Welcome to the SEER for Software (SEER-SEM) 8.2 November 2017 release. These release notes are a supplement to your existing user manual and a guide to new SEER-SEM features and enhancements.

Major updates are listed below. Click here to go to the list of miscellaneous updates and program changes for the current build.

Click here to go to a list of changes which may affect compatibility with older estimates.

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# Features Summary

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<th>Feature</th>
<th>Available Starting in Version</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Export to MS Project</strong></td>
<td></td>
</tr>
<tr>
<td>Replacement for both Link to MS Project and Microsoft Project Integration, combining a highly simplified user interface with MS Project Integration's functionality.</td>
<td>8.2.43</td>
</tr>
<tr>
<td><strong>Additional Items</strong></td>
<td></td>
</tr>
<tr>
<td>New work element for including labor and/or material cost for anything not estimated by SEER-SEM.</td>
<td>8.2.38</td>
</tr>
<tr>
<td><strong>WBS Reports</strong></td>
<td></td>
</tr>
<tr>
<td>A new category of reports covering cost, effort, and schedule for all subordinate work elements at the Project and Rollup level.</td>
<td>8.2.38</td>
</tr>
<tr>
<td><strong>Charts</strong></td>
<td></td>
</tr>
<tr>
<td>Updated chart configuration options.</td>
<td>8.2.38</td>
</tr>
<tr>
<td><strong>Economic Factors Tab</strong></td>
<td></td>
</tr>
<tr>
<td>Economic Factors inputs are now located on a separate tab. The Purchased Items parameter has been removed, since the new Additional Items work element covers purchased items in greater detail.</td>
<td>8.2.38</td>
</tr>
<tr>
<td><strong>Maintenance Model Update</strong></td>
<td></td>
</tr>
<tr>
<td>New parameters have been added to the maintenance model to better capture the corrective effort. A new maintenance category has also been added to our maintenance model.</td>
<td>8.2.22</td>
</tr>
<tr>
<td><strong>Calibration Update</strong></td>
<td></td>
</tr>
<tr>
<td>Calibration mode now offers more calibration parameters to help further calibrate SEER-SEM projects.</td>
<td>8.2.22</td>
</tr>
<tr>
<td><strong>Size Metric Definitions (Proxy Definitions Update)</strong></td>
<td></td>
</tr>
<tr>
<td>The new feature in Size Metric Definitions allows you to create effort based size metric.</td>
<td>8.2.22</td>
</tr>
<tr>
<td><strong>Historical Database Scatterplot Charts</strong></td>
<td></td>
</tr>
<tr>
<td>The HD Scatterplot charts plot a variety of metrics against each other, allowing you to display the relationship between your project and projects from the SEER Historical Database.</td>
<td>8.2.22</td>
</tr>
<tr>
<td><strong>Copy for SEER-SYS</strong></td>
<td></td>
</tr>
<tr>
<td>Ability to integrate your current SEER for Software estimate with SEER for Systems Engineering.</td>
<td>8.2.22</td>
</tr>
</tbody>
</table>
Knowledge Base Mode Update

Updates to SEER-SEM Knowledge Bases, and a new No Knowledge setting will be indicated by a check box displayed at the parameter input dialog box.

Additional Items Work Element

SEER-SEM now includes an Additional Items work element. The Additional Items work element is used to include labor and/or material cost for anything not estimated by SEER-SEM. You may enter up to 20 individual Additional Items for each Additional Items work element.

You can use additional items to enter cost or effort as a supplement or an alternative to the parametric estimates generated by other SEER-SEM work elements.

This could include such items as specialized administrative support, construction, purchased items, travel, support of specialized hardware, or technical services that have well understood levels of effort. It can also include items resulting from unique or unusual circumstances, such as the need to maintain equipment in an extreme environment, specialized test efforts, or any one-off effort.

Additional Items Inputs

An Additional Item itself is like a mini-work-element, with basic inputs such as Quantity, Hourly Labor Rate, Labor Hours, Material Cost, and Duration.

When you first enter an Additional Item (by clicking on Add Next Item Here under the Additional Items category heading), they are all included in a single parameter entry dialog box.
After you enter the Additional Item, it will be listed with a + sign next to its name; if you click on the + sign, you will see all of the inputs listed, just like any other parameter list. If you double-click on an input, it will come up in its own parameter input dialog box. You can still bring up the main Additional Items input dialog box by double-clicking on the Additional Item's name.

### Additional Items Parameter List

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search Catalog</td>
<td>Click the Search Catalog button to retrieve items you have stored in the catalog.</td>
</tr>
<tr>
<td>Refresh catalog button</td>
<td>If there have been any changes to the catalog entries, you can update the Additional Item to reflect those changes by clicking on the Refresh Catalog button, just to the left of the Search Catalog button. If the update is successful, the word &quot;Updated&quot; will appear above the button. If the program is unable to access or locate the catalog file, &quot;Not Found&quot; will appear.</td>
</tr>
<tr>
<td>Description</td>
<td>A description identifying the item. Maximum length: 128 characters.</td>
</tr>
<tr>
<td>Activity</td>
<td>The activity or phase in which the Additional Items is to be allocated.</td>
</tr>
<tr>
<td>Labor Category</td>
<td>The labor category in which the Additional Item labor is to be allocated. You will indicate if labor hours are to be classified as in-house (the default) or contractor.</td>
</tr>
<tr>
<td>Quantity</td>
<td>A multiplier for labor hours and material cost. This can be used if you want to consider multiples of the item. If the quantity is to be multiplied by the duration, a label will be inserted next to the quantity input to indicate whether this is a weekly, monthly or yearly value.</td>
</tr>
<tr>
<td><strong>Quantity Unit of Measure</strong></td>
<td>Use of this parameter is optional. The Quantity Unit of Measure serves strictly as a label for the Quantity parameter.</td>
</tr>
<tr>
<td>----------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Data Entered As</strong></td>
<td>Indicate if the quantity is to be multiplied by the duration (duration driven) or spread over the duration (total).</td>
</tr>
<tr>
<td><strong>Labor Hours</strong></td>
<td>The number of labor hours for the Additional Item.</td>
</tr>
<tr>
<td><strong>Material Cost</strong></td>
<td>The material cost of the Additional Item.</td>
</tr>
<tr>
<td><strong>Start Date</strong></td>
<td>The date in which Additional Item's cost and labor are incurred.</td>
</tr>
<tr>
<td><strong>Duration</strong></td>
<td>The number of weeks, months, or years that the item is to be scheduled over.</td>
</tr>
<tr>
<td><strong>Duration Unit of Measure</strong></td>
<td>Indicate the units for the duration: weeks, months or years.</td>
</tr>
</tbody>
</table>

### Adding Items From the Catalog

SEER-SEM includes a basic catalog of generic additional items arranged in general categories. You can enter additional items from scratch, or select a catalog item by clicking on the Search Catalog button in the Additional Items input dialog box. After you select a catalog item, you can make any necessary adjustments in the Additional Items inputs dialog box.

### Determining Hours and Cost

Additional Items account for schedule by using inputs for Start Date and Duration. The Data Entered As input provides two ways to determine total hours and material cost, and to set the relationship between quantity, hours, material cost, and duration:

#### Quantity Driven – Spread Total Over Duration

If you want to enter Quantity as a total, select Spread Total Over Duration as the Data Entered As option. SEER-SEM will consider the Quantity input to be the total quantity for the Additional Item, and the Labor Hours and Material Cost inputs to be per unit quantity. It will calculate Total Labor Hours and Total Material Cost by multiplying Labor Hours and Material Cost by Quantity. Hours and Material Cost are spread over the duration, but duration doesn't affect the total hours or cost.

\[
\text{Total Labor Hours} = \left( \text{Labor Hours} / \text{Qty} \right) \times \text{Qty}
\]

\[
\text{Total Material Cost} = \left( \text{Material Cost} / \text{Qty} \right) \times \text{Qty}
\]

#### Quantity & Duration Driven – Multiply Quantity By Duration

To enter Quantity per week, month, or year, select Multiply Quantity By Duration as the Data Entered As option. SEER-SEM will consider the Quantity input to be the quantity per Unit of Duration. Labor Hours and Material Cost inputs will still be per unit quantity, but the program will now calculate Total Labor Hours and Total Material Cost based on Quantity multiplied by Duration.

\[
\text{Total Labor Hours} = \left( \text{Labor Hours} / \text{Qty} \right) \times \text{Qty} \times \text{Duration}
\]

\[
\text{Total Material Cost} = \left( \text{Material Cost} / \text{Qty} \right) \times \text{Qty} \times \text{Duration}
\]
Search Catalog

The Search Catalog option allows you to select items from a catalog. When you select an item, the appropriate inputs will be automatically filled in with the information for that item. This saves time when you have a list of parts, purchased items, services, or similar items which are likely to be used in multiple work elements or estimates.

The Search Catalog dialog box consists of two panes:

<table>
<thead>
<tr>
<th>Pane</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>The categories into which the items are organized. Depending on the kind of estimate or work element, they could be categories of parts, types of services, categories of purchased items, or a combination of all of these.</td>
</tr>
<tr>
<td>Description</td>
<td>When you select a Type, the Description pane will list all of the items of that type. The list will include columns showing the input values associated with each item, such as Hours, Labor Category, or Material Cost. The actual inputs will vary, depending on the kind of estimate.</td>
</tr>
</tbody>
</table>

To select an item, click on it, then click on the OK button. The dialog box will close, and the estimate inputs will now be filled in with the values for that item. You can accept the values as-is, or make any necessary adjustments to reflect the actual conditions of your estimate.

The catalog is customizable. It can be filled in with items from a parts list or any other list of products, services, or features which your organization uses in creating estimates. Typically, of course, such customization will be done by a system or database administrator, or by a power user assigned to the task by your organization.

The catalog itself is a database that can be in a variety of formats, since the program connects with the database file using Windows' ODBC feature, which is designed to provide universal data connectibility. The catalog that ships with SEER-SEM is in Microsoft Excel format, and is named SEER-SEM_Lookup.xls. It can, however, be in other formats, such as Microsoft Access, as long as it contains the correct tables and fields.

In most cases, the easiest way to customize the catalog will be to make a copy of SEER-SEM_Lookup.xls, and move the data into it. A large organization with multiple SEER-SEM users, for example, could place a copy of SEER-SEM_Lookup.xls on a network so that it is available to all SEER-SEM users (via ODBC), and automate the process of moving large volumes of data into the file.

Editing the Catalog

The following instructions assume that you will be customizing a copy of the default SEER-SEM catalog file, SEER-SEM_Lookup.xls, and placing it in a location of your choice. These instructions can be adapted to other file formats and working arrangements. Note that some details (column names and formats, worksheet names, or file names and formats), may change with subsequent releases. It should, however, be possible to adapt these instructions to accommodate such changes.
Worksheets

SEER-SEM_Lookup.xls includes the following worksheets:

<table>
<thead>
<tr>
<th>Worksheet</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Items</td>
<td>The Additional Items worksheet lists the individual catalog items for Additional Items inputs and work elements. These are the items which will be listed in the Description pane of the Search Database dialog box when you click on the Search Catalog button in the main Additional Items (Description) input dialog box.</td>
</tr>
<tr>
<td>AdditionalItems Types</td>
<td>The AdditionalItems Types worksheet lists the Additional Items types which will appear in the Types pane of the Search Database dialog box for Additional Items. In order for an item in the Additional Items worksheet to be listed in the catalog for Additional Items, its type (as shown in the Types column) must be listed on the AdditionalItems Types worksheet.</td>
</tr>
</tbody>
</table>

The columns in the Additional items worksheet correspond to the detailed Additional Items inputs. The column heading names are the same as the names of the corresponding inputs. When you move items into the catalog, data formats and ranges should match those of the corresponding fields in the work elements which will use the data.

Connecting to the Catalog

The catalog connection defaults are:

- File type: Microsoft Excel
- File name: SEER-SEM_Lookup.xls
- File location: SEER-SEM program directory
- Connection type: ODBC
- ODBC driver: Microsoft Excel
- ODBC Driver version: Excel 97-2000
- Data Source Name: SEER-SEM8-2_Lookup

The basic catalog connection requirements are:

- Connection type: ODBC
- Data Source Name: SEER-SEM8-2_Lookup

Note: The Data Source Name is based on the SEER-SEM version number. SEER-SEM 8.2x will always look for SEER-SEM8-2_Lookup. Later versions will look for SEER-SEM8-3_Lookup, SEER-SEM8-4_Lookup, etc.

In addition, the actual catalog data must be organized into worksheets, tables, or the equivalent, with column or field names and formats that match the work element inputs, as described in Editing the Catalog.

Beyond these requirements, SEER-SEM is generally quite flexible its connection to the catalog data, which may be in a variety of formats (such as Microsoft Excel 2007 or later, Microsoft Access, or SQL), and in any accessible local or network location.
The following instructions assume that you will be using a copy of the default file, SEER-SEM_Lookup.xls, stored under another name and in a location other than the default location. These instructions also assume that you logged in with an account that gives you Administrative privileges on your system.

**Changing an Existing SEER-SEM_Lookup ODBC Connection**

Typically, when SEER-SEM is installed, it will create an ODBC connection to the default SEER-SEM_Lookup.xls file in the SEER-SEM Program Data directory. To change this connection so that it points to your custom catalog file:

1. In the Windows Control Panels, open the ODBC control panel (either under Administrative Tools, or when you display all control panels by icon).
   In 64-bit systems, open the ODBC Data Sources (32-bit) control panel.
2. In the ODBC Data Source Administrator dialog box, select the System DSN tab.
3. Select SEER-SEM8-2_Lookup in the System Data Sources list, then click on the Configure button.
4. In the ODBC Microsoft Excel Setup dialog box, click on the Select Workbook button.
5. In the Select Workbook dialog box, locate the file which you will be using as the catalog, then select it and click on OK.
6. Click on OK in the ODBC Microsoft Excel Setup and ODBC Data Source Administrator dialog boxes.

Now, when you click on the Search Catalog button in SEER-SEM, the Search Database dialog box should show the contents of your custom catalog.

**Creating a New ODBC Connection**

If no ODBC connection to the SEER-SEM_Lookup.xls file exists on the system in question, you can create one:

1. In the Windows Control Panels, open the ODBC control panel (either under Administrative Tools, or when you display all control panels by icon).
   In 64-bit systems, open the ODBC Data Sources (32-bit) control panel.
2. In the ODBC Data Source Administrator dialog box, select the System DSN tab, then click on the Add button.
3. In the Create New Data Source dialog box, select the Microsoft Excel Driver, then click on the Finish button.
4. In the ODBC Microsoft Excel Setup dialog box, Enter "SEER-SEM8-2_Lookup" (without the quotes) as the Data Source Name.
5. Select Excel 97 - 2000 (or the equivalent) from the Version pull-down menu.
6. Click on the Select Workbook button; in the Select Workbook dialog box, locate the file which you will be using as the catalog, then select it and click on OK.
7. Click on OK in the ODBC Microsoft Excel Setup and ODBC Data Source Administrator dialog boxes.

Now, when you click on the Search Catalog button in SEER-SEM, the Search Database dialog box should show the contents of your custom catalog.

You can easily adapt these steps to create an ODBC connection to a catalog database in another format. Note that if a SEER-SEM8-2_Lookup ODBC connection already exists on your system, and if you want to create a connection to a database file in another format (such as Microsoft Access, or SQL), the easiest way to do this will be to rename the existing SEER-SEM8-2_Lookup connection, then create an entirely new ODBC connection to the correct data source, and name it "SEER-SEM8-2_Lookup".

Note: Limits to the Movement of Data Associated with an Additional Item

When you move an Additional Item using Move Additional Item Up / Down (or when an Additional Item moves because an item above it on the list has been deleted), most of the data elements associated with that item will move with it, just as you would expect. Some data, however, does not move with an item; this is the result of differences in the way that such data elements are stored.

- Data elements which do move with an Additional Item include:
  - Parameter input values.
  - Parameter notes.
  - Catalog item ID numbers (UUIDs).
  - Scenario information.
  - Most other data items.

The following items, however, will not move with the Additional Item to which they were originally attached:

- The Lock attribute for individual parameters.
- The Hide attribute for individual parameters.
- The Tag attribute for individual parameters.
- Attachments to individual parameters (set by means of the Edit Notes and Attachments dialog box).
- Expression Editor / Global/Local Quantity links for individual parameters.

In all of these cases, the attributes or links stay with the Additional Item's original position in the list, and not with the item itself; they will instead apply to the corresponding parameters of the Additional Item which moves into that position.

Note also that in the case of Expression Editor / Global/Local Quantity links, the effects of moving an Additional Item may not be apparent at first. This is because parameter values which were originally set by Expressions and Global or Local Quantities do move with the item, even though the link itself is broken, and because the new link to the Additional Item which moved into the old
item’s position will not have an effect on the parameter value in question until you open the dialog box for that parameter (which forces a recalculation of the parameter value).

## Maintenance Model Update

New parameters have been added to the maintenance model to better capture the corrective effort. A new maintenance category has also been added to our maintenance model.

The Maintenance Model for SEER-SEM 8.2 includes the following updates and enhancements:

### Maintenance Tab

Maintenance parameters will no longer appear under the “Parameters” tab. All maintenance parameters will now appear under the “Maintenance” Tab.

### Annual Growth by Year

The Maintenance parameter *Maintenance Growth over Life* has been changed to Annual Growth. It is now possible to enter annual growth for each year. The number of years Annual Growth has corresponds to the number entered in the Years of Maintenance parameter.
Annual Change Rate by Year

Annual Change Rate now can be entered on a year by year basis. The number of years Annual Change Rate has corresponds to the number entered in the Years of Maintenance parameter.

<table>
<thead>
<tr>
<th>PROGRAM: Data Analyzer</th>
<th>Least</th>
<th>Likely</th>
<th>Most</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOFTWARE MAINTENANCE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years of Maintenance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;&lt;Maintenance Start Date&gt;&gt;</td>
<td>5/06/2019</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Change Rate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Change Rate Year 01</td>
<td>0.00%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Change Rate Year 02</td>
<td>11.00%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Change Rate Year 03</td>
<td>22.00%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;&lt;Defects&gt;&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Defects 01</td>
<td>4.39</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Annual Change Rate Inputs

Defects by Year

Defects by Years parameter is the expected value of defects fixed per year. This input also has the option to use the defects computed by SEER-SEM. The number of years Defects has corresponds to the number entered in the Years of Maintenance parameter.

<table>
<thead>
<tr>
<th>PROGRAM: Data Analyzer</th>
<th>Least</th>
<th>Likely</th>
<th>Most</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOFTWARE MAINTENANCE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years of Maintenance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;&lt;Maintenance Start Date&gt;&gt;</td>
<td>5/06/2019</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Growth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Change Rate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;&lt;Defects&gt;&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Defects 01</td>
<td>4.39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Defects 02</td>
<td>4.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Defects 03</td>
<td>5.44</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Defects Inputs

Defect Resolution Time by Year

Defect Resolution Time is the average time in hours that a defect is resolved. This input also has the option to use the value computed by SEER-SEM. The number of years Defect Resolution Time has corresponds to the number entered in the Years of Maintenance parameter.
Defect Resolution Time Inputs

**Maintainability**

Measures how easy it is to analyze, change, and test the application or product. The more maintainable the application is, the less effort will be spent. The following rating scale provides examples of degrees of maintainability. In many cases the maintainability attributes of an application will be mixed (i.e. coding standards followed, but overall design is difficult to ascertain). Please refer to the scorecard for further guidance on rating this parameter.

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very High</td>
<td>Application code reads intuitively and is easily understood. Interfaces and build procedures are well documented and easily followed. Design concepts such as high cohesion, loose coupling, and encapsulation are highly evident. Design specifications are available and reflect the current implementation. Application test cases and procedures available and ready to run in a turn-key fashion. Test environments and platforms available.</td>
</tr>
<tr>
<td>High</td>
<td>Code follows an understood set of standards that foster readability. Design documentation is available but may not reflect recent changes. Good design concepts such as high cohesion, low coupling and encapsulation are present.</td>
</tr>
</tbody>
</table>
Nominal  | Code is reasonably well documented with comments and prologues with basic adherence to coding standards. Reasonable attempts at best design practices have been followed, but no added effort to make the application easy to maintain was followed in initial implementation. Test cases and procedures may require some updates.

Low     | Code follows no standards and is poorly documented. Poor design structure that requires greater examination before changes can be made. Test cases and procedures exist but require extensive updates, test platforms may be non-standard.

Very Low| Poorly formed code, minimal comments and prologues. No documentation for design or interface specifications available. No relevant test cases or procedures to draw upon. Requires non-standard or out of date platforms and tools that are difficult to access.

Because maintainability covers several facets, rating it may pose a challenge. The following scorecard can assist in determining the maintainability rating.

<table>
<thead>
<tr>
<th>Item</th>
<th>Not At All</th>
<th>Partially</th>
<th>Fully</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code or modules are easily understood.</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Build procedures and dependencies are well-documented and easily followed.</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Designs are available and reflect the current implementation.</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Test cases and procedures available and ready to run in a turn-key fashion.</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Test environments and platforms available.</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Code standards are being used that make it readable and easily understood.</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Very high = 12
Nominal = 6
Very low = 0

**Annual Productivity Gain**

Annual Productivity Gain is the percent productivity improvement per year for corrective efforts. The productivity improvement will reduce effort in fixing defects.

<table>
<thead>
<tr>
<th>PROGRAM: Data Analyzer</th>
<th>Least</th>
<th>Likely</th>
<th>Most</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development Environment Differences</td>
<td>Nom</td>
<td>Nom</td>
<td>Nom+</td>
<td></td>
</tr>
<tr>
<td>Maintenance Level (Rigor)</td>
<td>Nom</td>
<td>Nom</td>
<td>Nom</td>
<td></td>
</tr>
<tr>
<td>Maintainability</td>
<td>Nom</td>
<td>Nom</td>
<td>Nom</td>
<td></td>
</tr>
<tr>
<td><strong>Annual Productivity Gain</strong></td>
<td><strong>25.00%</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Annual Productivity Gain Input
Preventive Maintenance

Preventive Maintenance includes anticipating and preventing software errors, malfunctions, and breakdowns.

<table>
<thead>
<tr>
<th>PROGRAM: Data Analyzer</th>
<th>Least</th>
<th>Likely</th>
<th>Most</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent To Be Maintained</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance Size</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Maintenance Estimate Options**

- Steady State Maintenance Only: YES
- Corrective: YES
- Preventive: YES
- Adaptive: YES

Preventive Input

Coverage Requirements

Coverage Requirements inputs determine the number of hours, days, and shifts that must be available to fixing defects.

<table>
<thead>
<tr>
<th>PROGRAM: Data Analyzer</th>
<th>Least</th>
<th>Likely</th>
<th>Most</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance Estimate Options</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coverage Requirements</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coverage Hours/Day</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coverage Days/Week</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;&lt;Staff Shifts/Day&gt;&gt;</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff Resources</td>
<td>Shared</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Coverage Requirements Inputs

**Coverage Hours/Day**

The number of works hours per day that the staff must be available to address defect driven corrective maintenance.

**Coverage Days/Week**

The number of works days per week that the staff must be available to address defect driven corrective maintenance.
Staff Shifts/Day

The number of staff shifts per day, ranging from 1 to 4. The default value is computed, and is based on the ratio of Coverage Hours/Day to Staff Work Hours/Day, rounded up.

Staff Resources

Choice indicating whether the software maintenance staff works exclusively on this application being maintained, or if there is a pool of shared maintenance personnel who can support numerous applications.

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shared</td>
<td>Estimates the incremental staff level required for corrective maintenance for the application. Coverage requirements will not impact effort under the Shared option.</td>
</tr>
<tr>
<td>Dedicated</td>
<td>Estimates to total staff required to support corrective maintenance activity for the given coverage requirements. The Dedicated option will estimate staff to the nearest full time equivalent for each shift that needs to be covered.</td>
</tr>
</tbody>
</table>

Maintenance Report Update

The Maintenance Effort by Year report has been updated to show the Maintenance Size and Defects Removed for each fiscal year. Preventive Effort has also added as part of the new maintenance model update.

![Maintenance Effort by Year Report](image)

<table>
<thead>
<tr>
<th>Maintenance Effort by Year Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance Size</td>
<td>The maintenance size at the end of the fiscal year.</td>
</tr>
<tr>
<td>Defects Removed</td>
<td>The number of defects detected and removed during the year.</td>
</tr>
<tr>
<td>Effort Months Preventive</td>
<td>Number of effort months spent preventing software problems.</td>
</tr>
</tbody>
</table>
Maintenance Chart Update

Maintenance Activity Allocation

The chart *Maintenance Allocation* has been renamed to Maintenance Activity Allocation.

Maintenance Labor Category Allocation

The chart *Labor Category Allocation* has been split into two charts: Development Labor Category Allocation and Maintenance Labor Category Allocation.

The Maintenance Labor Category Allocation chart will only display maintenance effort estimates.

![Maintenance Labor Category Allocation Chart](image)

Maintenance Effort Sensitivity

Similar to Development Effort Sensitivity charts. Maintenance Effort Sensitivity chart displays the relative sensitivity of total maintenance effort to the currently selected parameter.
Maintenance Effort Sensitivity Chart

**Maintenance Calibration**

This will be covered in the section - Calibration Update.

**Backwards Compatibility**

If you open a project created with an earlier version of SEER-SEM, SEER-SEM will use the old maintenance model to preserve estimate backwards compatibility. To use the latest maintenance model, simply uncheck the compatibility option in Options -> Set Project Parameters.

New projects will by default use the new maintenance model.
Economic Factors Tab

The ECONOMIC FACTORS parameters are now located on a separate Economic Factors tab. In addition, the following changes have been made to the Economic Factors inputs:

- The Purchased Items parameter has been removed; the new Additional Items work element can be used to provide a much more detailed model of purchased items.
- The AVERAGE MONTHLY LABOR RATE parameter category has been renamed to AVERAGE DEVELOPMENT MONTHLY LABOR RATE.

<table>
<thead>
<tr>
<th>PROGRAM: Redstone Scheduler</th>
<th>Economic Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>COST INPUT BASE YEAR</td>
<td>2016</td>
</tr>
<tr>
<td>AVERAGE DEVELOPMENT MONTHLY LABOR RATE</td>
<td>19,700</td>
</tr>
<tr>
<td>Project Manager Monthly Labor Rate</td>
<td>19,700</td>
</tr>
<tr>
<td>Software/Business Analyst Monthly Labor Rate</td>
<td>19,700</td>
</tr>
<tr>
<td>Software Architect/Designer Monthly Labor Rate</td>
<td>19,700</td>
</tr>
<tr>
<td>Programmer Monthly Labor Rate</td>
<td>19,700</td>
</tr>
<tr>
<td>Data Analyst/Architect Monthly Labor Rate</td>
<td>19,700</td>
</tr>
<tr>
<td>Quality Assurance/Tester Monthly Labor Rate</td>
<td>19,700</td>
</tr>
<tr>
<td>Configuration/Release Manager Monthly Labor Rate</td>
<td>19,700</td>
</tr>
<tr>
<td>Quality Control Lead Monthly Labor Rate</td>
<td>19,700</td>
</tr>
<tr>
<td>Maintenance Monthly Labor Rate</td>
<td>19,700</td>
</tr>
</tbody>
</table>

Calibration Update

Calibration mode now offers more calibration parameters to help further calibrate SEER-SEM projects.

Calibration Tab

When calibration is enabled, calibration parameters now appear in the “Calibration” tab.
Calibration Adjustments

New and renamed Calibration Adjustment Parameters include:

<table>
<thead>
<tr>
<th>PROGRAM: Data Analyzer</th>
<th>Least</th>
<th>Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CALIBRATION FACTORS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calibration Development Effort Adjustment</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Calibration Development Schedule Adjustment</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Calibration Maintenance Effort Adjustment</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Corrective Effort Adjustment</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Preventive Effort Adjustment</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Adaptive Effort Adjustment</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Perfective Effort Adjustment</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Enhancements Effort Adjustment</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td><strong>Special Calibration Adjustment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calibration Defects Adjustment</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Calibration Technology Adjustment</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Calibration Complexity Adjustment</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>SLOC Platform Adjustment Factor</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>SLOC Application Adjustment Factor</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>FBS Platform Adjustment Factor</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>FBS Application Adjustment Factor</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Effort Entropy</td>
<td>1.20</td>
<td></td>
</tr>
<tr>
<td>Schedule Entropy</td>
<td>0.40</td>
<td></td>
</tr>
</tbody>
</table>

New Calibration Adjustments Inputs

**Calibration Development Effort Adjustment**

The Calibration parameter *Calibration Effort Adjustment* has been changed to Calibration Development Effort Adjustment.

**Calibration Development Schedule Adjustment**

The Calibration parameter *Calibration Schedule Adjustment* has been changed to Calibration Development Schedule Adjustment.

**Calibration Maintenance Effort Adjustment**

The Calibration parameter *Calibration Maintenance Adjustment* has been changed to Calibration Maintenance Effort Adjustment.

**Preventive Effort Adjustment**

Preventive Effort Adjustment is a calibration adjustment for maintenance. This adjustment is a multiplier for the Preventive Maintenance category.
SLOC Platform Adjustment Factor

SLOC Platform Adjustment Factor adjusts the Effective Size, which is then used to compute effort and schedule estimates. This parameter is used for SLOC-based estimates only and it is set by the Platform Knowledge Base.

SLOC Application Adjustment Factor

SLOC Application Adjustment Factor adjusts the Effective Size, which is then used to compute effort and schedule estimates. This parameter is used for SLOC-based estimates only and it is set by the Application Knowledge Base.

Effort Entropy

Effort Entropy factor is used for adjusting the exponent in the size vs. effort relationship:

\[ \text{Effort} \sim \text{Size}^{\text{Effort Entropy}} \]

This factor initializes to 1.2, which is what SEER-SEM has used in the past. Other defaults may be set by the knowledge bases. For Example, a factor of 1.0 will make the model linear such that as the size increases, effort will increase at the same rate.

Schedule Entropy

Schedule Entropy factor is used for adjusting the exponent in the size vs. schedule relationship:

\[ \text{Schedule} \sim \text{Size}^{\text{Schedule Entropy}} \]

This factor initializes to 0.4, which is what SEER-SEM has used in the past. Other defaults may be set by the knowledge bases. For Example, a factor of 1.0 will make the model linear such that as the size increases, schedule will increase at the same rate.

Calibration Actuals

To calibrate, you must first create one or more estimates based on completed projects, then enter the actuals for each of the projects in the corresponding estimates. SEER-SEM will use the difference between the estimates and actuals to compute the adjustments factors, which will be shown in the Calibration Report.

New and renamed Calibration Actuals Parameters include:
New Calibration Actuals Inputs

Development Actual Effort (hours)

The Calibration parameter *Calibration Actual or Required Effort Months* has been changed to Development Actual Effort (hours).

This input is the actual development effort hours for the entire project. Entering inputs at the activity level will automatically sum up the hours into this parameter.

The unit has been changed from Months to Hours.

If you open a project created with an earlier version of SEER-SEM with the above input, it will automatically convert the input from months to hour to preserve estimate backwards compatibility.
System Requirements Design Actual Effort (hours)
   This input is the actual development effort hours for the System Requirements Design Development Activity.

S/W Requirements Analysis Actual Effort (hours)
   This input is the actual development effort hours for the Software Requirements Analysis Development Activity.

Preliminary Design Actual Effort (hours)
   This input is the actual development effort hours for the Preliminary Design Development Activity.

Detailed Design Actual Effort (hours)
   This input is the actual development effort hours for the Detailed Design Development Activity.

Code & Unit Test Actual Effort (hours)
   This input is the actual development effort hours for the Code and Unit Test Development Activity.

Component Integrate & Test Actual Effort (hours)
   This input is the actual development effort hours for the Component Integration and Testing Development Activity.

Program Test Actual Effort (hours)
   This input is the actual development effort hours for the Program Test Development Activity.

System Integrate Thru OT&E Actual Effort (hours)
   This input is the actual development effort hours for the System Integration through OT&E Development Activity.

Development Actual Schedule (months)
   The Calibration parameter Calibration Actual or Required Schedule Months has been changed to Development Actual Schedule (months).
   This input is the actual development schedule months for the whole project.

System Requirements Design Actual Schedule (months)
   This input is the actual development schedule months for the System Requirements Design Development Activity.

S/W Requirements Analysis Actual Schedule (months)
   This input is the actual schedule months for the System Requirements Design Development Activity.
Preliminary Design Actual Schedule (months)
   This input is the actual schedule months for the System Requirements Design Development Activity.

Detailed Design Actual Schedule (months)
   This input is the actual schedule months for the System Requirements Design Development Activity.

Code & Unit Test Actual Schedule (months)
   This input is the actual schedule months for the System Requirements Design Development Activity.

Component Integrate & Test Actual Schedule (months)
   This input is the actual schedule months for the System Requirements Design Development Activity.

Program Test Actual Schedule (months)
   This input is the actual schedule months for the System Requirements Design Development Activity.

System Integrate Thru OT&E Actual Schedule (months)
   This input is the actual schedule months for the System Requirements Design Development Activity.

Maintenance Actual Effort (hours)
   This input is the actual maintenance effort hours for the project. Entering inputs at the activity level will automatically sum up the hours into this parameter.

Corrective Actual Effort (hours)
   This input is the actual maintenance effort hours for the Corrective Maintenance Category

Preventive Actual Effort (hours)
   This input is the actual maintenance effort hours for the Preventive Maintenance Category

Adaptive Actual Effort (hours)
   This input is the actual maintenance effort hours for the Adaptive Maintenance Category

Perfective Actual Effort (hours)
   This input is the actual maintenance effort hours for the Perfective Maintenance Category

Enhancements Actual Effort (hours)
   This input is the actual maintenance effort hours for the Enhancements Maintenance Category
Actual Defects
This input is the actual delivered defects for the project.

Actual Effective Technology
This input is the actual effective technology for the project.

Actual Effective Complexity
This input is the actual effective complexity for the project.

Calibration Summary Report Update
The calibration summary report has been updated in multiple areas.

- The report now displays the difference between the estimates and the actuals.
- The report now displays the calibration adjustment factors computed based on the calibration actuals.
- The report now displays the adjusted milestone percentages based on the calibration actuals.

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>Actual</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development Effort (hours)</td>
<td>104,935.69</td>
<td>87,000.00</td>
<td>21%</td>
</tr>
<tr>
<td>Development Schedule (months)</td>
<td>35.53</td>
<td>41.56</td>
<td>-15%</td>
</tr>
<tr>
<td>Maintenance Effort (hours)</td>
<td>34,119.30</td>
<td>0.00</td>
<td>0%</td>
</tr>
<tr>
<td>Defects</td>
<td>130.00</td>
<td>80.00</td>
<td>63%</td>
</tr>
</tbody>
</table>

Computed Calibration Adjustments

<table>
<thead>
<tr>
<th></th>
<th>Median</th>
<th>Average</th>
<th>Std Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computed Calibration Development Effort Adjustment</td>
<td>0.87</td>
<td>0.87</td>
<td>0.28</td>
</tr>
<tr>
<td>Computed Requirements Before Design Effort Adjustment</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Computed Requirements After Design Effort Adjustment</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Computed Design Thru Program Test Effort Adjustment</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Computed System Integrate Thru OT&amp;E Effort Adjustment</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Computed Calibration Development Schedule Adjustment</td>
<td>1.21</td>
<td>1.21</td>
<td>0.02</td>
</tr>
<tr>
<td>Computed Requirements Schedule Adjustment</td>
<td>1.84</td>
<td>1.84</td>
<td>0.00</td>
</tr>
<tr>
<td>Computed Design Thru Program Test Schedule Adjustment</td>
<td>1.17</td>
<td>1.17</td>
<td>0.00</td>
</tr>
<tr>
<td>Computed System Integrate Thru OT&amp;E Schedule Adjustment</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Computed Calibration Maintenance Effort Adjustment</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Computed Corrective Effort Adjustment</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Computed Preventive Effort Adjustment</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Computed Adaptive Effort Adjustment</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Computed Perfective Effort Adjustment</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Computed Enhancements Effort Adjustment</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Computed Calibration Technology Adjustment</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Computed Calibration Complexity Adjustment</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Computed Calibration Defects Adjustment</td>
<td>0.67</td>
<td>0.67</td>
<td>0.03</td>
</tr>
</tbody>
</table>

Calibration Summary Report at the Rollup Level
### Top half of Calibration Summary Report at the Work Element Level

<table>
<thead>
<tr>
<th>Description</th>
<th>Uncal. Estimate</th>
<th>Actual/Required</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development Actual Effort (hours)</td>
<td>11,429.62</td>
<td>13,492.00</td>
<td>-15%</td>
</tr>
<tr>
<td>System Requirements Design Actual Effort (hours)</td>
<td>126.89</td>
<td>150.00</td>
<td>-15%</td>
</tr>
<tr>
<td>S/W Requirements Analysis Actual Effort (hours)</td>
<td>372.38</td>
<td>300.00</td>
<td>-24%</td>
</tr>
<tr>
<td>Preliminary Design Actual Effort (hours)</td>
<td>725.69</td>
<td>800.00</td>
<td>-9%</td>
</tr>
<tr>
<td>Detailed Design Actual Effort (hours)</td>
<td>3,872.76</td>
<td>4,200.00</td>
<td>-8%</td>
</tr>
<tr>
<td>Code &amp; Unit Test Actual Effort (hours)</td>
<td>2,019.28</td>
<td>2,510.00</td>
<td>-20%</td>
</tr>
<tr>
<td>Component Integrate &amp; Test Actual Effort (hours)</td>
<td>3,057.93</td>
<td>4,100.00</td>
<td>-25%</td>
</tr>
<tr>
<td>Program Test Actual Effort (hours)</td>
<td>1,023.06</td>
<td>1,120.00</td>
<td>-9%</td>
</tr>
<tr>
<td>System Integrate Thru OT&amp;E Actual Effort (hours)</td>
<td>231.63</td>
<td>312.00</td>
<td>-26%</td>
</tr>
<tr>
<td>Development Actual Schedule (months)</td>
<td>15.67</td>
<td>15.56</td>
<td>1%</td>
</tr>
<tr>
<td>System Requirements Design Actual Schedule (months)</td>
<td>1.27</td>
<td>1.10</td>
<td>15%</td>
</tr>
<tr>
<td>S/W Requirements Analysis Actual Schedule (months)</td>
<td>1.49</td>
<td>1.50</td>
<td>-1%</td>
</tr>
<tr>
<td>Preliminary Design Actual Schedule (months)</td>
<td>2.90</td>
<td>4.00</td>
<td>-27%</td>
</tr>
<tr>
<td>Detailed Design Actual Schedule (months)</td>
<td>4.75</td>
<td>3.10</td>
<td>53%</td>
</tr>
<tr>
<td>Code &amp; Unit Test Actual Schedule (months)</td>
<td>1.78</td>
<td>1.60</td>
<td>11%</td>
</tr>
<tr>
<td>Component Integrate &amp; Test Actual Schedule (months)</td>
<td>2.52</td>
<td>3.10</td>
<td>-19%</td>
</tr>
<tr>
<td>Program Test Actual Schedule (months)</td>
<td>0.84</td>
<td>1.10</td>
<td>-24%</td>
</tr>
<tr>
<td>System Integrate Thru OT&amp;E Actual Schedule (months)</td>
<td>0.12</td>
<td>0.06</td>
<td>105%</td>
</tr>
<tr>
<td>Maintenance Actual Effort (hours)</td>
<td>0.00</td>
<td>0.00</td>
<td>0%</td>
</tr>
<tr>
<td>Corrective Maintenance Actual Effort (hours)</td>
<td>0.00</td>
<td>0.00</td>
<td>0%</td>
</tr>
<tr>
<td>Preventive Maintenance Actual Effort (hours)</td>
<td>0.00</td>
<td>0.00</td>
<td>0%</td>
</tr>
<tr>
<td>Adaptive Maintenance Actual Effort (hours)</td>
<td>0.00</td>
<td>0.00</td>
<td>0%</td>
</tr>
<tr>
<td>Perfactive Maintenance Actual Effort (hours)</td>
<td>0.00</td>
<td>0.00</td>
<td>0%</td>
</tr>
<tr>
<td>Enhancements Maintenance Actual Effort (hours)</td>
<td>0.00</td>
<td>0.00</td>
<td>0%</td>
</tr>
</tbody>
</table>

### Other Metrics
- Actual Effective Technology: 4,038.75 / 5,120.00, -21%
- Actual Effective Complexity: 12.39 / 16.00, -23%
- Actual Defects: 32.98 / 55.00, -40%
Lower half of Calibration Summary Report at the Work Element Level

Copy Computed Calibration Adjustments

After inputting the Calibration Actuals, SEER-SEM will compute the corresponding adjustment factors in the calibration report. User can use “Copy Computed Calibration Adjustments” to copy those adjustments and paste it into any element.

The following adjustments will be copied into the clipboard:

<table>
<thead>
<tr>
<th>Copy Computed Calibration Adjustments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Computed Calibration Development Effort Adjustment</strong></td>
</tr>
<tr>
<td><strong>Computed Requirements Before Design Effort Adjustment</strong></td>
</tr>
<tr>
<td><strong>Computed Requirements After Design Effort Adjustment</strong></td>
</tr>
<tr>
<td><strong>Computed Design Thru Program Test Effort Adjustment</strong></td>
</tr>
<tr>
<td><strong>Computed System Integrate Thru OT&amp;E Effort Adjustment</strong></td>
</tr>
<tr>
<td><strong>Computed Calibration Development Schedule Adjustment</strong></td>
</tr>
<tr>
<td><strong>Computed Requirements Schedule Adjustment</strong></td>
</tr>
<tr>
<td><strong>Computed Design Thru Program Test Schedule Adjustment</strong></td>
</tr>
<tr>
<td><strong>Computed System Integrate Thru OT&amp;E Schedule Adjustment</strong></td>
</tr>
<tr>
<td><strong>Computed Calibration Maintenance Effort Adjustment</strong></td>
</tr>
<tr>
<td><strong>Computed Corrective Effort Adjustment</strong></td>
</tr>
<tr>
<td><strong>Computed Preventive Effort Adjustment</strong></td>
</tr>
<tr>
<td><strong>Computed Adaptive Effort Adjustment</strong></td>
</tr>
<tr>
<td><strong>Computed Perfective Effort Adjustment</strong></td>
</tr>
<tr>
<td><strong>Computed Enhancements Effort Adjustment</strong></td>
</tr>
<tr>
<td><strong>Computed Calibration Technology Adjustment</strong></td>
</tr>
<tr>
<td><strong>Computed Calibration Complexity Adjustment</strong></td>
</tr>
<tr>
<td><strong>Computed Calibration Defects Adjustment</strong></td>
</tr>
<tr>
<td><strong>Milestone Percentages</strong></td>
</tr>
<tr>
<td>Percent of Base FSI to FDR</td>
</tr>
<tr>
<td>Percent of Base FSI to CDR</td>
</tr>
<tr>
<td>Percent of Base FSI to CUT</td>
</tr>
<tr>
<td>Percent of Base FSI to TRR</td>
</tr>
<tr>
<td>Percent of Base FSI to FQT</td>
</tr>
<tr>
<td>computed adjustment</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>computed requirements schedule adjustment</td>
</tr>
<tr>
<td>computed design thru program test schedule adjustment</td>
</tr>
<tr>
<td>computed system integrate thru ot&amp;e schedule adjustment</td>
</tr>
<tr>
<td><strong>computed calibration maintenance effort adjustment</strong></td>
</tr>
<tr>
<td>computed corrective effort adjustment</td>
</tr>
<tr>
<td>computed preventive effort adjustment</td>
</tr>
<tr>
<td>computed adaptive effort adjustment</td>
</tr>
<tr>
<td>computed perfective effort adjustment</td>
</tr>
<tr>
<td>computed enhancements effort adjustment</td>
</tr>
<tr>
<td>computed percent of base FSI to PDR</td>
</tr>
<tr>
<td>computed percent of base FSI to CDR</td>
</tr>
<tr>
<td>computed percent of base FSI to CUT</td>
</tr>
<tr>
<td>computed percent of base FSI to TRR</td>
</tr>
<tr>
<td>computed percent of base FSI to FQT</td>
</tr>
<tr>
<td>computed percent of base FSI to PDR</td>
</tr>
</tbody>
</table>

To perform “Copy Computed Calibration Adjustments”, Calibration mode has to be enabled. Here are two ways to perform the action:

- Under the Estimate menu...

  ![Estimate Menu](image)

  **Estimate Menu**

  - Right click on the Calibration Report and click on “Copy Computed Calibration Adjustments”
Size Metric Definitions (Proxy Definitions Update)

Proxy Sizing Reamed

Proxy Sizing has been renamed to Size Metric.

Effort Based Size Metric

Size Metric can be based on anything which can be counted, and which roughly corresponds to your project's development effort and schedule. SEER-SEM converts size metric input to standard units, using established conversion factors.

What if you know how long it takes to build a program item but have no clue how many Function Points or Lines of Code that effort would represent. The new feature in Size Metric Definitions now allows you to create effort based size metric.

Bring up Size Metric Definitions by going to Tools-> Size Metric Definitions.

A new dialog box should appear for Size Metric Definitions:
Create effort based size metric with the following steps:

1. Click on “New” button at the bottom left of the size metric definition dialog box
2. On the right side of the dialog box, start by entering the name of the Size Metric and/or a file name (optional).

3. In the lower half, enter the information needed for the sizing methods.
   - Entry Name column would be the name that shows up when entering sizes within SEER-SEM.
   - Value column is the information you know, whether that is the number of function points, lines of code or the number of effort hours for the corresponding entry.
- Units column allow you to define what the Value column represents. The options are SLOC, UFP and Hours.
- Metric column is not a user input field. This column will automatically convert the number of effort hours into the number of FP/SLOC based on the assumptions defined.
- The “Assumptions” column is only used when the “Units” defined is set to “Hours”. Clicking on the assumptions button will bring you to the assumptions dialog box.

![Figure 4 - Editing a Size Metric](image)

4. In the estimating assumptions dialog box (Figure 5), the more information the user provide will lead to a more accurate size metric value.
   - Establish the knowledge bases
     - The goal is to allow the model to establish the likely productivity associated with these knowledge bases.
     - Size metric in SEER-SEM supports building multiple types of platforms. Each entry can have their unique knowledge base settings
   - If estimating in Function Points, one would need to define the primary program language (Function Implementation Mechanism)
     - If the language is unknown then SLOC is a better sizing method.
   - Identify the approximate duration for a project during which this work will take place. This may sound like an odd request but the SEER for Software
model can account for entropy – that is – larger projects take longer and are less productive than smaller projects.

- In the example screenshot below, the assumptions is that a typical project takes 125 effort hours involving small, medium and large window (checkmarks on the left hand side).
  - Assumptions can be applied to multiple items at once. Note the check boxes on the left hand side.
  - Clicking OK will return back to the Size Metric Definition Dialog with a SEER computed size metric value based on the assumptions defined.

![Estimating Assumptions Dialog Box](image)

**Figure 5 – Estimating Assumptions Dialog Box**

5. How to interpret the information shown in Figure 4?
   - One medium window takes 8 hours to build. (known information from the user)
   - Based on the assumptions defined, 1 medium window is equivalent 0.46 function points.
   - Similarly, 1 High Complex Report is equivalent to ~18 SLOCs.
6. After saving the size metric, it can be used in SEER-SEM.
7. Create a program element and navigate to the Size Metric section in the Parameters tab.
8. Double click on Size Metric Description and select the size metric created.

![Size Metric Inputs](image)

**Figure 6 - Size Metric Inputs**

### Server Mode

Size Metric inputs can be entered via server mode command.

**Format**

```
Item 1 Size Metric New [TAB] <Least Value> [TAB] <Likely Value> [TAB] <Most Value>
```

**Example**

```
Item 1 Size Metric New 2 2 2
```

Below server mode commands follow the same format as above. XX ranges from 1 to 20, up to 20 size metric items.

The old Proxy server mode commands are still valid in SEER-SEM 8.2.

<table>
<thead>
<tr>
<th>Available Server Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item XX Size Metric New</td>
</tr>
<tr>
<td>Size Growth Factor Size Metric New</td>
</tr>
<tr>
<td>Software phase at estimate Size Metric New</td>
</tr>
<tr>
<td>Item XX Size Metric NDR</td>
</tr>
<tr>
<td>Size Growth Factor Size Metric NDR</td>
</tr>
<tr>
<td>Software phase at estimate Size Metric NDR</td>
</tr>
</tbody>
</table>
New Size Metric

Early & Quick FPs
IFPUG Base Functional Components

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EI Low</td>
<td>A function or transaction that moves data into an application, usually to update an Internal Logical File. An External Input is unique if its processing is different from other External Inputs. Rate the complexity of an EI according to the following criteria:</td>
</tr>
<tr>
<td>EI Average</td>
<td></td>
</tr>
<tr>
<td>EI High</td>
<td></td>
</tr>
<tr>
<td>EQ Low</td>
<td>A unique request for existing (not derived) data, without updating or changing any Internal Logical Files. An External Inquiry is unique if its processing is different from other External Queries. Rate the complexity of an EQ according to the following criteria:</td>
</tr>
<tr>
<td>EQ Average</td>
<td></td>
</tr>
<tr>
<td>EQ High</td>
<td></td>
</tr>
<tr>
<td>EO Low</td>
<td>EO Average</td>
</tr>
<tr>
<td>-------</td>
<td>-----------</td>
</tr>
<tr>
<td>A function or transaction that formats data and moves it out of the application boundary for use by an external source. It is considered unique if its processing is different from other External Outputs. Rate the complexity of an EO according to the following criteria:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ILF Low</th>
<th>ILF Average</th>
<th>ILF High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menus dynamically generated by the application. A user-identifiable group of logically related data or control information used and maintained by the application. Internal Logical Files might be accessed by an application's External Inputs, External Outputs, External Inquiries, or Internal Functions. Rate the complexity of an ILF according to the following criteria:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EIF Low</th>
<th>EIF Average</th>
<th>EIF High</th>
</tr>
</thead>
<tbody>
<tr>
<td>A user-identifiable group of logically related data or control information used by the application but maintained by another application. External Interface Files might be used by an application's External Outputs, External Inquiries, or Internal Functions. Rate the complexity of an EIF according to the following criteria:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Early & Quick FPs
#### Unspecified Base Functional Components

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEI</td>
<td>Generic EI: EI-type process with undetectable level of complexity.</td>
</tr>
<tr>
<td>GEO</td>
<td>Generic EO: EO-type process with undetectable level of complexity.</td>
</tr>
<tr>
<td>GEQ</td>
<td>Generic EQ: EQ-type process with undetectable level of complexity.</td>
</tr>
<tr>
<td>UGO</td>
<td>Unspecified Generic Output: “doubtful” or “uncertain” output process for which there are no details available to differentiate between EO and EQ</td>
</tr>
<tr>
<td>UGP</td>
<td>Unspecified Generic Process: “doubtful” or “uncertain” process for which there are no details available to single out the primary goal, namely the presence of EI, EO or EQ.</td>
</tr>
<tr>
<td>GILF</td>
<td>Generic ILF: Sets of data recognized by users as ILF-type of an uncertain complexity</td>
</tr>
<tr>
<td>GEIF</td>
<td>Generic EIF: Sets of data recognized by users as EIF-type of an uncertain complexity</td>
</tr>
<tr>
<td>UGDG</td>
<td>Unspecified Generic Data Group: Unspecified logical file (either ILF or EIF) of uncertain complexity</td>
</tr>
<tr>
<td>TPS</td>
<td>Typical Process Small (CRUD): It consists of a set of four typical functional processes: Insert, Modify, Delete and Display Data, recognized as CRUD (Create, Read, Update and Delete) and generally centered around a specific data store.</td>
</tr>
<tr>
<td>TPM</td>
<td>Typical Process Medium (CRUD + List (EQ)): It consists of a set of four typical functional processes: Insert, Modify, Delete and Display Data, recognized as CRUD (Create, Read, Update and Delete) and generally centered around a specific data store. Includes a Listing of the Data (EQ).</td>
</tr>
<tr>
<td>TPL</td>
<td>Typical Process Large (CRUD + List (EQ) + Report (EO)): It consists of a set of four typical functional processes: Insert, Modify, Delete and Display Data, recognized as CRUD (Create, Read, Update and Delete) and generally centered around a specific data store. Includes a Listing of the Data (EQ) and a report (EO).</td>
</tr>
<tr>
<td>GPS</td>
<td>General Process Small (6 – 10 UEPs): It consists of a general set of Unclassified Elementary Processes (6 to 10 UEPs). If they fail to be detected with accuracy a General Process component is detected instead.</td>
</tr>
<tr>
<td></td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>GPM</strong></td>
<td>General Process Medium (11 – 15 UEPs):</td>
</tr>
<tr>
<td></td>
<td>It consists of a general set of Unclassified Elementary Processes (11 to</td>
</tr>
<tr>
<td></td>
<td>15 UEPs). If they fail to be detected with accuracy a General Process</td>
</tr>
<tr>
<td></td>
<td>component is detected instead.</td>
</tr>
<tr>
<td><strong>GPL</strong></td>
<td>General Process Large (16 – 20 UEPs):</td>
</tr>
<tr>
<td></td>
<td>It consists of a general set of Unclassified Elementary Processes (16 to</td>
</tr>
<tr>
<td></td>
<td>20 UEPs). If they fail to be detected with accuracy a General Process</td>
</tr>
<tr>
<td></td>
<td>component is detected instead.</td>
</tr>
<tr>
<td><strong>GDGS</strong></td>
<td>General Data Group Small (2 – 4 ULFs):</td>
</tr>
<tr>
<td></td>
<td>It consists of a general set of Unclassified Logical Files (2 to 4 ULFs).</td>
</tr>
<tr>
<td></td>
<td>If they fail to be detected with accuracy a General Data Group component</td>
</tr>
<tr>
<td></td>
<td>is detected instead.</td>
</tr>
<tr>
<td><strong>GDGM</strong></td>
<td>General Data Group Medium (5 – 8 ULFs):</td>
</tr>
<tr>
<td></td>
<td>It consists of a general set of Unclassified Logical Files (5 to 8 ULFs).</td>
</tr>
<tr>
<td></td>
<td>If they fail to be detected with accuracy a General Data Group component</td>
</tr>
<tr>
<td></td>
<td>is detected instead.</td>
</tr>
<tr>
<td><strong>GDGL</strong></td>
<td>General Data Group Large (9 – 13 ULFs):</td>
</tr>
<tr>
<td></td>
<td>It consists of a general set of Unclassified Logical Files (9 to 13 ULFs).</td>
</tr>
<tr>
<td></td>
<td>If they fail to be detected with accuracy a General Data Group component</td>
</tr>
<tr>
<td></td>
<td>is detected instead.</td>
</tr>
<tr>
<td><strong>MPS</strong></td>
<td>Macro Process Small (2 – 4 GPs):</td>
</tr>
<tr>
<td></td>
<td>A macro process is a group of related General Processes (2 to 4 GPs)</td>
</tr>
<tr>
<td></td>
<td>which can account for a large system segment, a sub-system or even an</td>
</tr>
<tr>
<td></td>
<td>entire small scale application.</td>
</tr>
<tr>
<td><strong>MPM</strong></td>
<td>Macro Process Medium (5 – 7 GPs)</td>
</tr>
<tr>
<td></td>
<td>A macro process is a group of related General Processes (5 to 7 GPs)</td>
</tr>
<tr>
<td></td>
<td>which can account for a large system segment, a sub-system or even an</td>
</tr>
<tr>
<td></td>
<td>entire small scale application.</td>
</tr>
<tr>
<td><strong>MPL</strong></td>
<td>Macro Process Large (8 – 10 GPs)</td>
</tr>
<tr>
<td></td>
<td>A macro process is a group of related General Processes (8 to 10 GPs)</td>
</tr>
<tr>
<td></td>
<td>which can account for a large system segment, a sub-system or even an</td>
</tr>
<tr>
<td></td>
<td>entire small scale application.</td>
</tr>
</tbody>
</table>

**Export to MS Project**

A new Export to MS Project option replaces both the Link to MS Project found in previous releases of SEER-SEM, and earlier versions of MS Project Integration.

It combines the sophisticated internal functionality of MS Project Integration with a highly simplified user interface, requiring only the life cycle process selection, and eliminating the intermediate user actions required by both Link to MS Project and SEER-SEM Microsoft Project Integration.
Export to MS Project

Export to MS Project creates a plan (Gantt Chart view) in Microsoft Project based on the SEER-SEM project. SEER-SEM will display the Select Life Cycle Process dialog box; you can select the appropriate life cycle from the drop-down menu.

Selecting a Life Cycle

After you select the life cycle, click on PLAN to generate the plan, or Exit to exit the dialog box without generating a plan. When you click on PLAN, Microsoft Project will automatically open, and the project will be laid out in the Gantt View.

Note: This options requires the following to be installed on your system:

- Microsoft Project 2010 or later.
- The most recent version of SEER-SEM Microsoft Project Integration.
New Load Individual Knowledge Base Interface

Estimate / Load Individual Knowledge Base now allows you to select individual work elements when applying the changes. In earlier versions of SEER-SEM, you could load Knowledge Bases either for the current work element, for the current work element plus subordinates, for all work elements, or for all work elements of the specified types; there was no way to select work elements on an individual basis.

New Work Element Selection Option

The new interface replaces has two options: Current Work Element Only, and Select Multiple Work Elements to Change.
Load Individual Knowledge Base Dialog Box

Below is a complete description of the revised Load Individual Knowledge Base dialog box:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Element Types</td>
<td>Use these buttons to select the work element type. The available Knowledge Bases will be based on the work element type that you pick.</td>
</tr>
<tr>
<td>Knowledge Base</td>
<td>Use these buttons to select what type of knowledge base you wish to load to modify the inputs.</td>
</tr>
<tr>
<td>Knowledge Base Names</td>
<td>Choose the specific Knowledge Base from the list; available selections will be determined by your choice of work element type and Knowledge Base Category.</td>
</tr>
<tr>
<td>Change</td>
<td></td>
</tr>
<tr>
<td>Current Work Element Only</td>
<td>Will change the selected knowledge base for the currently selected work element.</td>
</tr>
</tbody>
</table>
Select Multiple Work Elements | Will change the selected knowledge base for all work elements which you select. When you choose this option, then click on the Apply button, you will see a dialog box which displays the work element structure for the entire project.

- You can select or deselect an individual work element by clicking on the checkbox to the left of its icon.
- Click on a rollup (or the Project element) to select or deselect all of its subordinate elements. (Use the Auto-select subordinate elements checkbox to enable or disable this feature.)
- The Knowledge Base which you will be loading is listed in the upper left-hand corner of the dialog box.
- The Current KBase column lists Knowledge Base (from the selected category) that is currently assigned to each work element.
- Click on OK to close the dialog box and apply the selections; click on Cancel to close the dialog box without making any changes. Help brings up this help page.

<table>
<thead>
<tr>
<th>Change the Knowledge Base name and defaults</th>
<th>Check this box if you want SEER-SEM to update the default values and name to the selected knowledge base. This option is generally turned on.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overwrite user entered parameter values</td>
<td>If you do not want a knowledge base to change any inputs that you have changed from the default setting, make sure this Overwrite box is NOT checked.</td>
</tr>
</tbody>
</table>
New Selection Dialog Box

If you choose Multiple Work Elements, you will see a second dialog box, allowing you to select individual work elements from a tree-structure representation of the entire project:

Selecting Multiple Work Elements
### New Export Commands Interface

Tools / Export Commands also has a new dialog box allowing you to select individual work elements when applying changes:

![New Export Commands Dialog Box](image)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Select Work Element to Export</strong></td>
<td>The Element list displays the entire project in tree structure format very much like the Work Element window. To select or deselect a work element for export, click on the checkbox next to the work element. You can select multiple work elements. Click on the checkbox next to a rollup to select or deselect all of its subordinate elements.</td>
</tr>
</tbody>
</table>
### Output To

| **Clipboard** | Selecting this option will copy the export commands to the windows clipboard. You can then paste the commands into other applications such as Microsoft Excel. Alternatively you can use the Run Commands From Clipboard (found on the Tools menu) to paste a copy of the Export Commands data back into your SEER-SEM project. Thus you can now copy and paste multiple work elements. Commands can be pasted back into the same project or into other projects. Using this feature can help you to quickly build up project files with repetitive work element structures. |
| **File** | Selecting this option will bring up the Save As dialog box. You can then enter a File name and save the template in a text-file format. Note: you need to type the file extension .txt after the file name in order for the file to be saved as a text file. |

### Output With

| **KBase** | Optional. Selecting this option will include Knowledge Bases with your export commands. |
| **Parameters** | Optional. Selecting this option will include all parameters with your export commands. |
| **User’s Inputs** | Only export inputs that have been modified by the user. The parameter list indicates user inputs by changing the input font to bold. This does not include inputs from KBases. Note: if you do not select any of the Output With options, only the commands required to recreate the work element structure will be exported. |

### Options

| **Auto-select subordinate elements** | When you select a rollup, all of its subordinate work elements will also be selected. |
| **Include Notes** | Work element and parameter notes will be included in the export. Note: Exported notes will be text-only, without formatting. |

### Buttons

| **Export** | Exports the server mode commands based on the current list's settings. Click this button only after you have carefully selected your options. The export commands dialog box will close, and a progress bar will appear to illustrate the status of the export commands. Note: The selections you make will be available the next time you open the export commands dialog box. |
| **Help** | Brings up this Help topic. |
| **Exit** | Exit the dialog box without taking any action. |
Scenarios

Scenario information, just like notes, will be stored in a SQLite database. To create new scenarios, you no longer need to attach query commands to work element and/or parameter notes. With new query dialog boxes and Scenario options in the Tools menu, this process has been made easier.

Manage Element Scenario Query Dialog Box

Use this dialog box to add/edit scenario query for a work element. This dialog box can be accessed via the right click context menu for work elements.

<table>
<thead>
<tr>
<th>Parameter:</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Action</td>
<td>There will be no query for this work element.</td>
</tr>
<tr>
<td>Include</td>
<td>Asks the user whether or not the work element will be included in the project. Use this when the entire work element can be included in or excluded from a project at the user's discretion.</td>
</tr>
</tbody>
</table>
Selected by default

If this box is checked, the work element will be selected by default in the Import Scenario dialog box. If it is unchecked, the work element will not be selected by default.

Choose

Ask the user to select a work element from the level immediately below the current one. Use this when you want the user to select one alternative only.

Manage Parameter Scenario Query Dialog Box

Use this dialog box to add/edit scenario query for a parameter. This dialog box can be accessed via the right click context menu for parameters.

Manage Parameter Scenario Query

Unique Functions

Parameter query options

- No action
- Prompt the user to enter this parameter
  - Provide choices

User guidance for this query

The type of server will determine the approximate number of functions.

Parameter choices

<table>
<thead>
<tr>
<th>Choice name</th>
<th>Least</th>
<th>Likely</th>
<th>Most</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azure</td>
<td>3500</td>
<td>3500</td>
<td>3500</td>
<td></td>
</tr>
<tr>
<td>AWS Lambda</td>
<td>400</td>
<td>400</td>
<td>400</td>
<td></td>
</tr>
<tr>
<td>In-house</td>
<td>1250</td>
<td>1250</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td>Parameter:</td>
<td>Description</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td>--------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Action</td>
<td>There will be no query for this parameter.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prompt the user to enter this parameter</td>
<td>Asks the user for an entry for this parameter.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provide choices</td>
<td>If this box is checked, parameter choices will be displayed.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
New Scenario Options

The Tools menu now includes a new Scenario pull-right menu with three new options:

- Review Scenarios
- Clear Scenario Query Settings
- Set Parameter Entries as Defaults

Scenario Options (Tools Menu)

Review Scenarios displays the scenario’s work elements in a tree-structure format. This allows the user to analyze whether their queries are set up correctly.
Review Scenario Dialog Box

Select the **Clear Scenario Query Settings** option to remove all scenario query settings for all elements in the project. Scenario query settings include work element query information and parameter query information.
A warning message box will appear for confirmation.

![Clear Scenario Query Settings Warning](image)

**Clear Scenario Query Settings Warning**

When the **Set Parameter Entries as Defaults** option is enabled, parameters with user entries will be converted to default values when the scenario is saved. Applies only when using the Save as Scenario command (File menu). When the scenario is loaded, parameter values will appear as default/Knowledge Base settings (i.e., will not be in bold font).

The option is selected by default. If you prefer the legacy behavior used in previous releases, uncheck the option and do a Save Configuration (Options menu).

---

**WBS Reports**

A new category of reports has been added. These reports cover cost, effort, and schedule at the Project and Rollup level:

**All WBS Reports**

**Rows**

Each row represents a rollup or work element in the project. The rows reproduce the organization of the Work Breakdown Structure, with the Project-level work element at the top, and subordinate rollups and work elements beneath. The values (i.e., cost or hours) for a row include the values for any subordinate elements.

When a rollup or work element has subordinate elements, you can click on the minus sign to the left of that element's name to hide its subordinate elements. The minus sign will turn into a plus sign; you can click on it to show the hidden subordinate elements.

**Included List**

Most WBS reports can include more than one kind of cost or effort. You can select the types of cost or effort to be included using the menu in the upper left-hand corner of the report. The types of cost/effort currently included will be listed directly below the menu.
WBS Cost by Fiscal Year / WBS Effort Hours by Fiscal Year

The WBS Cost by Fiscal Year report shows the cost per fiscal year for each rollup and work element in the project, including the Project-level work element itself.

The WBS Effort Hours by Fiscal Year report shows the effort hours per fiscal year for each rollup and work element in the project, including the Project-level work element itself.

WBS Cost by Fiscal Year Report

Columns

The columns represent the fiscal years covered by the project, in sequence. The starting year and the number of years listed may be affected by a number of schedule-related inputs, including Start Date, Required Schedule, and Years of Maintenance.

Included List

For the WBS Cost by Fiscal Year report, the available cost types are:

- Development Labor Cost
- Development Material Cost
For the WBS Effort Hours by Fiscal Year report, the available effort types are:

- Development Effort Hours
- Maintenance Effort Hours

**WBS Cost by Activity / WBS Effort Hours by Activity**

The WBS Cost by Activity report shows the cost per Activity for each rollup and work element in the project, including the Project-level work element itself.

The WBS Effort Hours by Activity report shows the effort hours per Activity for each rollup and work element in the project, including the Project-level work element itself.

Columns

The columns represent Activities.
Included List

For the WBS Cost by Activity report, the available cost types are:

- Labor Cost
- Material Cost

WBS Effort Hours by Activity includes all of the available effort types by default.

**WBS Cost by Labor Category / WBS Effort Hours by Labor Category**

The WBS Cost by Labor Category report shows the cost per Labor Category for each rollup and work element in the project, including the Project-level work element itself.

The WBS Effort Hours by Labor Category report shows the effort hours per Labor Category for each rollup and work element in the project, including the Project-level work element itself.

**Columns**

The columns represent Labor Categories.

Included List

For the WBS Cost by Labor Category report, the available cost types are:

- Development Labor Cost
- Maintenance Labor Cost

For the WBS Effort Hours by Labor Category report, the available effort types are:

- Development Effort Hours
- Maintenance Effort Hours

**WBS Cost Summary**

The WBS Cost Summary report breaks down development and maintenance schedule, effort and costs for each rollup and work element.
Columns

The columns represent the following schedule, effort, and cost values for each rollup and work element:

- Dev Schedule Months
- Dev Effort Hours
- Dev labor Cost
- Dev Material Cost
- Total Dev Cost
- Maint Effort Hours
- Maint Labor Cost
- Maint Material Cost
- Total Maint Cost
- Total Material Cost
- Total Cost

WBS Schedule Summary

The WBS Schedule Summary report breaks down development and maintenance schedule for each rollup and work element.

Columns

The columns represent the following schedule values for each rollup and work element:

- Dev Start Date
- Dev End Date
- Dev Schedule Months
Other Report Updates

New Effort Hours by Fiscal Year Report

Shows the development, maintenance, total, and cumulative hours for each fiscal year.

<table>
<thead>
<tr>
<th>FISCAL YEAR</th>
<th>DEVELOPMENT</th>
<th>MAINTENANCE</th>
<th>TOTAL</th>
<th>CUMULATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Year: 2017 Fiscal Year Start Month: 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>38,467.84</td>
<td>0.00</td>
<td>38,467.84</td>
<td>38,467.84</td>
</tr>
<tr>
<td>2013</td>
<td>25,043.19</td>
<td>0.00</td>
<td>25,043.19</td>
<td>63,511.03</td>
</tr>
<tr>
<td>2014</td>
<td>16,225.21</td>
<td>7,725.87</td>
<td>23,951.08</td>
<td>87,462.11</td>
</tr>
<tr>
<td>2015</td>
<td>0.00</td>
<td>13,885.52</td>
<td>13,885.52</td>
<td>101,347.64</td>
</tr>
<tr>
<td>2016</td>
<td>0.00</td>
<td>12,875.76</td>
<td>12,875.76</td>
<td>114,223.40</td>
</tr>
<tr>
<td>2017</td>
<td>0.00</td>
<td>6,338.16</td>
<td>6,338.16</td>
<td>120,561.55</td>
</tr>
</tbody>
</table>

Note: At the Rollup level, Development Effort cannot be displayed for more than 20 years past the Start Date. At the Program and lower levels, Development Effort cannot be displayed for more than 10 years.
Monte Carlo Reports

The following Monte Carlo reports have been updated to include Material Costs (from Additional Items work elements):

Monte Carlo Development Risk Report

- The DEV COST column is now the DEV LABOR COST column.
- The DEV MATERIAL COST column has been added.
- The DEV TOTAL COST column (labor plus material cost) has been added.

Monte Carlo Maintenance Risk Report

- MAINTENANCE HOURS has been shortened to MAINT HOURS to accommodate the new columns.
- MAINTENANCE COST is now MAINT LABOR COST.
- The MAINT MATERIAL COST column has been added.
- The MAINT TOTAL COST column (labor plus material cost) has been added.

Quick Estimate

The following changes have been made to the Quick Estimate report and the Quick Estimate Options dialog box:

- DEVELOPMENT
  - Development Base Year Cost is now Development Labor Cost.
  - Purchased Items Cost has been removed.
  - Development Material Cost has been added.
- MAINTENANCE
  - Maintenance Hours is now Maintenance Effort Hours.
  - Maintenance Base Year Cost is now Maintenance Labor Cost.
  - Maintenance Material Cost has been added.

Entropy Adjusted Values

When the user adjusts Effort Entropy or Schedule Entropy (under Special Calibration Adjustment in the Calibration tab), the Quick Estimate Report will flag the affected values with a "+" sign to the right of the value, and add the footnote, " + Entropy Adjusted Value".

Adjustments to Effort Entropy will affect the following values:

- Development Effort Months
- Development Effort Days
- Development Effort Hours
- Development Labor Cost

Adjustments to Schedule Entropy will affect the following value:

- Development Schedule Months
To accommodate this change, values affected by ProjectMiner will now be marked with the "^" sign. ProjectMiner values had been previously indicated by the "+" sign.

**Historical Database (HD) Scatterplot Charts**

The Historical Database Scatterplot charts plot a variety of metrics against each other, allowing you to view and analyze the relationship between your estimated project and completed projects stored in the SEER Historical Database.

These charts use color-coding to indicate specific types of points and trend lines, as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue triangle</td>
<td>Your project's current estimate.</td>
</tr>
<tr>
<td>Light green points</td>
<td>Historical Database records which match your project's Application or Platform Knowledge Base selection (or both).</td>
</tr>
<tr>
<td>Dark green points</td>
<td>Records used to calibrate the current estimate; these records may be selected for calibration by any of several methods.</td>
</tr>
<tr>
<td>Gray points</td>
<td>Historical Database records not falling into the categories listed above.</td>
</tr>
<tr>
<td>Dark green X</td>
<td>Historical Database records which you have visually selected (but not yet used) for calibration.</td>
</tr>
<tr>
<td>Heavy red line</td>
<td>The trend (regression) line.</td>
</tr>
<tr>
<td>Light red lines</td>
<td>Trend line at +1 and -1 standard deviation.</td>
</tr>
</tbody>
</table>

![Effort Hours vs. Size Chart](image-url)
New Charts

Six new HD Scatterplot charts are now available from the Charts Menu.

<table>
<thead>
<tr>
<th>Charts</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development Effort Hours vs. Effective Size</td>
<td>Plots effort versus effective size of completed project histories (points) stored in the currently connected SEER Historical Database. Highlights point similar to the current program element, and those used for calibration. This chart also permits you to select points for calibration.</td>
</tr>
<tr>
<td>Development Effort Hours vs. Effective Lines</td>
<td>Plots effort versus effective lines of completed project histories (points) stored in the currently connected SEER Historical Database. Highlights point similar to the current program element, and those used for calibration. This chart also permits you to select points for calibration.</td>
</tr>
<tr>
<td>Development Effort Hours vs. Effective Functions</td>
<td>Plots effort versus effective functions of completed project histories (points) stored in the currently connected SEER Historical Database. Highlights point similar to the current program element, and those used for calibration. This chart also permits you to select points for calibration.</td>
</tr>
<tr>
<td>Development Schedule Months vs. Effective Size</td>
<td>Plots schedule months versus effective size of completed project histories (points) stored in the currently connected SEER Historical Database. Highlights point similar to the current program element, and those used for calibration. This chart also permits you to select points for calibration.</td>
</tr>
<tr>
<td>Development Schedule Months vs. Effective Lines</td>
<td>Plots schedule months versus effective lines of completed project histories (points) stored in the currently connected SEER Historical Database. Highlights point similar to the current program element, and those used for calibration. This chart also permits you to select points for calibration.</td>
</tr>
<tr>
<td>Development Schedule Months vs. Effective Functions</td>
<td>Plots schedule months versus effective functions of completed project histories (points) stored in the currently connected SEER Historical Database. Highlights point similar to the current program element, and those used for calibration. This chart also permits you to select points for calibration.</td>
</tr>
</tbody>
</table>

Calibrate Using HD Scatterplot Chart

You can use SEER Historical Database records for calibration, either by selecting them on-the-fly in the charts themselves, or by means of a special kind of Class Knowledge Base. When you do this, the records used for calibration will be displayed as dark green points. This means that you can identify each of the records used in calibration, making the calibration process completely traceable and transparent.

To calibrate by visually selecting data points:

1. Click on the Select Calibration Data icon in the SEER HD Scatterplot chart toolbar.
2. In the Select Calibration Mode dialog box, select Visual.
3. To select a data point in the chart, left-click on it. When you click on a point, you will see a popup menu showing the name of the Historical Database record represented by the point, along with the point's X/Y coordinates on the chart.

4. Click on the "Select point" option at the top of the popup menu to select the point. After you do this, the point will be marked with a dark green X.

5. When you have finished selecting calibration points, click on the Select Calibration Data icon in the chart toolbar. You will see the Return Calibration Points to Analogy Based Estimating dialog box.

6. Click on Continue to bring up the Analogy-Based Estimating dialog box, or Cancel to exit the calibration point selection process without selecting any points.

7. If you click on Continue, you will be able to review your selections in the Analogy-Based Estimating dialog box and select the appropriate options (including additional calibration points).

8. Click on the Apply button in the Analogy-Based Estimating dialog box to apply the calibration selections to your estimate.

Calibrating using Effort Hours vs. Size Chart

Project Calibration Data Report

This report displays metrics and audit trail for calibration based on the Historical Database Scatterplot charts. You can select it from the Choose Available Reports dialog box, or by clicking on the Show Project Calibration Report button in the SEER HD Scatterplot Chart toolbar.
Project Calibration Data Report

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current Database Demographics Section</strong></td>
<td></td>
</tr>
<tr>
<td>work element type</td>
<td>The name of the current work element.</td>
</tr>
<tr>
<td>Platform</td>
<td>The name of the current work element's Platform Knowledge Base.</td>
</tr>
<tr>
<td>Application</td>
<td>The name of the current work element's Application Knowledge Base.</td>
</tr>
<tr>
<td>Total Points In Selected Database</td>
<td>The total number of data points (project records) in the selected SEER</td>
</tr>
<tr>
<td>Points Matching Platform and/or Application</td>
<td>The number of data points which have either the same Platform or Application Knowledge Base as the current work element.</td>
</tr>
<tr>
<td>Points Matching Platform Only</td>
<td>The number of data points which have the same Platform Knowledge Base as the current work element.</td>
</tr>
</tbody>
</table>
### Points Matching Application Only
The number of data points which have the same Application Knowledge Base as the current work element.

### Points Matching Platform and Application
The number of data points which have both the same Platform and Application Knowledge Base as the current work element.

### Calibration Selections

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calibration Points From Class Kbase</td>
<td>The number of calibration points from the Class Knowledge Base selection, along with the number which have been manually removed from use as calibration points. You can create Class Knowledge Bases specifically for use in calibration. A Class Knowledge Base used in this way can include several data points, all of which will be used in calibration unless they are manually removed.</td>
</tr>
<tr>
<td>Points Manually Selected</td>
<td>The number of data points which you have manually selected for use in calibration.</td>
</tr>
<tr>
<td>Calibration Points In Current Database</td>
<td>The number of data points in the SEER Historical Database that are currently being used as calibration points. This includes calibration points from the current Class Knowledge Base, points selected using the SEER HD Scatterplot chart's Select Calibration Data feature, and points selected using Estimate/Analogy Based Estimating. It does not include data points which were manually removed from calibration.</td>
</tr>
<tr>
<td>Effort</td>
<td>The effort adjustment based on the calibration data. This is a multiplier which will be applied to the estimate's computed effort.</td>
</tr>
<tr>
<td>Schedule</td>
<td>The schedule adjustment based on the calibration data. This is a multiplier which will be applied to the estimate's computed schedule.</td>
</tr>
</tbody>
</table>

### Points Used for Calibration and Available For Review

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>The name of each Historical Database record (point) used for calibration and available for review.</td>
</tr>
<tr>
<td>Effort Months</td>
<td>The effort months for the Historical Database project represented by the calibration point.</td>
</tr>
<tr>
<td>Schedule Months</td>
<td>The schedule months for the Historical Database project represented by the calibration point.</td>
</tr>
<tr>
<td>Points Matching Platform Only</td>
<td>The name of each Historical Database record with a Platform Knowledge Base selection that matches the current estimate (but without a matching Application Knowledge Base selection).</td>
</tr>
<tr>
<td>Points Matching Application Only</td>
<td>The name of each Historical Database record with an Application Knowledge Base selection that matches the current estimate (but without a matching Platform Knowledge Base selection).</td>
</tr>
</tbody>
</table>
Points Matching Platform and Application

The name of each Historical Database record with both Platform and Application Knowledge Base selections that match the current estimate

Updated Chart Features

The chart package has been updated. The update includes improved chart appearance and display options.

The Copy option on the Chart window toolbar now has a menu, allowing you to select the copy format: bitmap, metafile, or text (data only). The toolbar also includes a Choose Available Charts button.

Updated Chart Appearance and Toolbar

New Right-Click Menus

Charts now include an extensive set of right-click menu options for detailed control of the formatting and appearance of individual chart elements. Below are examples of the new chart display context menus.
Chart Point Labels Context Menu

Chart Color Context Menu
Chart Legend Box Context Menu

Chart Axis Context Menus (Showing Gridlines Menu)
Data copied from Dev Labor Category Allocation Chart

Charts Toolbar

<table>
<thead>
<tr>
<th>Icon</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Icon]</td>
<td>Brings up the chart copy menu; copy as a bitmap, metafile, or text.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>Print the current chart.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>Change how the axes are displayed using the axes menu options.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>Show the chart legend.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>Toggle between 2D chart and 3D chart</td>
</tr>
<tr>
<td>![Icon]</td>
<td>Display the numerical value associate with each bar/point.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>Display a table of the chart data points.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>Brings up the chart window menu; select a chart to view.</td>
</tr>
</tbody>
</table>
Copy for SEER-SYS

Copy for SEER-SYS is a new feature added to SEER-SEM to integrate your current SEER for Software estimate with SEER for Systems Engineering. Two new commands have been added to the Edit menu to support SEER-SEM integration with SEER-SYS: Copy for SEER-SYS with Insert and Copy for SEER-SYS.

General Options

![Copy for SEER-SYS Dialog Box – General Tab](image)

**Level of Detail**

Three options are available for bringing in SEER-SEM development hours into SEER-SYS: Summary, Labor Category, and Phased Activity. The default is Phased Activity.
The following is the mapping of SEER-SYS activities to SEER-SEM activities.

<table>
<thead>
<tr>
<th>SEER-SYS Activity</th>
<th>SEER-SEM Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition &amp; Supply</td>
<td>System Requirements Design</td>
</tr>
<tr>
<td></td>
<td>S/W Requirements Analysis</td>
</tr>
<tr>
<td>Technical Management</td>
<td>Preliminary Design</td>
</tr>
<tr>
<td></td>
<td>Detailed Design</td>
</tr>
<tr>
<td>System Design</td>
<td>Code &amp; Unit Test</td>
</tr>
<tr>
<td>Product Realization</td>
<td>Component Integrate &amp; Test</td>
</tr>
<tr>
<td></td>
<td>Program Test</td>
</tr>
<tr>
<td></td>
<td>System Integrate Thru OT&amp;E</td>
</tr>
<tr>
<td>Technical Evaluation</td>
<td>N/A</td>
</tr>
<tr>
<td>Ongoing Support</td>
<td>Maintenance</td>
</tr>
</tbody>
</table>

The following is the mapping of SEER-SYS labor categories to SEER-SEM labor categories:

<table>
<thead>
<tr>
<th>SEER-SYS Labor Category</th>
<th>SEER-SEM Labor Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>Management</td>
</tr>
<tr>
<td></td>
<td>Data Analyst/Architect</td>
</tr>
<tr>
<td></td>
<td>Configuration/Release Manager</td>
</tr>
<tr>
<td>Systems Analyst – Intermediate</td>
<td>Software/Business Analyst</td>
</tr>
<tr>
<td>Systems Integrator – Intermediate</td>
<td>Quality Assurance/Tester</td>
</tr>
<tr>
<td></td>
<td>Quality Control Lead</td>
</tr>
<tr>
<td>Other Engineering/Support</td>
<td>Programmer</td>
</tr>
</tbody>
</table>

**Defining the Risk Range**

Select the uncertainty range for the Least, Likely, and Most inputs. When a program element is selected, there are two choices: Use SEER Calculated Range and Use Custom Range. The default is Use SEER Calculated Range.

**Resource Allocation**

The Copy for SEER-SYS Allocation dialog box comes up when you click on the Resource Allocation button in the Copy for SEER-SYS dialog box. It allows you to override the default allocation of SEER-SEM activities when copying a SEER-SEM work element into SEER-SYS.
Allocation from a SEER-SEM activity or labor category should ordinarily add up to 100%; if they do not, the total percentage for that item will be shown in red. Allocations to a SEER-SYS activity or labor category may be greater or less than 100%.

Resource Allocation Dialog Box

**Resource Assignment**

The Resource Assignment tab allows you to set the mix of In-house and Contractor labor for each labor category, and to apply either SEER-SEM or SEER-SYS labor rates to In-house and/or Contractor labor.
Labor Rates

The Labor Rates checkboxes let you determine whether you will apply SEER-SEM’s labor rates to In-house and/or Contractor labor, or use SEER-SYS’s rates.

Labor Type

In SEER-SYS, labor is classified as either In-house or Contractor. By default, all labor is categorized as In-house. For each SEER-SEM labor category, you may define the percentage of effort that is provided by In-house or internal resources. The default value of 100% assumes that all SEER-SEM labor is provided by In-house or internal sources.

The following is a mapping of SEER-SYS hourly labor rates to SEER-SEM monthly labor rate categories.
### Copy for SEER-IT Resource Allocation

The Copy for SEER-IT Allocation dialog box comes up when you click on the Resource Assignment button in the Copy for SEER-IT dialog box. It allows you to override the default allocation of SEER-SEM activities when copying a SEER-SEM work element into SEER-IT.

#### Copy for SEER-IT - Resource Allocation Dialog Box
Program Enhancement

Attachments in Notes

Adding an Attachment to a Work Element or Parameter

Enhancements have been made to the Edit Notes and Attachments dialog box. You can now attach files to work elements and/or parameters and save them with projects. The total attachment capacity in each project file is 100 MB.

![Edit Notes and Attachments Dialog Box]
Work Elements and Parameters View

Viewing Attachments in the Current Project

To view all the attachments in the current project, go to the View menu and select the View Attachments option. This will open the View Attachments dialog box where you can view, open, and/or remove attachments in the project. Multiple files may be selected to be removed; however only one file can be opened at a time.

You can also see the total size of all the attachments.
View Attachments Dialog Box

Changes to the Project-Level Create/Modify Dialog Box

The Project-level Create/Modify WBS Element dialog box now includes menus for selecting Activity and Role (Labor Category) naming systems. Activity and Role (Labor Category) names can also be selected by means of the Project Parameters dialog box.
Project-Level Create/Modify WBS Element Dialog Box

In addition, the Volume Inputs and FBS Method selection buttons have been removed from the Project-level Create/Modify WBS Element dialog box. As described above, they are available and active at all times on the Project parameters dialog box.

Sizing Default Options Are Now Always Available

You can now set sizing defaults for a new or existing project at any time in the Program Defaults section of the Project Parameters dialog box. They have been removed from the Create/Modify WBS Element dialog box.

In previous versions of SEER-SEM, sizing defaults for existing projects were controlled in the Create/Modify Work Element dialog box for the top-level Project rollup. Sizing defaults for new projects had to be set in this dialog box with no project open.
Project Parameters Dialog Box with WBS Line Numbering and Available Sizing Options

Note: If you change the sizing defaults for a project which already includes size information, the size shown in your estimate, along with all other size-dependent outputs (cost, staffing, schedule, etc.) may change.

This is because size entered in an excluded size input will not be included in the estimate. The excluded size data will, however, still be saved with the project; if you later change the sizing default to include the previously-excluded sizing data, it will once again be included in the estimate.

WBS Line Numbering

The Project Parameters dialog box now includes a Line Numbering / Outline Numbering option, which allows you to toggle between numbering each WBS element and rollup sequentially (Line Numbering), and numbering WBS elements and rollups hierarchically (Outline Numbering). Line Numbering always starts from 1 (the Project-level element). If you select Outline Numbering, the Project Outline Start Number (below) determines the starting number (at the Project level).

Line Numbering and Outline Numbering are only visible if Show Work Element Outline in the View menu is turned on.
Reference Pushpin in WBS

Now, when a work element has a reference set using Estimate/Set Reference, a pushpin icon will appear next to it in the work element list.

The Set Reference Pushpin Icon

Copy and Paste in Multiple Work Elements

This command copies the values for the currently-selected parameters and pastes them into the work elements which you select in the Change Parameters in Multiple Elements dialog box.

Right Context Menu on a Parameter

Knowledge Base Mode Update

Updated Platform Knowledge Bases

All Platform knowledge bases have been updated with the Cost Input Base Year set to 2017. Labor Rates have been updated to base year 2017. Current default rates (per effort month) are:

<table>
<thead>
<tr>
<th>Monthly Labor Rate</th>
<th>Platforms</th>
</tr>
</thead>
<tbody>
<tr>
<td>$25.100</td>
<td>Ground, Mobile, or Sea Based Mission Critical Systems</td>
</tr>
<tr>
<td>$20,300</td>
<td>Business Systems, Enterprise Client-Server Systems</td>
</tr>
</tbody>
</table>
Updated Acquisition Method Knowledge Bases

_(System Test Only)_

(_System Test Only.end) – The setting for the Staff Loading parameter has been corrected and set to Nom.

Updated Development Method Knowledge Bases

Hybrid Agile (Water-Scrum-Fall)

(HybridAgile.MET) – This knowledge base can be used for projects that blend iterative agile development with more traditional approaches. Planning and design are done up front while agile teams do iterative analysis-code-test sprints. Integration and release activates are also done for the overall project.

No Knowledge Setting

Starting in SEER-SEM 8.2, No Knowledge setting will be indicated by a check box displayed at the parameter input dialog box.

Knowledge Base Mode – Parameter Dialog Box

For any numerical inputs, a value of “0” will now be a valid option to put as a knowledge base value. It will no longer indicate “No Knowledge”.

Backwards Compatibility

All 8.1 knowledge bases will still work with SEER-SEM 8.2. The following rules will apply to 8.1 knowledge bases loaded into SEER-SEM 8.2
• All “0” inputs from SEER-SEM 8.1 knowledge base will be treated as “No Knowledge” in SEER-SEM 8.2
• All new parameters will be initialized to “No Knowledge”

New Flexible Export Options

Flexible Export includes the following new export options.

Available Inputs

Economic Factors

The following inputs have been removed:

- Purchased Items
- Additional Annual Maintenance Cost

Software Maintenance (See also: Maintenance Model Update)

Includes the following new inputs:

- Annual Growth
  - Annual Growth Year 01
  - Annual Growth Year 02
  ...
  - Annual Growth Year 30

- Annual Change Rate
  - Annual Change Rate Year 01
  - Annual Change Rate Year 02
  ...
  - Annual Change Rate Year 30

- Defects
  - Defects Year 01
  - Defects Year 02
  ...
  - Defects Year 30

- Defects Resolution Time (hours)
  - Defects Resolution Time (hours) Year 01
  - Defects Resolution Time (hours) Year 02
  ...
  - Defects Resolution Time (hours) Year 30

Maintainability
- Annual Productivity Gain
- Preventive
Coverage Requirements
- Coverage Hours/Day
- Coverage Days/Week
- Staff Shifts/Day
- Staff Resources

**Calibration Factors (See also: Calibration Update)**
Includes the following new inputs:
- Calibration Development Effort Adjustment
- Calibration Development Schedule Adjustment
- Calibration Maintenance Effort Adjustment
- Preventive Effort Adjustment
- SLOC Platform Adjustment Factor
- SLOC Application Adjustment Factor
- Effort Entropy
- Schedule Entropy
- Actual Defects
- Actual Effective Technology
- Actual Effective Complexity

**Calibration Actuals (See also: Calibration Update)**
Includes the following new inputs:
- Development Actual Effort (hours)
- System Requirements Design Actual Effort (hours)
- S/W Requirements Analysis Actual Effort (hours)
- Preliminary Design Actual Effort (hours)
- Detailed Design Actual Effort (hours)
- Code & Unit Test Actual Effort (hours)
- Component Integrate & Test Actual Effort (hours)
- Program Test Actual Effort (hours)
- System Integrate Thru OT&E Actual Effort (hours)
- Development Actual Schedule (months)
- System Requirements Design Actual Schedule (months)
- S/W Requirements Analysis Actual Schedule (months)
- Preliminary Design Actual Schedule (months)
- Detailed Design Actual Schedule (months)
- Code & Unit Test Actual Schedule (months)
- Component Integrate & Test Actual Schedule (months)
- Program Test Actual Schedule (months)
- System Integrate Thru OT&E Actual Schedule (months)
Maintenance Actual Effort (hours)
Corrective Actual Effort (hours)
Preventive Actual Effort (hours)
Adaptive Actual Effort (hours)
Perfective Actual Effort (hours)
Enhancements Actual Effort (hours)

Established Goals
Includes the following new inputs:
Development Effort Goal (hours)
Maintenance Effort Goal (hours)

Additional Items
Includes the following new inputs:
Description 01
Description 02
... 
Description 20
Probability

Available Outputs

Basic Estimate
The following outputs are new:
Development Material Cost
Maintenance Material Cost

The Following outputs have been renamed:
Development Base Year Cost → Development Labor Cost
Maintenance Base Year Cost → Maintenance Labor Cost

The following output is no longer available:
Purchased Items Cost

Cost by Fiscal Year Report
The following outputs are new:
Development Fiscal Year Material Cost
Maintenance Fiscal Year Material Cost

The Following outputs have been renamed:
Development Fiscal Year Cost → Development Fiscal Year Labor Cost
Maintenance Fiscal Year Cost → Maintenance Fiscal Year Labor Cost
Effort Hours By Fiscal Year Report (See also: Effort Hours by Fiscal Year Report)

The following outputs are new:

First Development Fiscal Year
Development Fiscal Year Hours
First Maintenance Fiscal Year
Maintenance Fiscal Year Hours

Maintenance Outputs (See also: Maintenance Report Update)

Includes the following new outputs:

Preventive Effort Months
Maintenance Size
Maintenance Defects

Person Hours By Labor Category Report

Includes the following new outputs:

Total
Total Hours for Sys Reqs
Total Hours for SW Reqs
Total Hours for Pre Design
Total Hours for Det Design
Total Hours for Code
Total Hours for Int & Test
Total Hours for Prog Test
Total Hours for Sys I&T
Total Hours for Maint
Total Hours

Cost By Labor Category Report

Includes the following new outputs:

Total Labor
Total Labor Cost for Sys Reqs
Total Labor Cost for SW Reqs
Total Labor Cost for Pre Design
Total Labor Cost for Det Design
Total Labor Cost for Code
Total Labor Cost for Int & Test
Total Labor Cost for Prog Test
Total Labor Cost for Sys I&T
Total Labor Cost for Maint
Total Labor Cost
Material
Material Cost for Sys Reqs
Material Cost for SW Reqs
Material Cost for Pre Design
Material Cost for Det Design
Material Cost for Code
Material Cost for Int & Test
Material Cost for Prog Test
Material Cost for Sys I&T
Material Cost for Maint
Material Cost
Total
Total Cost for Sys Reqs
Total Cost for SW Reqs
Total Cost for Pre Design
Total Cost for Det Design
Total Cost for Code
Total Cost for Int & Test
Total Cost for Prog Test
Total Cost for Sys I&T
Total Cost for Maint
Total Cost

Activity Report
Includes the following new outputs:
Total Material Cost for Sys Reqs
Total Material Cost for SW Reqs
Total Material Cost for Pre Design
Total Material Cost for Det Design
Total Material Cost for Int & Test
Total Material Cost for Prog Test
Total Material Cost for Sys I&T
Total Material Cost for Maint

Calibration Outputs (See also: Calibration Update)
Includes the following new outputs:

Calibration Factors
Calibration Development Effort Adjustment
Requirements Before Design Effort Adjustment
Requirements After Design Effort Adjustment
Design Thru Program Test Effort Adjustment
System Integrate Thru OT&E Effort Adjustment

Calibration Development Schedule Adjustment
Requirements Schedule Adjustment
Design Thru Program Test Schedule Adjustment
System Integrate Thru OT&E Schedule Adjustment

Calibration Maintenance Effort Adjustment
Corrective Effort Adjustment
Preventive Effort Adjustment
Adaptive Effort Adjustment
Perfective Effort Adjustment
Enhancements Effort Adjustment

Other Metrics
Calibration Technology Adjustment
Calibration Complexity Adjustment
Calibration Defects Adjustment

Milestone Percentages
Percent of Base FSI to PDR
Percent of Base FSI to CDR
Percent of Base FSI to CUT
Percent of Base FSI to TRR
Percent of Base FSI to FQT

**Established Goals**
Includes the following new outputs:
Confidence of Dev Effort Goal
Confidence of Maint Effort Goal

**Monte Carlo Analysis**
The following outputs are new:
MC Risk Development Material Cost
MC Risk Total Development Cost
MC Risk Maintenance Material Cost
MC Risk Total Maintenance Cost
MC Risk Development Material Cost Mean
MC Risk Development Material Cost StdDev
MC Risk Total Development Cost Mean
MC Risk Total Development Cost StdDev
The Following outputs have been renamed:

- MC Risk Development Cost → MC Risk Development Labor Cost
- MC Risk Maintenance Cost → MC Risk Maintenance Labor Cost
- MC Risk Development Cost Mean → MC Risk Development Labor Cost Mean
- MC Risk Development Cost StdDev → MC Risk Development Labor Cost StdDev
- MC Risk Maintenance Cost Mean → MC Risk Maintenance Labor Cost Mean
- MC Risk Maintenance Cost StdDev → MC Risk Maintenance Labor Cost StdDev

### Server Mode Command Updates

The following Server Mode commands are new in SEER-SEM 8.2:

#### SEER-SEM 8.1 Maintenance Compatibility

This new server mode command is used to enable/disable the display of the old maintenance parameters for the current open project. It is equivalent to selecting/deselecting the ‘SEM 8.1 (or earlier) Compatibility’ option in the Project Parameters dialog box.

The old SEER-SEM 7.3 Maintenance Compatibility option has been removed.

**Format**

```
Maint8_1Compatible <YES/NO>
```

**Example**

```
Maint8_1Compatible YES
```

#### Loading Scenarios from the SEER Enterprise Database

Starting with the 8.2.43 maintenance release of SEER-SEM, scenarios can now be saved to and loaded from the SEER Enterprise Database. To support this feature, server mode now includes the LoadScenarioFromDatabase command:

**Format**

```
LoadScenarioFromDatabase ProjectName [RevisionNumber] [InteractiveScenarioQuery]
```

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ProjectName</td>
<td>Name of project in database (required)</td>
</tr>
</tbody>
</table>
## SEER Enterprise Database (SEER-DB)

### General

- Added enhancements to save custom project field definitions and values in project file, and to load them when opening project from project file.
- Fixed a permission issue for releasing a project revision lock. Users who are assigned either the `seer_admin_dbrole` or `seer_project_admin_dbrole` SEER database role can now release a locked project.
- Merging project(s) from the database will no longer overwrite the customer fields of the current project.
- Added database support for RTF notes.

### SEER Enterprise Database Manager

The Help -> About menu inside SEER Enterprise Database Manager Version now displays the version of the software.

![About SEER Enterprise Database Manager](image)

### SEER Users Form

Inactive Users will be hidden by default.
SEER Users Dialog Box

Project List Form

- Upon entering the project list tab, a project search filter can be done to narrow down the list of projects being shown.
- Icons are added to differentiate between different SEER Applications.

Inactive Users will be hidden from the Users list unless the "Show Inactive Users" check box is checked.
Project List Dialog Box

Project Owner and Project Specific Permissions Forms

Project Search Options added to the Project Owner and Project Specific Permissions dialog box

Project Search Dialog Box
Manage Custom Fields Form

- Fixed a bug where the Enterprise Database Manager will not allow the user to delete custom fields with “Short Name” or the “Description” field entered.

Maintenance Updates & Useful Information

Shipping Files

- The SEER-SEM Worksheets have been updated to include parameter changes.
- The SEER-SEM Input worksheets have been updated to include the knowledge base changes and parameter changes.
- The Data Collection Form worksheet has been updated to include the knowledge base changes and parameter changes. Also added the ability to create server mode script based on data and transfer into SEER-SEM.
- The SEER-SEM Rework Percentages worksheet has been updated to the new size metric naming convention.
- The PARAMSUM worksheet and PARAMSUM.FLX has been updated to include parameter changes.
- The SEMacro worksheet has been updated to use SEER-SEM 8.2 file path.
- The SEER-SEM View Creator Template worksheet has been updated to the SEER-SEM 8.2 file path.
- Four new sample project files have been added
  - Agile Sample - OTB eHandicapper
  - Building an Agile Estimate
  - COTS and Custom Sample - CIPU Custom Apps and Package Customizations
  - Sample SAP BPC Implementation
- Two sample project files have been renamed
  - “Customer Facing Web Portal” was renamed to “Web Development Sample - Customer Facing Web Portal”
  - “Marketing Analytics Package” was renamed to “Data Warehouse Sample - Marketing Analytics Package”

Maintenance Release 8.2.22

Miscellaneous

Other Enhancements

- The Choose Active Reports and Choose Active Charts dialog box has been updated and now lists the available items in outline format, with the outline headings representing the types of reports and charts.
Choose Active Reports and Choose Active Charts dialog box

- Entering Knowledge Base mode will now set all parameters to ‘No Knowledge’ by default.
- The Cost Escalation Factor has been updated to 3.00%.
- A Do not Show Again checkbox option has been added to the Invalid Input Value warning. Each parameter has its own unique ‘Do not show again” check box. That way, the user will still be aware of invalid entries for the first time, for each parameter.
Invalid Input warning message

- SEER-SEM will now store the size and position of the children windows (Project WBS, Views, Inputs, Reports and Charts) after closing the project file. The next time a project is opened or created, it will remember how the children windows were configured (size and position). A save configuration is not required.

Fixes

- Export commands the entire project without selecting “Output With” will now correctly exports the relevant data.
- Fixed an error when trying to publish report with different confidence level between the parent and the children parameter.
- Size Metric Definition will no longer crash if the Size Metric Definition is too long.
- SEER-SEM will no longer crash on startup if the custom language name is too long.
- When estimating with size metric inputs, Basic Estimate report will now display the correct size estimated.
- Running an invalid WBSCreate command will no longer crash SEER-SEM.
- Parameter Notes will be deleted correctly when choosing “Delete Parameter Notes” from the right click context menu.
- After changing the size inputs from a lower level element, the Monte Carlo report will now prompt the user to recalculate the Monte Carlo results.
- Fixed a bug where COTS elements were affecting the parent program element’s complexity level.
- Collapsible inputs will no longer change its state after a recalculate action
- Unchecking a checkbox at the rollup will now clear the checkboxes for the children elements. This is true for dialog box such as delete WBS elements.
- Improved handling of Leap Year in producing the Maintenance Effort by (Fiscal) Year report.
- Basic Estimate report at the rollup level will no longer show the estimates for an excluded element.
- Fixed a crash with the calibration inputs when you enter a value greater than the intended maximum of “999,999,999”.
- Fixed a bug with the monthly staffing where a very small last partial month (< 0.01) will get staffed as if it was a full month.
- Monthly and yearly data involving excluded elements will now be correctly exported when doing a Flexible Export with the option “Entire Project” with “Project” type

**Maintenance Release 8.2.25**

**Miscellaneous**

**Fixes**

- Improved display in high resolutions (DPI Awareness).
- Fixed an issue that caused a delay when launching SEER-SEM.
- When a chart is in focus, it can now be copied to the Clipboard as a bitmap using Ctrl+C.
- Fixed a crash that appeared when the Gantt chart was open and one of the WBS element descriptions was too long.
- Allocation charts are now updated when size is zero.
- In the Size Metric Generator, fixed an issue when saving a Size Metric. Only inputs with an entry will now be saved. When loading a Size Metric that was not saved correctly, it can cause SEER-SEM to crash. A Size Metric file created in 8.2.22 will need to be resaved in 8.2.25 before it can be used in SEER-SEM.
- An effort based Size Metric (i.e., Units = “Hours”) without any assumptions will be loaded correctly in SEER-SEM.
- If SEER-HD is not installed, removed message when inserting a WBS element.
- In Project Assistant, user can now use the Tab key to navigate between the input fields and buttons.
- Screen readers such as JAWS will now correctly narrate the input fields and buttons inside Project Assistant.
- Fixed an issue where the “Set Reference” data was changing for Maintenance Hours when the Productive Hours Per Month project parameter was changed.

**Calculation Fixes**

- The Staff Shifts/Day input parameter will still be computed even when the Years of Maintenance is set to 0.
- The calculation for Computed Defects and Computed Defects Resolution Rate has been updated when Years of Maintenance is less than 3. With the new calculation, user can expect the Computed Defects and Computed Defects Resolution Rate to be the same per year when the Years of Maintenance is between 1 and 3.
- The Coverage Requirements calculation has been updated to better account for the SVT Rate (Sick, Vacation, and Training). The change will have nominal
impact for the "shared" staff resources setting, but an increase in effort will occur in the "dedicated" setting.

**Maintenance Release 8.2.38**

**Miscellaneous**

**Other Enhancements**

- The [PATHS] section of Settings.INI now supports the %UserProfile% environment variable in all path options.
- In the Unlock and Unhide Parameters dialog boxes, only those work elements which have parameters that are currently locked (or hidden) are selectable; all other parameters have grayed-out checkboxes. In addition, work elements with locked or hidden parameters are highlighted for easy visibility.
- Knowledge Base labor rates have been updated.
- There are two new Server Mode commands: GetWBSCount and LaunchProjectAssistant. Both commands are intended primarily for internal use by SEER products and features.
- The description of the Programs Included in Size parameter has been updated to more closely reflect current programming and project management practices.
- The number of custom fields in SEER Enterprise Database has been increased to match the increased number of fields in the program.
- SEER Enterprise Database now supports the Additional items work element for SEER-SEM.
- SEER Enterprise Database now supports the renamed Labor Cost outputs in SEER-SEM.
- SEER-SEM now includes the following Activity Name schemes (besides SEER-SEM Standard):
  - Agile Hybrid
  - Agile-Scrum
  - Generic
  - Industry - Banking
  - Industry - Healthcare
  - SDLC Example
  - SDM Example
  - Testing Lifecycle (STLC)

**Fixes**

- Copy for SEER-SYS is now available only when there are work elements in the Project WBS tree.
- Fixed a problem where Save Configuration was overwriting Copy for SEER-IT with inaccurate values.
- Custom Labor Category Allocation no longer overwrites calibration adjustments.
- Opening a project saved in another time zone no longer changes date inputs in the project.
- In Knowledge Base editing mode, Probability/Confidence Level inputs of 0% are no longer accepted when the No Knowledge checkbox is unchecked.
- Program elements created with no Knowledge Base selections now display the correct default probability levels.
- Opening a project in 8.1 Maintenance Compatibility mode no longer changes the 8.2 Maintenance estimate in a project opened immediately afterward.
- The SelectWBSElement and SelectWBSNumber Server Mode commands now work correctly.
- In a Client/Server configuration, SEER-SEM now saves Export Report files in the correct AppData location.

**Maintenance Release 8.2.43**

**Miscellaneous**

**Other Enhancements**

- The right-click context menu in the Project WBS window now includes a "Rename WBS Element..." option, allowing the user to rename work elements and rollups in-line (like the renaming option in Windows Explorer).
- The Unlock Parameters and Unhide Parameters dialog boxes now include an explanation of the unlocking/unhiding process:
  "Only locked parameters are shown. Checked parameters will be unlocked. Unchecking a parameter will keep it locked."
  (With similar language for the Unhide Parameters dialog box.)
- Calibration Adjustments have been renamed in the Calibration Summary Report and Flexible Export to distinguish between computed adjustment outputs and available adjustment inputs.
- For COTS work elements, the Economic Factors tab no longer displays the Least/Likely/Most header (which is not needed for COTS Economic Factors).
- It is now possible to copy and paste Rollups. Copied Rollups can be pasted into other Rollups, or into a new Rollup using Insert Paste. Copied data, including the Rollup name and Knowledge Base selections, will be pasted into the destination Rollup.
- The "License expired" and "License about to expire" warning dialog boxes now allow the user to browse and select a license in an alternate location. This makes it possible to change the license path so that it points to the current
license without having administrative privileges.

- Flexible export now includes Monte Carlo output data for Additional Items.
- Scenarios can now be saved to and loaded from the SEER Enterprise Database. The File menu includes the new command, Load Scenario(s) from Database, and the name of the Load from Scenario command has been changed to Load Scenario:

A new command, LoadScenarioFromDatabase, has been added to Server Mode to support this option.
Fixes

- In a new Project, the following Calibration Adjustment Factors for new Program work elements are now correctly set to 1.00 instead of 0.00: Defects, Technology, Complexity, FBS Platform, and FBS Application.
- Calibration Maintenance Effort Adjustment now correctly recognizes Preventive Effort Adjustment input as "Defined at lower level".
- When the user opens a parameter input dialog box from the Change Parameters in Multiple Work Elements dialog box, the Notes field text is now the correct size.
- Change Parameters in Multiple Work Elements dialog box now lists the Economic Factors inputs.
- Improved the accuracy or Function Based Sizing to Lines of Code conversion.
- Server Mode now uses the correct FBS Normalizing Factor when the Language Table is set to 8.2.
- Opening a Knowledge Base now turns Calibration Mode on by default.
- Fixed incorrect upconvert of Knowledge Bases created with earlier versions of SEER-SEM; when the Adjustment Factor was set to 0, No Knowledge is no longer automatically turned on if it was off in the original KBase.
- Adding an Additional Item to an existing Additional Item work element in a SEER Enterprise Database project, then saving the project to the database no longer produces an error.
- Fixed a problem where merging a subproject with an Additional Item as the first work element produced an "Invalid subproject" error.
- In a new Project, if the first work element is an Additional Item, the Quantity Unit of Measure is now blank by default, rather than displaying "No Knowledge".
- SEER-SEM no longer crashes when the user enters an extremely long Description for an Additional Item.
- Moving from the Project WBS window to the Inputs window using the F6 key now places the focus on the parameter list in the Parameters tab.
  
  **Note:** Moving back to the Project WBS window using the keyboard requires the following sequence: F6, Shift+F6, Shift+F6.

- Moving an Additional item up or down in a pop-out Parameters window now moves the item in the main Parameters window.
- Fixed incorrect dialog box display when moving from the main Additional item to the list of Additional Item detail parameters (or vice versa) using the Next and Previous buttons.
- Server Mode will now create a COTS work element directly below a Program work element from exported project data, even if the exported Program originally had size data.
- Creating a new work element with the Risk Analysis report enabled no longer produces a Risk report with 0% probabilities.
- It is now possible to add a second parameter list to an existing View without automatically duplicating the parameter list already in the View.
- SEER-SEM no longer crashes when the user selects Analogy-Based Estimating, then exits the Retrieve Repository Items dialog box using the Cancel button.
- Current estimates for Additional Item work elements now show up on SEER Metrics scatterplot charts.
- Monte Carlo Risk Calculation now works for Additional Item work elements.
- The Monte Carlo Development and Maintenance Risk reports now show the correct Standard Deviation at the work element level.
- The Risk Analysis Report now works with an Additional Item.
- Fixed a bug where work elements marked "exclude from rollups/totals" were not excluded when a project was merged from SEER-DB.
- Fixed a bug where user-entered values for rework were not transferred to a new subordinate component.
- Fixed a bug where the Latent Defects were computed based on the Total Size rather than the Total Existing Size.
- Fixed a crash with Maintenance Allocation Chart when toggling between 8.1 Maintenance Compatibility Mode.
- Maintenance computed inputs for Defects and Defect Resolution Time are now correctly computed. This impacts corrective maintenance estimates that use pre-existing size and have Programs Included in Size set to greater than 1.

Upgrade Information

The following are special considerations for the users of earlier SEER-SEM versions.

Installation

You do not have to uninstall SEER-SEM 8.1 to install SEER-SEM 8.2. In fact, it is recommended that you maintain your SEER-SEM 8.1 installations. We do recommend, however, that you uninstall any beta release versions you have installed.

File Up-convert

Your SEER-SEM files from 8.1 or earlier can be used in this 8.2 version. However project files saved in 8.2 will no longer be compatible with 8.1 or earlier versions. It is recommended that backups of your project files are made before you use them in 8.2.

8.2 Compatibility

Projects saved in version 8.2.43 are not compatible with the 8.2.22 and 8.2.25 releases, but they are compatible with both the 8.2.38 and 8.2.38.1 releases.

8.1 Compatibility

Projects saved in version 8.2.43 are not compatible with any 8.1 releases. If you are using version 8.2.43 and need to send a project to someone who is using an earlier version, you can
use the Export Commands feature to save a server mode script file that can be used to recreate
the project in earlier versions of SEER-SEM.

A spreadsheet utility is available to help with using Export Commands. Please contact Galorath
technical support (310.414.3222 or support@galorath.com) to request the file or if you would like
assistance.

**Estimate Compatibility**

When you open old projects in SEER-SEM 8.2, they will be loaded with the legacy settings. To take
advantage of new estimate options, go to Options/Set Project Parameters.

Specific areas of estimate compatibility are described here.

**Old vs. New Maintenance Model**

For pre-8.2 projects, SEER-SEM will use the old Maintenance model by default. You can set the
project to the current Maintenance model in the Project Parameters dialog box.

**Changes to the New Maintenance Model**

The following changes may affect SEER-SEM 8.2 estimates using the new maintenance model, if
they were created before version 8.2.25, then opened in a later version.

1. The Staff Shifts/Day input parameter will still be computed even when the Years of
   Maintenance is set to 0.
2. Computed Defects and Computed Defects Resolution Rate will now be the same per year
   when the Years of Maintenance is between 1 and 3.
3. The Coverage Requirements calculation has been updated to better account for the SVT Rate
   (Sick, Vacation, and Training). The change will have nominal impact for the "shared" staff
   resources setting, but an increase in effort will occur in the "dedicated" setting.

**Defect Computations Impacting Maintenance Estimates**

SEER-SEM 8.2.43: The number of estimated latent defects will now be computed based on the
total existing size instead of the total size. For a project that has both new and existing size, the
estimated latent defects and maintenance estimate can differ from the previous version. This
will impact any corrective and preventive maintenance estimates.

SEER-SEM 8.2.43: Latent defects are now correctly computed when Programs Included in Size is
greater than one. This will impact any corrective and preventive maintenance estimates that use
pre-existing size and have Programs Included in Size set to greater than 1.

**FBS to SLOC Conversion**

The accuracy or Function Based Sizing to Lines of Code conversion has been improved. This will
not affect sizing in an older FBS project which has been upconverted, but it will result in a slightly
larger Effective Size for a new project using the same FBS inputs.
COTS Interference with Complexity Inheritance

Fixed a bug where the presence of a COTS elements was affecting the parent program element’s complexity level when complexity was inherited from a subordinate Component work element. Older projects affected by the bug will automatically have the correct complexity when opened in SEER-SEM 8.2.11 or later.

Updated Rates and Factors

Knowledge Base labor rates have been updated to 2017.

The Cost Escalation Factor has been updated to 3.00%.