | 53y 2m | 22.333333 | 0.015000 | 211.50 | 3.17 | 0.012125 | 0.09 | 41.60 | 3,483.04 |
| 9/30/2007 | 53y 5m | 22.583333 | 0.015000 | 211.50 | 3.17 | 0.012125 | 0.13 | 42.10 | 3,528.44 |
| 12/31/2007 | 53y 8m | 22.833333 | 0.015000 | 217.50 | 3.26 | 0.012125 | 0.17 | 42.61 | 3,574.48 |
| 3/31/2008 | 53y 11m | 23.083333 | 0.015000 | 518.00 | 7.77 | 0.011925 | 0.00 | 42.63 | 3,624.88 |
| 5/31/2008 | 54y 1m | 23.250000 | 0.010000 | 147.00 | 1.47 | 0.000000 | 0.00 | 0.00 | 3,626.35 |
| 6/01/2008 | 54y 1m | 23.250000 | 0.000000 | 0.00 | 0.00 | 0.000000 | 0.00 | 0.00 | 3,626.35 |
| 6/30/2008 | 54y 2m | 23.250000 | 0.000000 | 0.00 | 0.00 | 0.011925 | 0.09 | 43.13 | 3,669.58 |

♦ **415(b) maximum benefit calculations.** The detailed results for 415(b) maximum benefit calculations now have links to the details of the service and salary calculations used to determine the maximum benefit: participation service, service from hire and the high 3-year salary.

| Member Age | Participation Service | Dollar Maximum | Plan Reduction Factors | Plan Factors Normalized to age 62 | Statutory Adjustment Factors | Final Adjustment Factors* | Participation Fraction | Commencement Age Maximum | Service from Hire | Service Fraction | Highest 3-Yr Salary Ave. (prorated) | Life Annu Maxim |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 43y 6m | 5.250000 | 170,000 | 0.565721 | 0.651729 | 0.308555 | 0.308555 | 0.525000 | 27,538.5 | 0.000000 | 0.100000 | 4,414.78 | 4,414 |
| 44y 6m | 6.250000 | 175,000 | 0.582062 | 0.670554 | 0.326923 | 0.326923 | 0.625000 | 35,757.1 | 0.000000 | 0.100000 | 4,414.78 | 4,414 |
| 45y 6m | 7.250000 | 180,000 | 0.692791 | 0.788844 | 0.346554 | 0.346554 | 0.725000 | 45,225.2 | 23.916700 | 1.000000 | 44,147.82 | 44,147 |
| 46y 3m | 8.000000 | 185,000 | 0.701220 | 0.798442 | 0.362128 | 0.362128 | 0.800000 | 53,594.9 | 24.666700 | 1.000000 | 44,147.82 | 44,147 |
| 46y 6m | 8.000000 | 185,000 | 0.704030 | 0.801642 | 0.367558 | 0.367558 | 0.800000 | 54,398.5 | 24.666700 | 1.000000 | 44,147.82 | 44,147 |
| 47y 6m | 8.000000 | 185,000 | 0.715269 | 0.814439 | 0.390377 | 0.390377 | 0.800000 | 57,775.8 | 24.666700 | 1.000000 | 44,147.82 | 44,147 |
| 48y 0m | 8.000000 | 185,000 | 0.720888 | 0.820838 | 0.402339 | 0.402339 | 0.800000 | 59,546.1 | 24.666700 | 1.000000 | 44,147.82 | 44,147 |
| 48y 6m | 8.000000 | 185,000 | 0.726508 | 0.827236 | 0.414824 | 0.414824 | 0.800000 | 61,393.9 | 24.666700 | 1.000000 | 44,147.82 | 44,147 |
| 49y 6m | 8.000000 | 185,000 | 0.737747 | 0.840034 | 0.441038 | 0.441038 | 0.800000 | 65,273.6 | 24.666700 | 1.000000 | 44,147.82 | 44,147 |
| 50y 6m | 8.000000 | 185,000 | 0.748986 | 0.852831 | 0.469176 | 0.469176 | 0.800000 | 69,438.0 | 24.666700 | 1.000000 | 44,147.82 | 44,147 |

♦ **Style library for printing/saving detailed results.** When printing or saving detailed results, you can now use a saved style to quickly recall which reports are selected. This avoids having to select these manually each time and ensures consistency. After running a sample life, click the File or Print buttons to access the inverted style library.
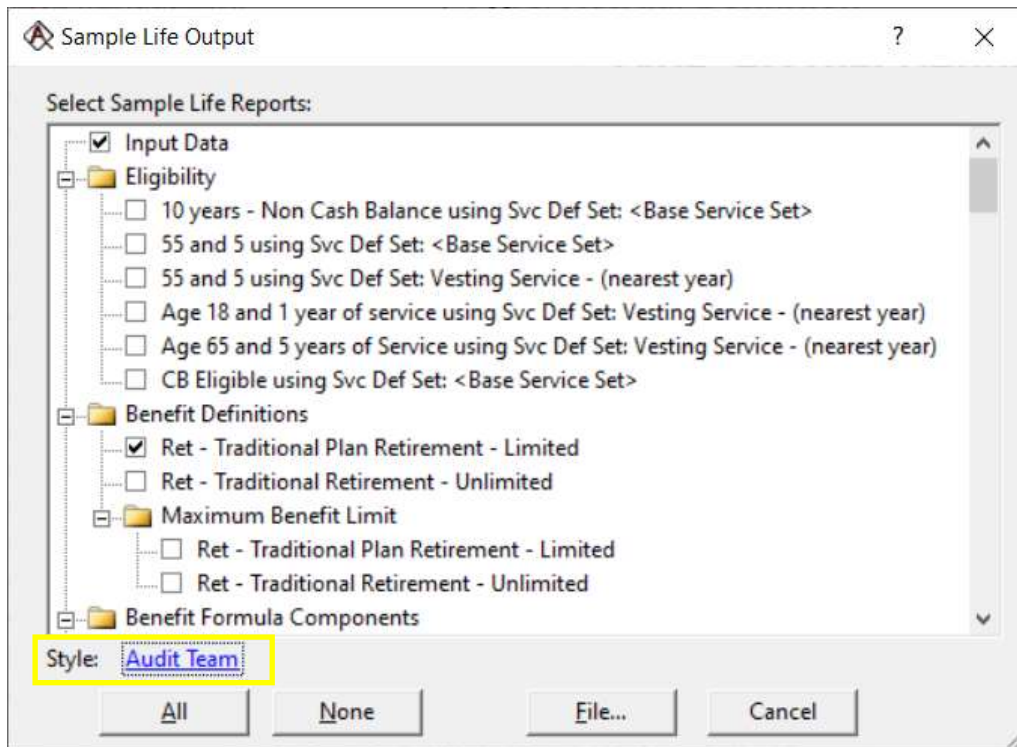


## Output

♦ XSL transformations can now be applied in ProAdmin Server and Desktop when working with Server or Desktop XML type Output Definitions.

For more see XSL Transformations on page 20.

♦ **Standard results.** Social Security normal retirement date and minimum required distribution date (April 1 of year after age 70.5, if attained by 12/31/2019, otherwise age 72) are now available as standard results for all Output Definitions.

♦ **Input Pass Thrus**. If a desktop calculation uses an input XML file, the data in the file will now be used to create input pass thru output using the XML Output Linkage mappings rather than the data in Data Dictionary fields. Previously, you would have gotten a message that no input pass thrus were written to file.

## Batch Estimates

♦ **Standard calculated dates.** Batch estimates that use a selection expression to determine the records to be processed now have the option of using one of ProAdmin's standard calculation dates as the commencement date.



## Fulfillment Tool

♦ You can now select how array data is sorted.  A Sort By Column drop down has been added to the dialog boxes for BFC_Detail, High_Final_Average_Salary_Detail, and InputPassThruArrays.



## Calculation Tester

♦ The calculation tester will now limit the comparison of Audit Report.txt to the calculated values for Benefits, Components, Service, and Payment Forms, ignoring the Input Data, Benefit Expressions and FAS details. This avoids a possible WSFULL processing irrelevant differences.

♦ To assist in searching through the Audit Report sections, headings were added for Input Data, Benefit Expressions and FAS details.

## ProAdmin Server

♦ ProAdmin Server now allows for switching the repository file used when a request is sent.  This allows you to use a single server for different purposes such as user testing and development testing.  To accomplish the repository switch, your request must contain the new element ProAdminRepositoryToken, and this must be the first element after the root element.  When ProAdmin Server finds ProAdminRepositoryToken, it will check within the ProAdmin.ini file and match that name with an entry in the new section [RepositoryTokens].  Use of repository tokens is optional and only required if you wish to switch repositories by request.  The new section looks like this:

[RepositoryTokens]

DefaultRepositoryToken=PAS

; looks to [SERVER] ServerFile for the repository

PAS1=C:\WinTech\ProAdminService\data\Repository\PAS_Repository.SF

PAS2=C:\WinTech\ProAdminService\data\Repository\PAS2_Repository.SF

---

If a request does not contain the token, ProAdmin Server will use the ServerFile specified in the [Server] section.

If a request contains a token and ProAdmin Server does not find a match, the calculation will abort with a message such as:

```
<SYS_ERR_DESC>
    Repository token "PAS11" was not found in the [RepositoryTokens] section of the
    PROADMIN.ini file Engine file: C:\WINTECH\PROADMINSERVICE\PROADMIN_SERVER
    Engine version: 3.14 Sep 9, 2019 Engine update level: September 9, 2019 8:38 AM
    SERVER_FATAL_ERR0R partial failure
</SYS_ERR_DESC>
```

If a request contains a token and ProAdmin Server finds a match, the token will be returned in the comments section of the return XML:

```
<!--  Repository token: PAS1  -->
```

♦ When updating the repository, if a linkage is different than the one currently contained in the repository, the message will show the name of the linkage being updated.
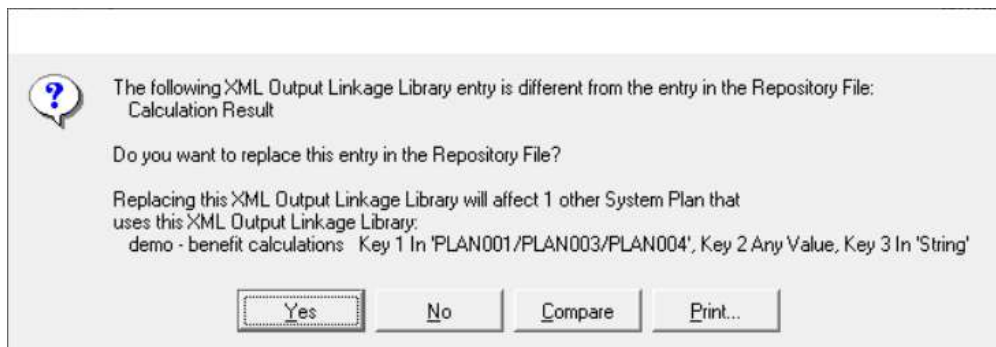


## System

♦ A new grid administration tool details jobs running and allows jobs to be cancelled.

♦ ProAdmin is now more forgiving with intermittent network issues.

♦ ProAdmin patches will now be distributed and automatically installed using InstallShield. This eliminates the need to unzip the new files and resolves conflicts with Window's virtual store.

## Changes Log

♦ Be sure to read the changes log (see the "Changes Log (ProAdmin).doc" file in the ProAdmin directory) about updates to certain calculations that may change results.
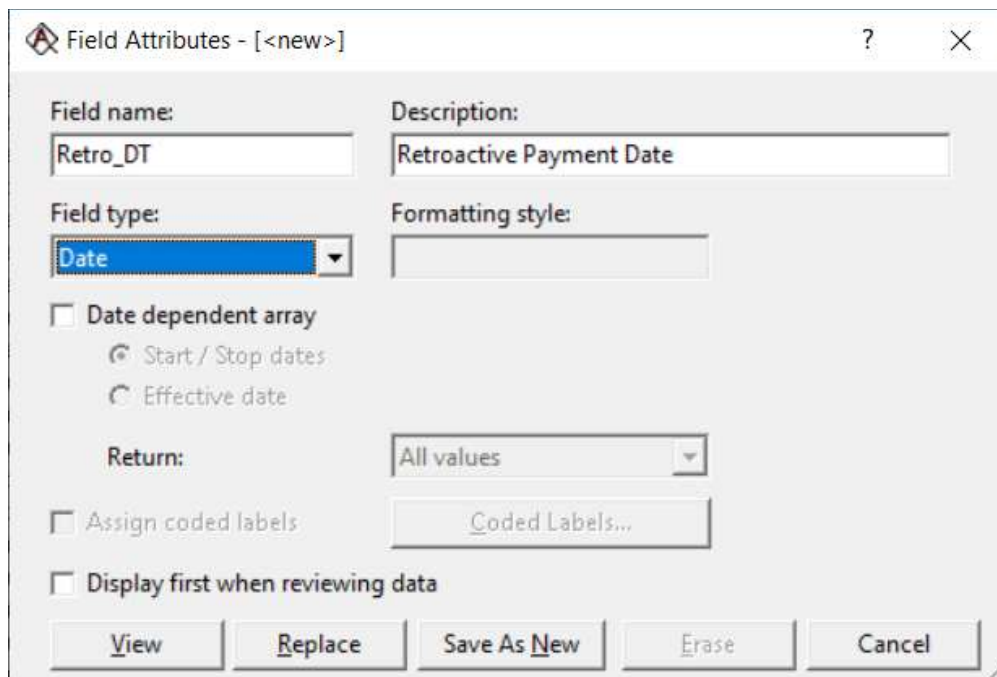
**WinTech**

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Greenwich, CT 06831
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# Retroactive Payments

The Plan Definition library has a new topic, Retroactive Payments. This new feature defines the calculation of catch-up payments when the annuity starting date (i.e., the commencement date) was in the past.

The retroactive payment date is specified by a field in the Data Dictionary. (This field should be populated with a first of the month date.) ProAdmin will calculate the retroactive payment due as of this date as the missed payments since the commencement date(s) including interest as defined. If the date specified is prior to the commencement date, no retroactive payments are calculated.



You can use the Calculated Dates feature or a Data Default to set the retroactive payment date. It must be defined for a calculation to run but will be ignored if it precedes the commencement date, so it can be defaulted to 0 (1/1/1900) or the earliest commencement date, for example, for participants for whom retroactive payments are not applicable.

For our example, we are going to use the data defaults and calculate a date (Retro_DT) that is the first of the month coincident with or following three (3) months from the date the calculations is run: #NEXTBEGMTH (#TODAY #DATEPLUS 3M).



On the Retroactive Payments dialog box we select this Retro_DT field and indicate that the payments should include interest at 3% per annum where the monthly rate is determined arithmetically. This produced a monthly interest rate of 0.03/12 = .0025, or 0.25%.

For any calculations processed where the commencement date is before the retroactive payment date, ProAdmin will calculate the catchup amount and include it in the summary results, the detailed results (including a complete development) and the Output Definition results. If no retroactive payment is calculated but retroactive payments are included in the Plan Definition, the Output Definition results will include a column for retro payments, but it will be blank.

If a non-$0 retroactive payment is calculated, the Summary Results will have a new column in the payment form section that displays the retroactive payment:

```
Monthly payment form values at Commencement Date(s):
  Retroactive payment date:  4/01/2020

  Benefit Definition:  Ret - Traditional Plan Retirement - Limited
                                       Primary Bft    Other Bft    Chg Date    LS Equiv    Retro Pmt
    Commencement date:     9/1/2019
    Attained age:         58y 8m
    Life Annuity . . . . . . . . . . . . . . . . . . .      1,815.62       N/A                      250,360    12,837.07
    10 yr C&L  . . . . . . . . . . . . . . . . . . .      1,732.92       N/A                      246,598    12,252.35
    SS Level Income Option . . . . . . . . . . . .      2,866.83     864.83    1/01/2026    237,994    20,269.49
```

If a non-$0 retroactive payment is calculated, the Detailed Results have a new column in the payment form exhibits showing the amount.

**Payment Form Values**
**Benefit: Ret - Traditional Plan Retirement - Limited**
**Payment form: Life Annuity**

**PersonID: N/A**

| Commence Date | Elig-ible? | Actual Member Age | Form Member Age | Interest Rate | Form Value (a) | Normal Form (b) | Conversion Factor (b)/(a) | Normal Form Benefit | Member Benefit | LSQ Basis Form Value | Lump Sum Equiv | Retro Payment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9/01/2019 | Yes | 58y 8m | 59.000 | 0.070000 | 10.030709 | 10.030709 | 1.000000 | 21,787.48 | 21,787.44 | 11.491046 | 250,360 | 12,837.07 |

And, there is a new exhibit within the Detailed Results that shows the development of the retroactive payment.

## Retroactive Payments
## Benefit: Ret - Traditional Plan Retirement - Limited 📇
## Payment form: Life Annuity 📇

### <Commencement Date: 9/1/2019>

| Date | Member Age | Annual Payment | Annual Interest Rate | Monthly Interest Rate | Monthly Payment | Month's Interest | Cumulative Retroactive Payment |
|---|---|---|---|---|---|---|---|
| 9/01/2019 | 58y 8m | 21,787.44 | 0.030000 | 0.002500 | 1,815.62 | 0.0000 | 1,815.6200 |
| 10/01/2019 | 58y 9m | 21,787.44 | 0.030000 | 0.002500 | 1,815.62 | 4.5391 | 3,635.7791 |
| 11/01/2019 | 58y 10m | 21,787.44 | 0.030000 | 0.002500 | 1,815.62 | 9.0894 | 5,460.4885 |
| 12/01/2019 | 58y 11m | 21,787.44 | 0.030000 | 0.002500 | 1,815.62 | 13.6512 | 7,289.7597 |
| 1/01/2020 | 59y 0m | 21,787.44 | 0.030000 | 0.002500 | 1,815.62 | 18.2244 | 9,123.6041 |
| 2/01/2020 | 59y 1m | 21,787.44 | 0.030000 | 0.002500 | 1,815.62 | 22.8090 | 10,962.0331 |
| 3/01/2020 | 59y 2m | 21,787.44 | 0.030000 | 0.002500 | 1,815.62 | 27.4051 | 12,805.0582 |
| 4/01/2020 | 59y 3m | 21,787.44 | 0.030000 | 0.002500 | 0.00 | 32.0126 | 12,837.0700 |

Retroactive Payment Date        = 4/01/2020

If retroactive payments are defined in the Plan Definition, the Output Definition Results will have a column that shows their value (or blank if n/a for the calculation).

Results which vary by payment form within commencement date:

Payment Forms

| | Primary Bft | Bene Bft | Other Bft | Guar Amt. | Chg Date | Comm Date | Cert End Date | Bene Bft 2 | LS Equiv | Rel Val | NF | Conv Fact | Retro Pmt |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Commencement date: 9/1/2019 | | | | | | | | | | | | | |
| Life Annuity | 1,815.62 | | | | | | | | 250,360.49 | 1 | | 1.0000 | 12,837.07 |
| 10 yr C&L | 1,732.92 | | | | | | 9/01/2029 | | 246,597.62 | 0 | | 0.9544 | 12,252.35 |
| SS Level Income Option | 2,866.83 | | 864.83 | | | 1/01/2026 | | | 237,994.46 | 0 | | | 20,269.49 |

When used with a Desktop (Access) type Output Definition, the new column RetroAmt will be added to the table Results_which_vary_by_Payment_Form_within_Commencement_Date and available from the drop down menus in the Fulfillment Tool. When used with Server or Desktop (XML) type Output Definitions, in order to output the retroactive payments you will need to add the appropriate tag to the XML Output Linkage on the Plan Dependent dialog box.

☑ Post Social Security Level Income        [Tags...]

☑ Lump sum equivalent and relative value        [Tags...]

☑ Retroactive payment

Tag:   [RetroPayment]        [←]

[Replace]   [Save As New]   [Erase]   [Cancel]

# Plan Constants

Plan Constants are names (e.g., @AgeReq) that you can use in place of numbers (e.g., 62) in building your Plan Definition. Plan constants reduce the complexity associated with coding plans that have many tiers of participants.

The Plan Constants library allows you to define Plan Constants. Give each Plan Constant a Name and optionally enter a Description. The name must start with @ and may contain letters, digits, and underscores.
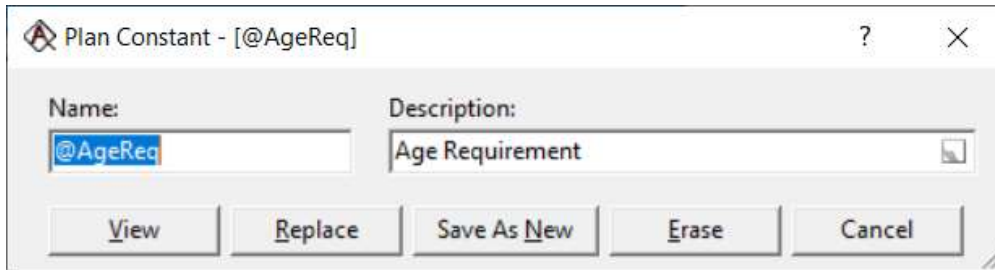


For example, a large public plan may have very similar benefits that vary in small ways such as the benefit multiplier or eligibility age. Additionally, plan constants allow key provisions that apply to a particular tier to be coded and viewed in a central location. For example:
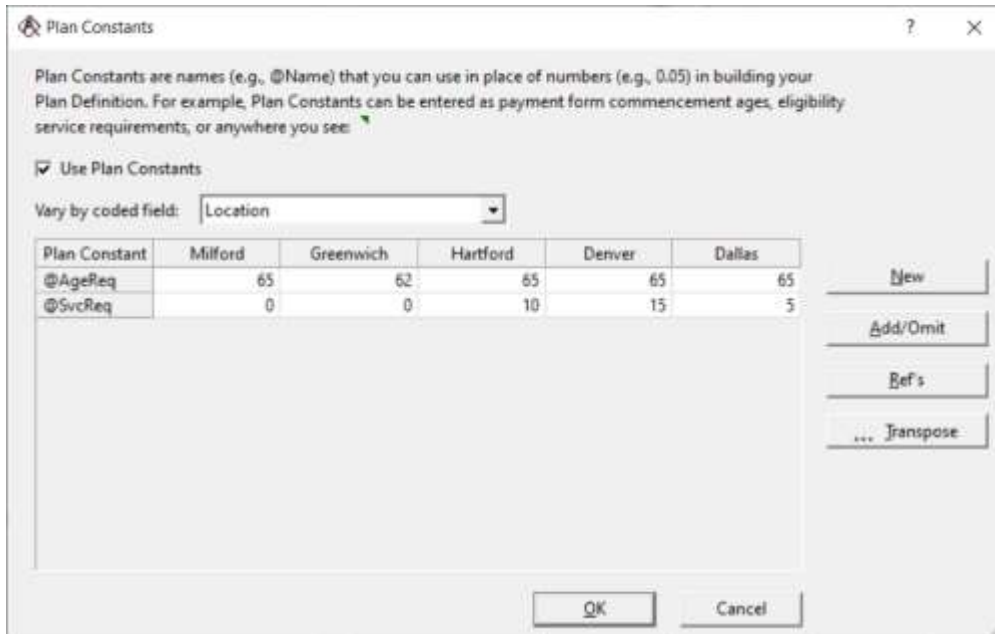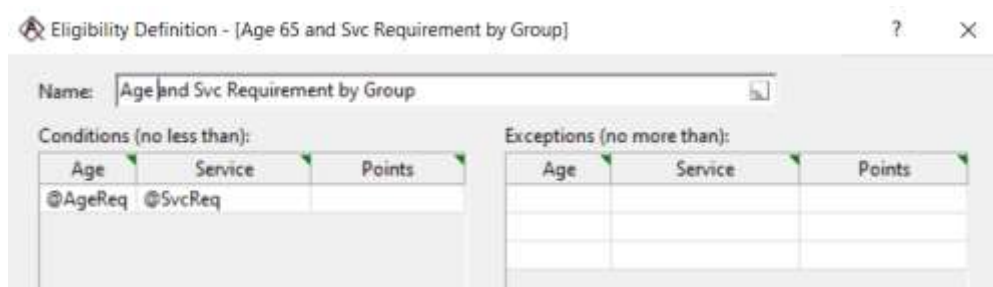


Plan Constant values are assigned in your Plan Definition and vary by coded field as depicted above. The numeric values must adhere to the same rules as where the plan constant was used, e.g., an age between 15 and 99. Usually, this means that Plan Constant values cannot be missing -- with eligibility conditions and exceptions being a special case. You can also create **New** plan constants or **Add/Omit** existing Plan Constants. Any Plan Constants already referenced by the Plan Definition will automatically be added. Click the **Ref's** button to see where Plan Constants are used within the Plan Definition, or **Edit** the places where Plan Constants are used. Click the **Transpose** button to switch the display from codes by plan constants to plan constants by codes, or vice versa.

Plan Constants can be entered anywhere you see ◥ and can be used to specify:
- Benefit definitions > eligibility conditions and exceptions
- Benefit formula components > constant component type > constant values
- Benefit formula components > accrual definition type > constant and variable accrual rates
- Accrual basis components > constant component type > constant values
- Payment form definitions > commencement age and deferral period

Using the plan constants defined above, here is an example defining benefit definition eligibility conditions. Previously, this would have required five different benefit definitions, one for each eligibility age/service requirement.

# 417(e) Minimum Actuarial Equivalence

There are many different interpretations of how to calculate the minimum actuarial equivalence ("AEQ") on the 417(e) basis for decreasing payment forms. ProAdmin has always had the ability to specify an alternative actuarial equivalence assumption, but it now also supports comparisons that reflect the early retirement reductions implicit in the 417(e) actuarial equivalence basis (the "417 ERF").

**Payment Form Parameters**

When you choose to **Apply minimum actuarial equivalence** in calculating most optional, non-lump sum payment forms, there is a now a **Reflect 417(e) early retirement adjustment** checkbox on the *Conversion from Normal Form* dialog box that allows for a more detailed comparison.



For lump sum forms of payment, the new checkbox appears on the *Minimum/Maximum Lump Sum* dialog box and becomes available when you choose to **Apply current law minimum lump sum**.



While technically the 417 ERF concept is only applicable to decreasing payment forms such as certain only annuities, lump sums and social security level income annuities, the new checkbox is available for all optional forms of payment except those which don't support an alternative actuarial

equivalence. These currently excluded payment forms are pop-up annuities and joint & survivor annuities with a certain period that is ignored for the beneficiary.

When you check **Reflect 417(e) early retirement**, the **Params** button becomes available, allowing you to:

- Specify the **Plan early retirement adjustment (ERF) to be divided out of the normal form benefit when 417 ERF is applicable**. The multi-choice field allows you to select the Benefit Formula Component that contains the plan's early retirement adjustment. This value will be divided out of the (normal form) benefit to determine the unreduced normal retirement benefit. This may be a straight table component or a subformula to reflect a more complex determination of the ERF. The ERF may have to be a simplified construct for a complicated plan with multiple ERFs on different pieces of the benefit.

- Choose the desired minimum actuarial equivalence formula by indicating your selection under **Determine the maximum benefit by taking the greater of benefits reflecting:** There are up to three (3) AEQ bases that can be compared, labeled A, B and C on this dialog. You can choose to compare all of the bases or just A and C. Basis A (Plan ERF with Plan AEQ) is always a required part of the calculation. A comparison of just A and B is not included as a choice because that is the result you would get by just applying a minimum AEQ basis without selecting the 417 ERF option: "Plan ERF with Plan AEQ" versus "Plan ERF with 417(e) AEQ".



If you choose to compare **A and C**, you are essentially comparing the Plan early retirement benefit with the 417(e) basis of the Plan normal retirement benefit.

If you choose to compare **A and B and C**, you are comparing the Plan early retirement benefit, the Plan early retirement benefit adjusted at the 417(e) basis, and the Plan normal retirement benefit adjusted at the 417(e) basis.

## Output

For payment forms that use this new feature, the detailed results exhibits will have additional table(s) showing the development of the different bases. Most payment form types show one additional table such as in the example below. Lump sum payment forms with multiple minimums and Joint & survivor social security level income options, being the most complex, show the most detail with up to 4 tables in total for the payment form.

The following shows the development of a 417(e) ERF basis for a ten (10) years certain payment form.

**<417(e) ERF basis>**

| Commence Date | Form Member Age | Min. AEQ Interest Rate | Plan Form Value (a) | Plan Normal Form (b) | Plan conversion factor (b)/(a) (c) | Min. AEQ Form Value (d) | Min. AEQ Normal Form (e) | Min. AEQ Conv. Factor (e)/(d) (f) | Plan ERF (g) | Def to 65 Annuity Min. AEQ basis (h) | Life Annuity Min. AEQ basis (i) | 417(e) ERF (h)/(i) (j) | 417(e) ERF Conversion Factor (f)x(j)/(g) (k) | Conversion Factor Max (c,k) | Normal Form Benefit | Member Benefit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9/01/2019 | 59.000 | 0.034300 | 7.287140 | 10.030709 | 1.376495 | 8.225658 | 14.943973 | 1.816707 | 0.720000 | 9.615929 | 14.943973 | 0.643465 | 1.623594 | 1.623594 | 21,787.48 | 35,374.08 |

| | | |
|---|---|---|
| Plan Actuarial Equiv. (AEQ) | = 1971 GAM @ 7% | |
|   Interest Rate type | = Constant | |
| Normal form | = Life Annuity | |
| Member Sex | = Male | |
| Minimum Actuarial Equivalence | = 417(e)(3) with GATT Phase In | |
|   Mortality | = IRS 2008+ Applicable Mortality Table for 417(e) (dynamic) | |
| | (but uses the current applicable 417(e) mortality rates) | |
|   Interest Rate type | = Spot rates  0 0.0343 | |
| |           5 0.0446 | |
| |         20 0.0488 | |
| |   at 9/1/2019 | |
| Age Definition | = Nearest years | |
| | (same as default plan age) | |
| Factor rounding | = none | |

# XSL Transformations

ProAdmin's new XSL transformation feature allows you to add an XSL stylesheet to your Output Definition that can reformat the XML to copy, add, or move elements to meet your system's requirements.

For example, suppose the client system requires the early retirement factor (ERF) in each payment form within the payment form level. ProAdmin writes out ERFs at the commencement (or decrement) date levels. To copy the ERFs from the commencement level to every payment form within the payment form level, you can now apply an XSL stylesheet to the Output Definition XML results.

Here is a sample XSL stylesheet to copy the ERF to the payment form level:

```xml
<?xml version="1.0"?>
<xsl:stylesheet version="1.0" xmlns:xsl="http://www.w3.org/1999/XSL/Transform">
    <xsl:output method="xml" indent="yes" encoding="UTF-8"/>

    <!-- Copy everything but payment form nodes -->
    <xsl:template match="node()|@*">
        <xsl:copy>
                <xsl:apply-templates select="node()|@*"/>
        </xsl:copy>
    </xsl:template>

    <xsl:template match="PaymentFormData">
        <PaymentFormData>
            <!-- Copy everything inside the PaymentFormData node -->
            <xsl:copy-of select="node()|@*"/>

            <!-- Copy the ERF node after all the other nodes inside the payment form node -->
            <xsl:copy-of select="../ACDComponents/ACDComponent2"/>
        </PaymentFormData>
    </xsl:template>
</xsl:stylesheet>
```

With the **Use an XSL stylesheet to transform XML results:** checkbox on the Output Definition dialog selected, you can use the **XSL stylesheet...** button to **Import** the style sheet to Output Definition.  After selecting the XSL stylesheet, which may have either a .xsl or a .xslt extension, click the **Open** button. When importing the XSL style sheet into ProAdmin, the only test preformed is that the XSL stylesheet is valid XML; no XSL validation is performed. Once a stylesheet has been imported, its name will be displayed at the bottom of the dialog box.
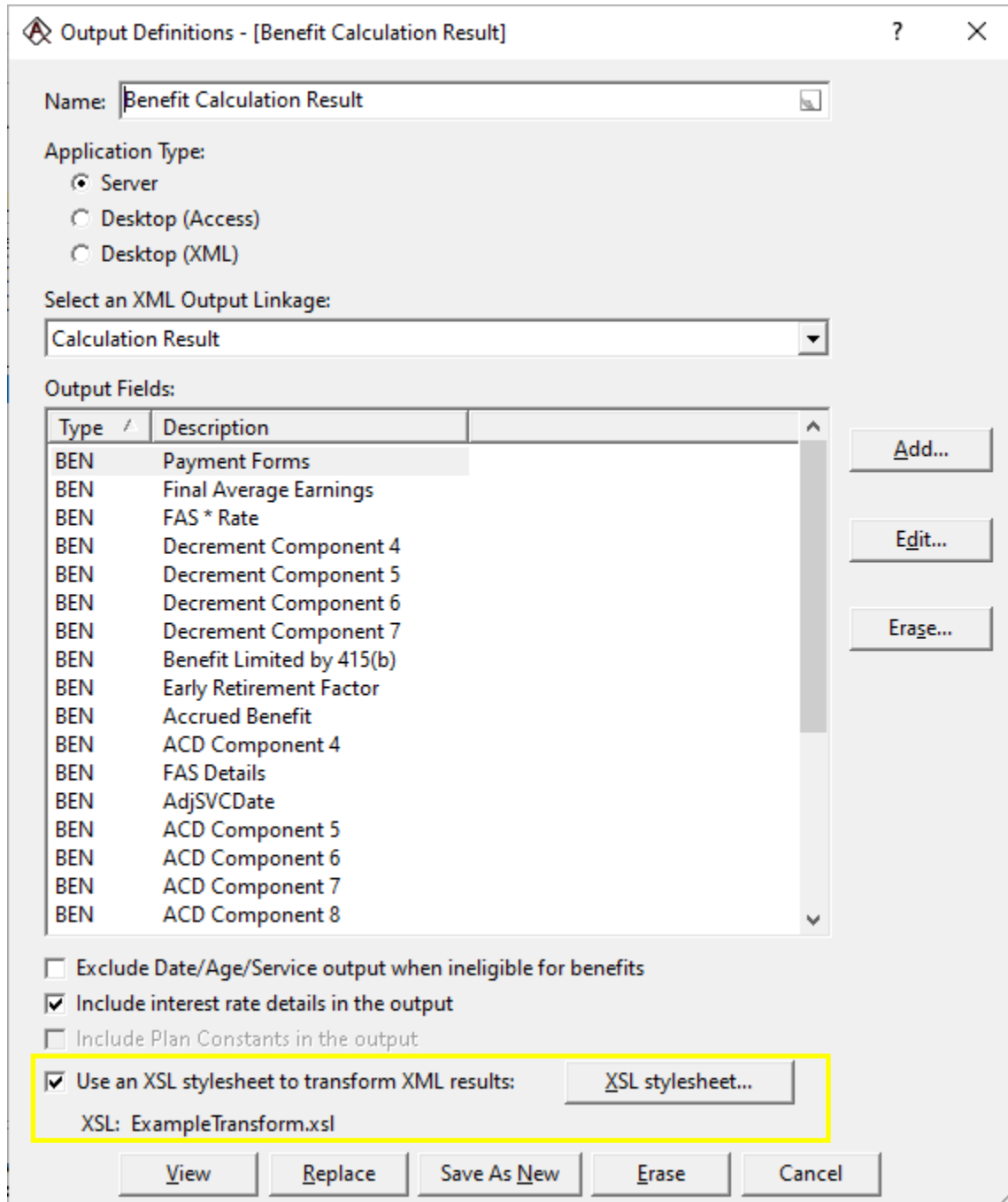
When a calculation is processed referencing the updated Output Definition, ProAdmin Desktop and Server will apply the XSL to transform the XML output after the calculation completes.

In the Output Definition calculation result viewer (for Desktop (XML) or Server application types), among the buttons along the top, there is now a multi-choice field to control the display. You have the option of viewing the XML document that was created originally and, if used, the XML document created by applying the XSL stylesheet.
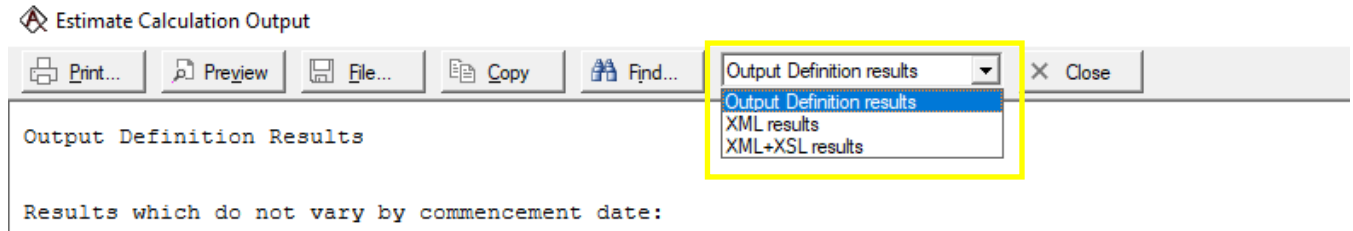


Selecting "XML results", you would see the early retirement factor node in the ACDComponents level of results:

```
<AnnuityCommencementDate>
    <AnnuityCmnctDate>2022-12-01</AnnuityCmnctDate>
    <AgeAtCommencement>59.1666666666667</AgeAtCommencement>
    <RelativeValueIntRate>0.06</RelativeValueIntRate>
    <ACDComponents>
        <ACDComponent2 PADescription="Early Retirement Factor">0.75</ACDComponent2>
        <ACDComponent3 PADescription="Benefit Limited by 415(b)">100797.947571561</ACDComponent3>
        <ACDComponent4>100797.947571561</ACDComponent4>
        <ACDComponent10>57.5</ACDComponent10>
    </ACDComponents>
    <PaymentFormData>
        <FoaCode>4</FoaCode>
        <FoaCertPer>0</FoaCertPer>
        <FoaContPctg>0</FoaContPctg>
        <PrimFoaAmt>139857.12</PrimFoaAmt>
        <RelativeValuePct>2</RelativeValuePct>
        <RelativeValueLumpSum>1510520.28</RelativeValueLumpSum>
    </PaymentFormData>
        …
</AnnuityCommencementDate>
```

Selecting "XML+XSL results", you would see the early retirement factor node copied into the PaymentFormData level of results:

```
<AnnuityCommencementDate>
    <AnnuityCmnctDate>2022-12-01</AnnuityCmnctDate>
        <AgeAtCommencement>59.1666666666667</AgeAtCommencement>
        <RelativeValueIntRate>0.06</RelativeValueIntRate>
        <ACDComponents>
            <ACDComponent2 PADescription="Early Retirement Factor">0.75</ACDComponent2>
            <ACDComponent3 PADescription="Benefit Limited by 415(b)">100797.947571561</ACDComponent3>
            <ACDComponent4>100797.947571561</ACDComponent4>
            <ACDComponent10>57.5</ACDComponent10>
        </ACDComponents>
        <PaymentFormData>
            <FoaCode>4</FoaCode>
            <FoaCertPer>0</FoaCertPer>
            <FoaContPctg>0</FoaContPctg>
            <PrimFoaAmt>139857.12</PrimFoaAmt>
            <RelativeValuePct>2</RelativeValuePct>
            <RelativeValueLumpSum>1510520.28</RelativeValueLumpSum>
            <ACDComponent2 PADescription="Early Retirement Factor">0.75</ACDComponent2>
        </PaymentFormData>
        …
</AnnuityCommencementDate>
```

You can save any of these views to a file. Note that if there was a problem generating either XML document (e.g., there is a bug in the XSL stylesheet), you will see the error message instead of the XML document.

When an XSL stylesheet is referenced for a ProAdmin Server calculation, the XML output produced is always after any XSL stylesheet has been applied.