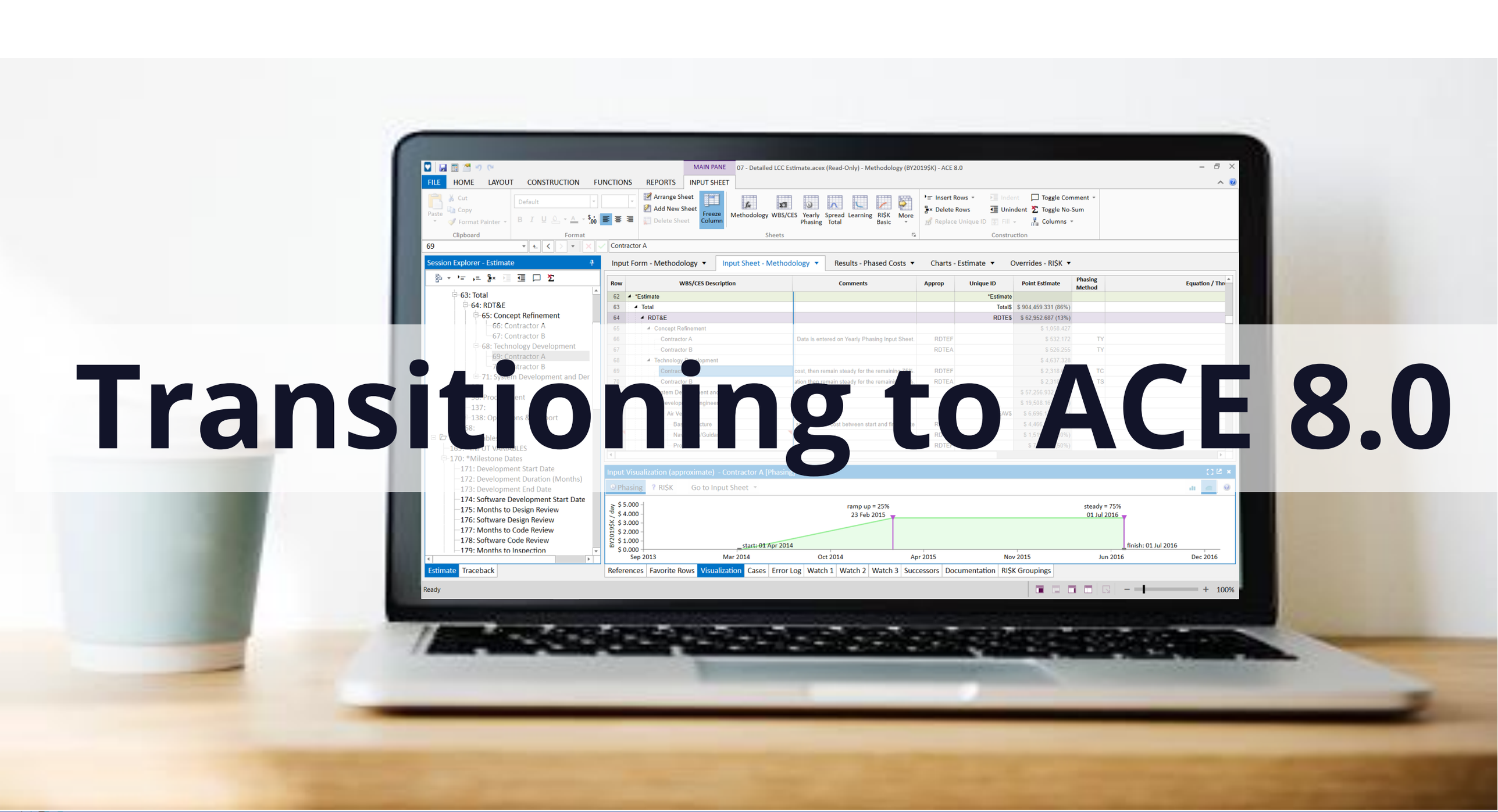
Transitioning to ACE 8.0



Agenda

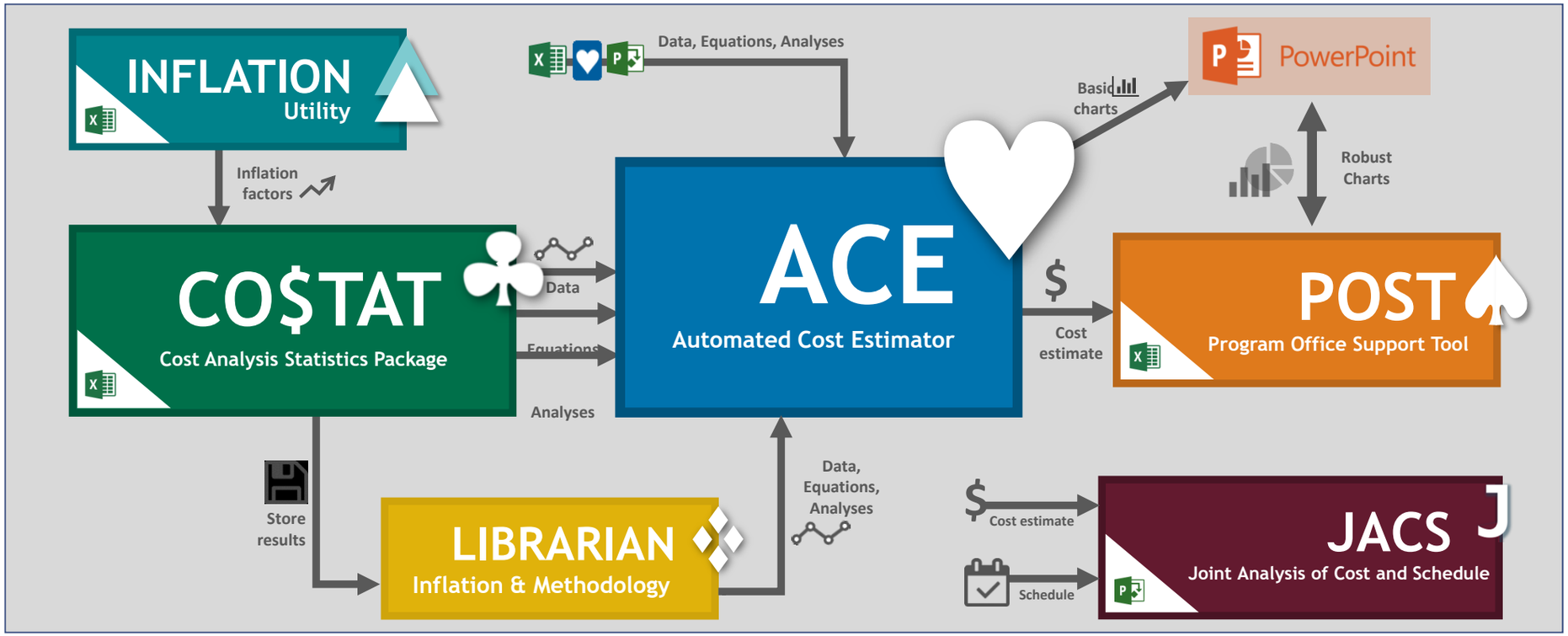
The purpose of this brown bag is to outline best practices to convert an ACE 7.5 session to ACE 8.0. This transition process includes steps in ACE 7.5 to prepare the session for conversion and then guidance on how to start capitalizing on ACE 8.0 enhancements.

This session outlines:

- Introduction
  - High level ACEIT 8.0 change summary
  - When to transition a file to ACE 8.0
- ACE 7.5 session preparation
- Opening the session in ACE 8.0
  - Understanding file extensions & backwards compatibility
  - Checking the file in ACE 8.0
  - Considering upgrading the ACE session for ACE 8.0 new features

ACEIT 8.0 Change Summary

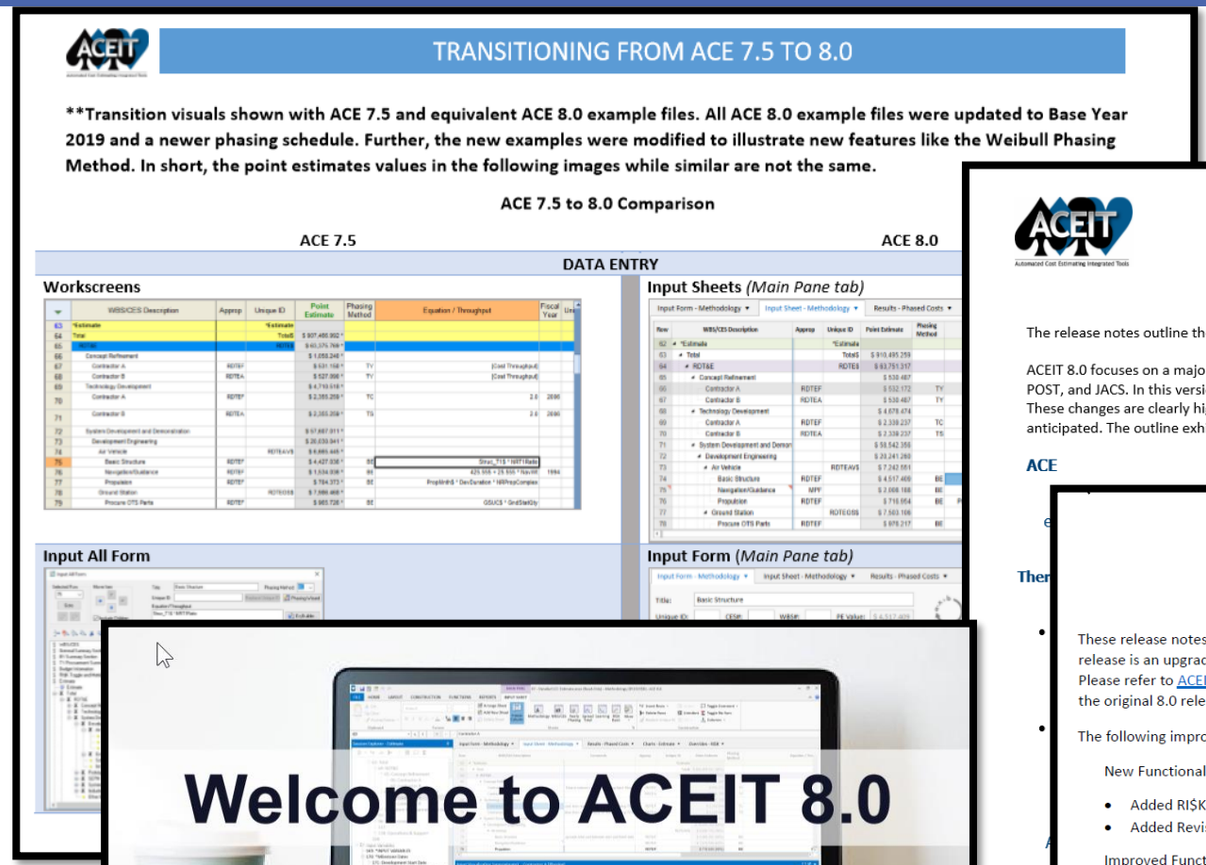
- ACEIT 8.0 architectural changes
  - ACDB moved to CRH (formerly JIAT)
  - POSTDoc removed
- ACE 8.0 development
  - Major changes to ACE user interface
  - Same ACE calculation engine
  - Modifications to ACE file structure for new interface

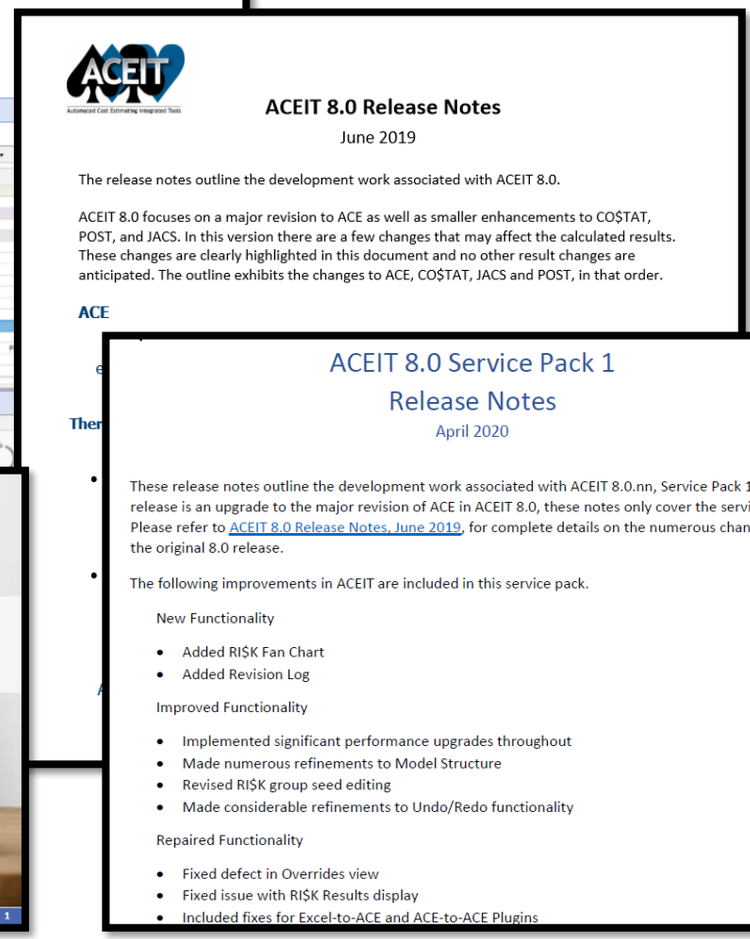


Consulting ACEIT 8.0 User References

- At ACEIT.com/User Resources/Downloads/ Productions Software
  - 8.0 Release Notes
  - Transitioning From ACE 7.5 to 8.0
- At ACEIT.com/ACEIT Suite/Welcome ACEIT 8.0
  - Welcome to ACEIT 8.0

ACEIT 8.0 SP2-003 now available





ACEIT 8.0 Release Notes

June 2019

The release notes outline the development work associated with ACEIT 8.0.

ACEIT 8.0 focuses on a major revision to ACE as well as smaller enhancements to CO$TAT, POST, and JACS. In this version there are a few changes that may affect the calculated results. These changes are clearly highlighted in this document and no other result changes are anticipated. The outline exhibits the changes to ACE, CO$TAT, JACS and POST, in that order.

ACE

ACEIT 8.0 Service Pack 1

Release Notes

April 2020

These release notes outline the development work associated with ACEIT 8.0.nn, Service Pack 1. As this release is an upgrade to the major revision of ACE in ACEIT 8.0, these notes only cover the service pack. Please refer to ACEIT 8.0 Release Notes, June 2019, for complete details on the numerous changes in the original 8.0 release.

The following improvements in ACEIT are included in this service pack.

New Functionality

- Added RI$K Fan Chart
- Added Revision Log

Improved Functionality

- Implemented significant performance upgrades throughout
- Made numerous refinements to Model Structure
- Revised RI$K group seed editing
- Made considerable refinements to Undo/Redo functionality

Repaired Functionality

- Fixed defect in Overrides view
- Fixed issue with RI$K Results display
- Included fixes for Excel-to-ACE and ACE-to-ACE Plugins

When Should You Transition a File to ACE 8.0?

- Confer with all organizations that are stake holders in the ACE session
  - Ensure that all organizations have access to ACEIT 8.0 before transitioning the file
  - ***Only make the switch to ACE 8.0 if all organizations have access to ACEIT 8.0***
    - ACE 8.0 files are not backwards compatible to ACE 7.5 due to file structure modifications
      - *This means once a file is transitioned into 8.0, you can not open it in 7.5 anymore*

- Select one organization/team member to transition the file to ACE 8.0
  - Recommend selecting the organization where most changes to the session originate

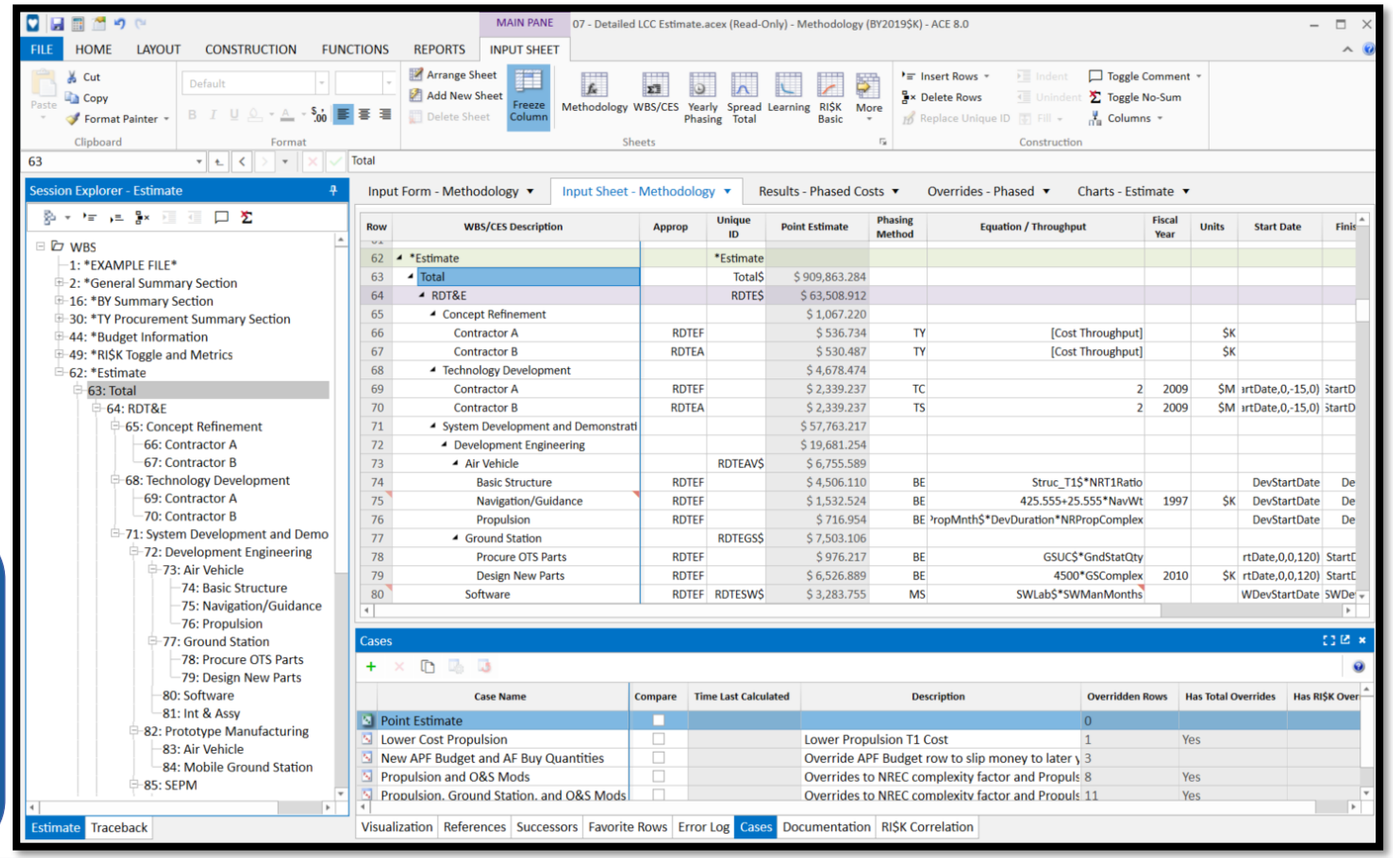
- When complete distribute the ACE 8.0 session to all participating team members

ACE 7.5 Session Preparation

ACE 8.0 is Different than ACE 7.5

- ACE 8.0 is a revolutionary interface change
  - To be able to tackle future cost estimating challenges we've introduced many new interface elements
  - We've modified features to expand their capabilities
  - We've created new visual displays to help you better understand inputs and results
  - We've emphasize better understanding of row connections in the file
  - We've developed some new terms or names

When the file transitions some areas of the feature set will go through more changes than others. This presentation is designed to help you best prepare your model to maximize the power of 8.0

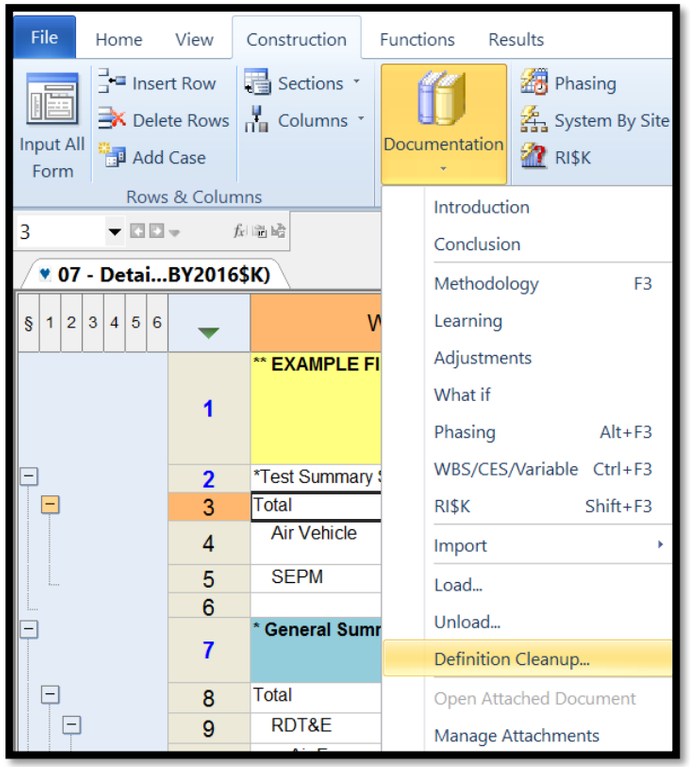


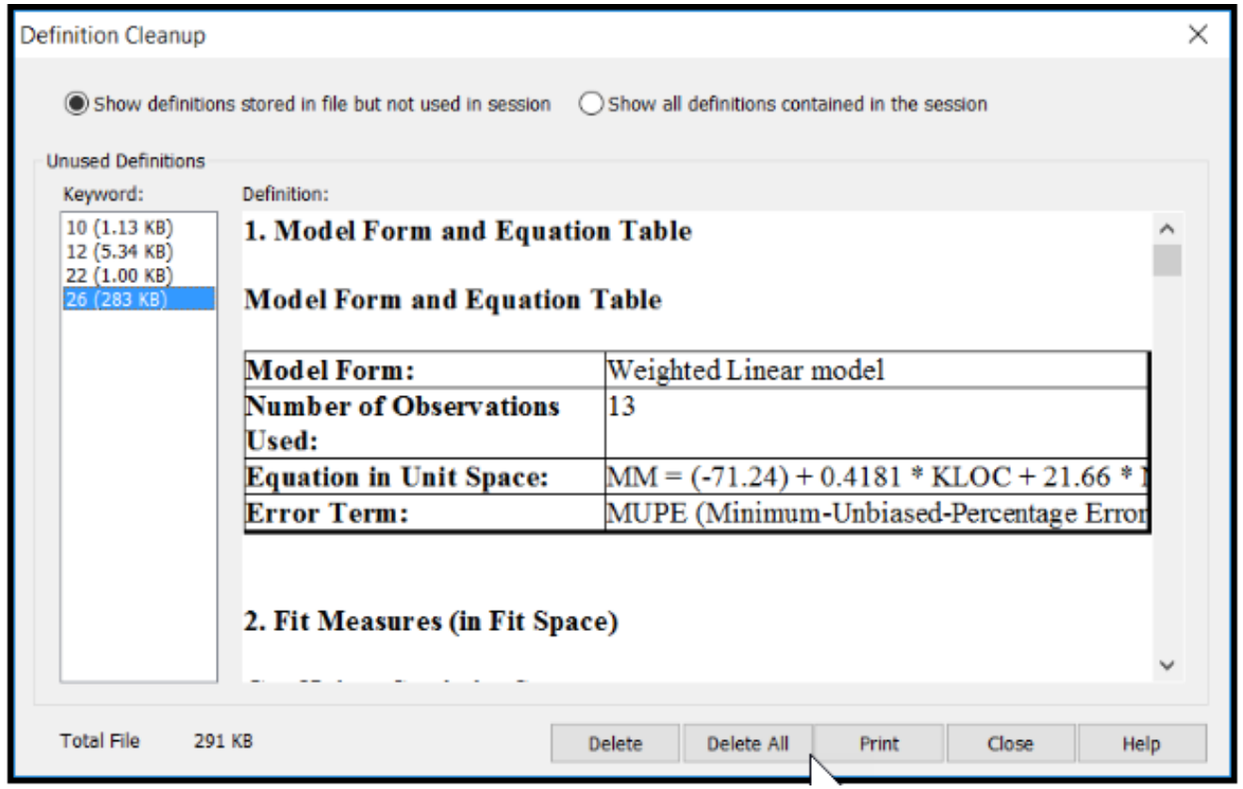
Transitioning a File to ACE 8.0 Starts in ACE 7.5

- Prepare the session for transition by cleansing the session in ACE 7.5
  1. Review Definitions
  2. Clear Error Messages
  3. Review Reports
  4. Scan Cell Formatting
- Examine the 7.5 session to understand the extent of the file transition
  1. Are there summary sections in the session?
  2. How many DECs and Category columns does the session have?
  3. Are there inputs on the Yearly Phasing workscreen that are not associated with the Fiscal Years?
- Maintenance on the session
  1. This is a good time to review the sessions overall methodology:
     - Reduce the footprint of the model
     - Remove rows that are not core to the sessions mission

Preparing the Session: Review Definitions

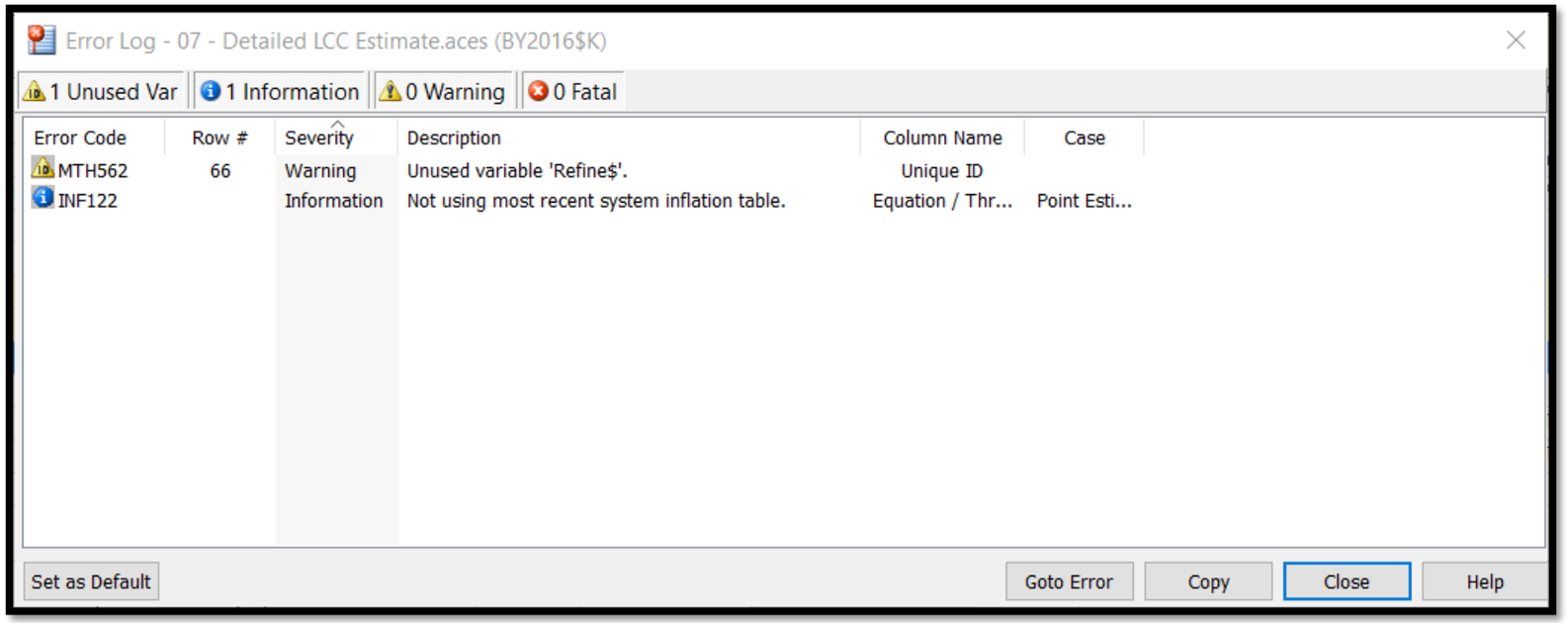
- Run Definition Cleanup
  - General review of documentation: ensure documentation is current
    - Remove irrelevant notes, comments and definitions
  - Remove unused definitions





Preparing the Session: Clear Error Messages

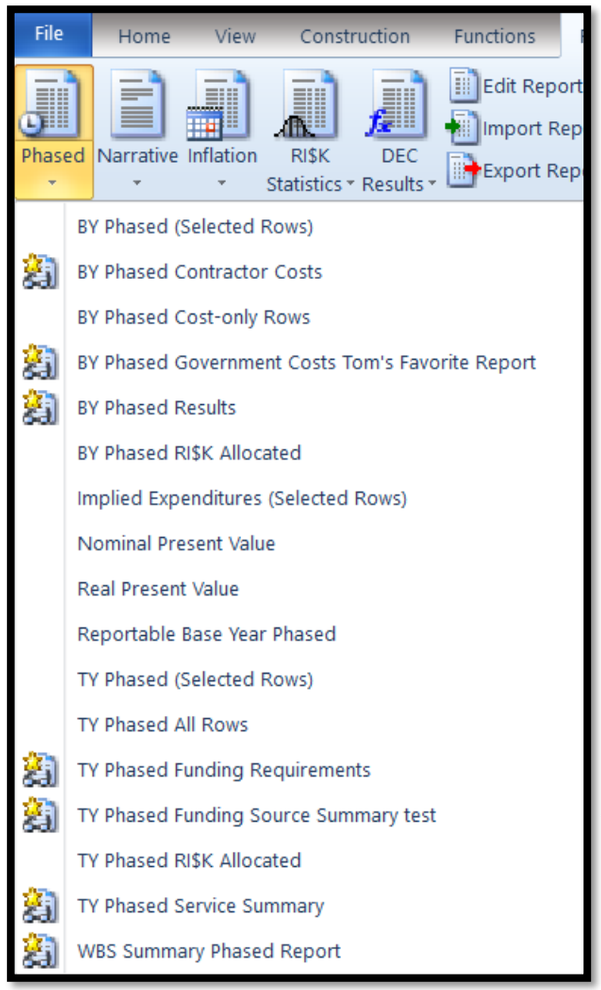
- Look at the error log in the session
  - Are there any fatal errors or unused variables?
    - If so, correct them before moving on



Preparing the Session: Review Reports

- Review Session Reports
  - Only transition the reports you need going forward
  - Remove redundant or outdated reports
  - Update reports
    - Use best practices on report titles
      - Example “Tom’s Favorite Report”
        - Tom may no longer support the program

- Go to Results Ribbon > Edit Reports and review all Session Reports



Update

Remove

Preparing the Session: Scan Cell Formatting

- Prepare cell formatting for the transition
  - ACE 8.0 only applies formatting (fonts, font colors, and cell color highlighting) to an entire row
  - When the file is transitioned
    - Formatting on entire rows will transition directly to ACE 8.0
    - If cells are individually formatted, the row will adopt the formatting of the WBS/CES Description
    - Consider updating the cell formatting before the file transition

The meaning behind cell formatting can be captured in ACE 8.0 with cell definitions

Applied to the row

07 - Detaile...y (BY2016$K)

§ 1 2 3 4 5 6		WBS/CES Description	Approp	Unique ID	Point Estimate	Phasing Method	Equation / Throughput	Fiscal Year	Units	Summary Result Type
	63	*Estimate		*Estimate						
	64	Total		Total$	$ 907,466.992 (41%) *					
	65	RDT&E		RDTE$	$ 63,375.769 (14%) *					
	66	Concept Refinement		Refine$	$ 1,058.240 *					
	67	Contractor A	RDTEF		$ 531.150 *	TY	[Cost Throughput]		$K	
	68	Contractor B	RDTEA		$ 527.090 *	TY	[Cost Throughput]		$K	
	69	Technology Development			$ 4,710.518 *					
	70	Contractor A	RDTEF		$ 2,355.259 *	TC	2.0	2006	$M	
	71	Contractor B	RDTEA		$ 2,355.259 *	TS	2.0	2006	$M	
	72	System Development and Demonstration			$ 57,607.011 (14%) *					
	73	Development Engineering			$ 20,030.041 (47%) *					
	74	Air Vehicle		RDTEAV$	$ 6,665.445 (49%) *					
	75	Basic Structure	RDTEF		$ 4,427.036 (50%) *	BE	Struc_T1$ * NRT1Rat			
	76	Navigation/Guidance	RDTEF		$ 1,534.036 (50%) *	BE	425.555 + 25.555 * NavWt			
	77	Propulsion	RDTEF		$ 704.373 (50%) *	BE	PropMnth$ * DevDuration * NRPropComplex			
	78	Ground Station		RDTEGS$	$ 7,986.468 (50%) *					
	79	Procure OTS Parts	RDTEF		$ 965.726 *	BE	GSUC$ * GndStatQty			
	80	Design New Parts	RDTEF		$ 7,020.742 (50%) *	BE	4500 * GSComplex	2004	$K	

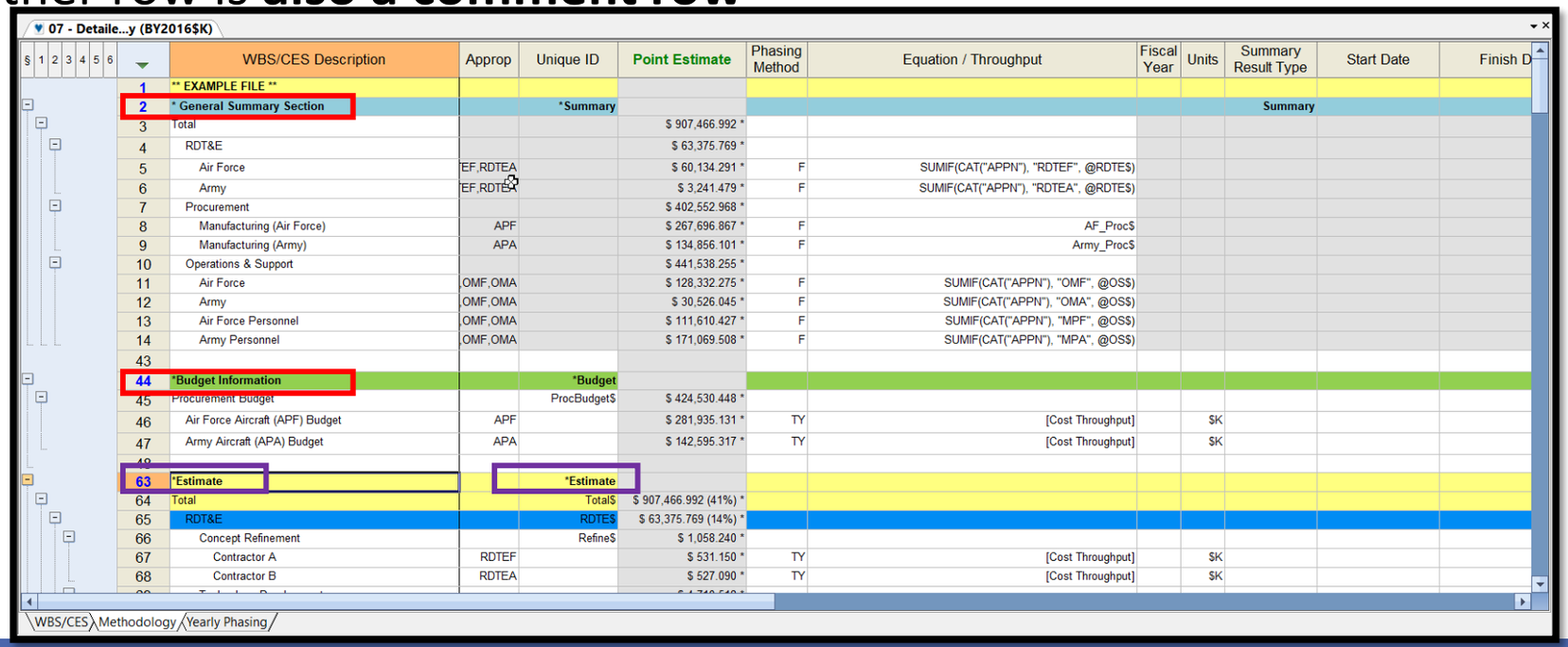
WBS/CES | Methodology | Yearly Phasing

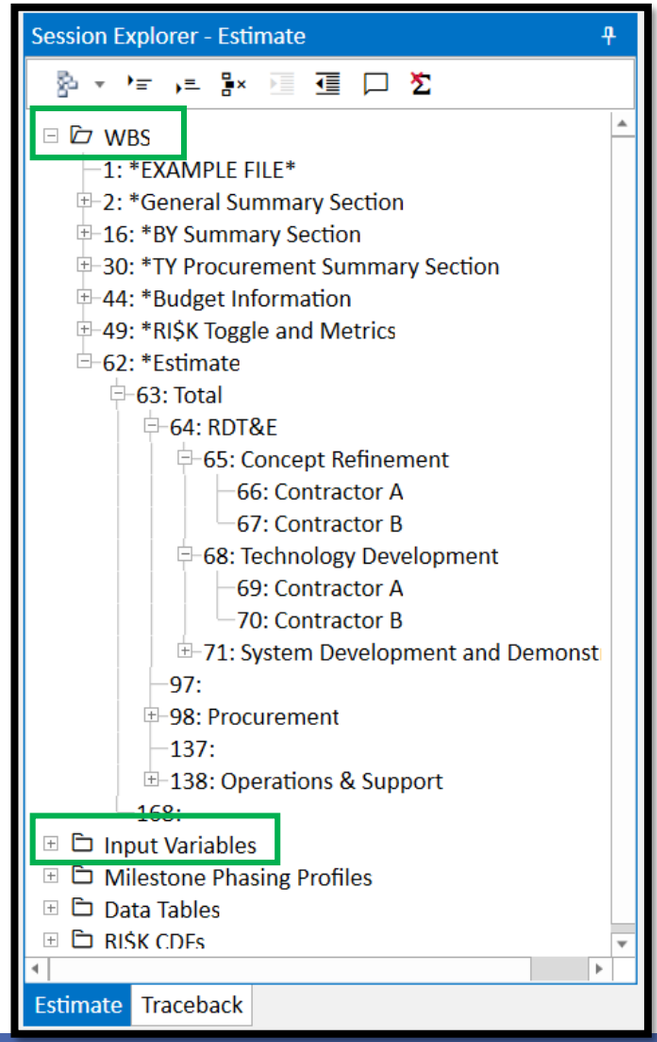
Transitions to 8.0

Not transitioned to 8.0

Examining the 7.5 Session: Summary Sections

- Summary sections at the top of the session translate best to 8.0
  - All rows Above the *IN_VAR Unique ID transition to WBS folder
  - All rows Below the *IN_VAR Unique ID transition to Input Variables folder
- For best results move summary sections Above the *IN_VAR row before file transition
- Sections marked with *at the beginning of the Unique ID work Best if ther row is **also a comment row**

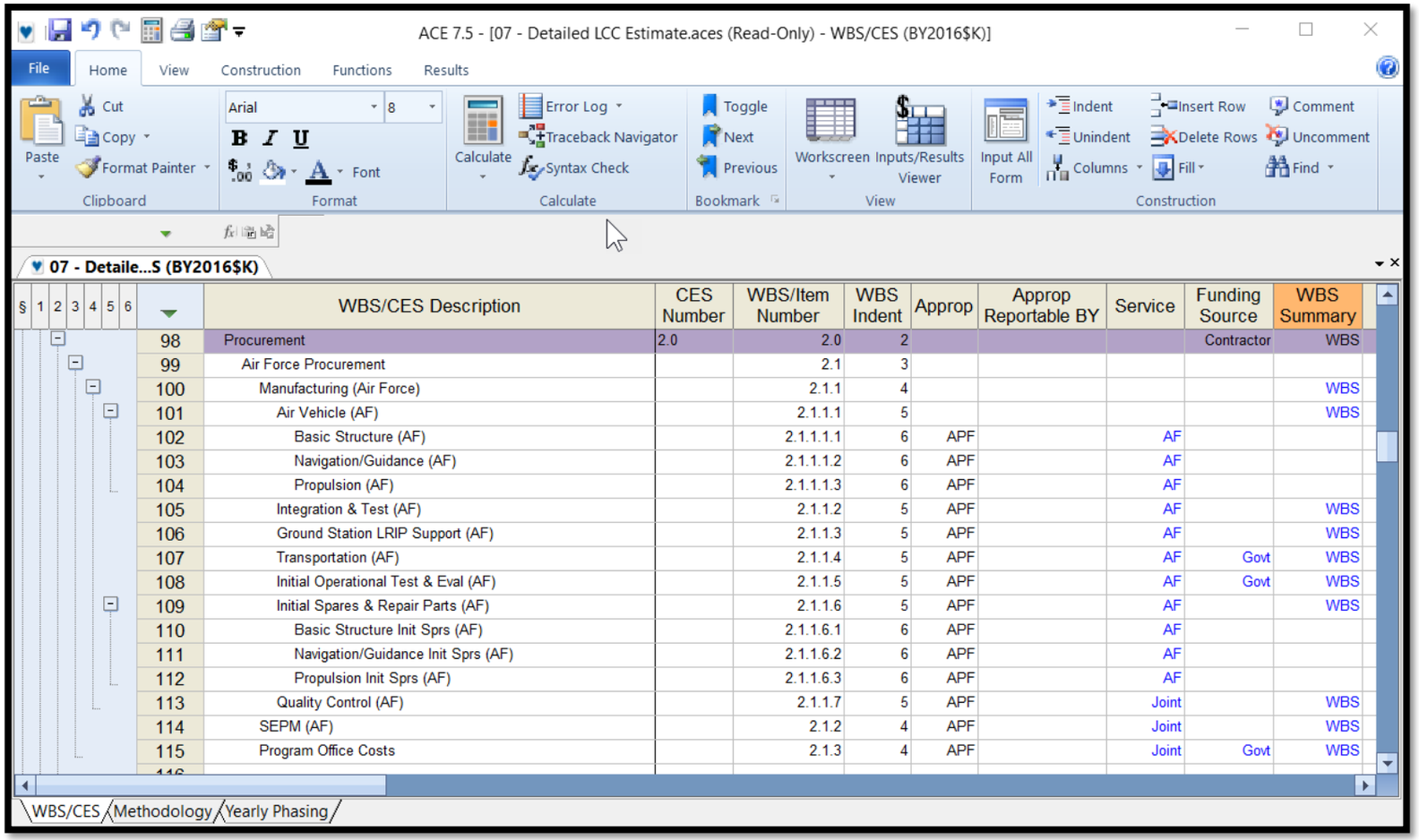




Examining the 7.5 Session: Category Columns and DECs

- Does the session contain Category Columns or DECs?
- Category Columns mainly support
  - Summary sections with SumIF functions
  - Report filter and summary options
- DECs commonly support
  - Multiple equation columns
  - ACE Plug-ins
- In ACE 8.0 Category columns and DECs are ***automatically*** combined into one column type called Custom Columns

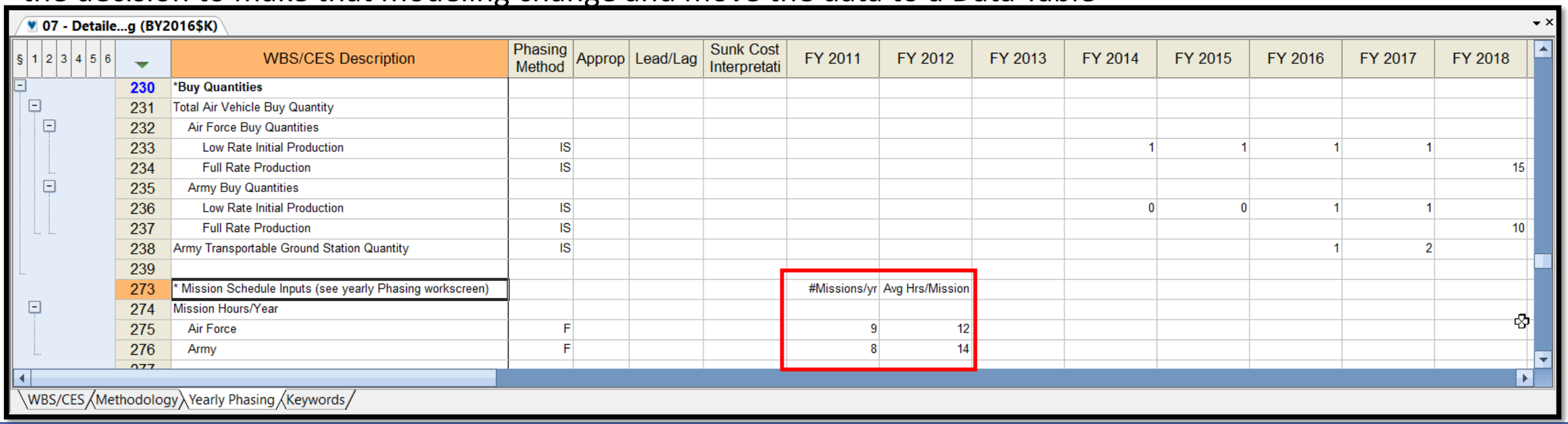
More on Custom Columns later in this presentation



§ 1 2 3 4 5 6	WBS/CES Description	CES Number	WBS/Item Number	WBS Indent	Approp	Approp Reportable BY	Service	Funding Source	WBS Summary
98	Procurement	2.0	2.0	2				Contractor	WBS
99	Air Force Procurement		2.1	3					
100	Manufacturing (Air Force)		2.1.1	4					WBS
101	Air Vehicle (AF)		2.1.1.1	5					WBS
102	Basic Structure (AF)		2.1.1.1.1	6	APF		AF		
103	Navigation/Guidance (AF)		2.1.1.1.2	6	APF		AF		
104	Propulsion (AF)		2.1.1.1.3	6	APF		AF		
105	Integration & Test (AF)		2.1.1.2	5	APF		AF		WBS
106	Ground Station LRIP Support (AF)		2.1.1.3	5	APF		AF		WBS
107	Transportation (AF)		2.1.1.4	5	APF		AF	Govt	WBS
108	Initial Operational Test & Eval (AF)		2.1.1.5	5	APF		AF	Govt	WBS
109	Initial Spares & Repair Parts (AF)		2.1.1.6	5	APF		AF		WBS
110	Basic Structure Init Sprs (AF)		2.1.1.6.1	6	APF		AF		
111	Navigation/Guidance Init Sprs (AF)		2.1.1.6.2	6	APF		AF		
112	Propulsion Init Sprs (AF)		2.1.1.6.3	6	APF		AF		
113	Quality Control (AF)		2.1.1.7	5	APF		Joint		WBS
114	SEPM (AF)		2.1.2	4	APF		Joint		WBS
115	Program Office Costs		2.1.3	4	APF		Joint	Govt	WBS

Examining the 7.5 Session: Inputs Stored in Yearly Phasing Columns

- Are there inputs on the Yearly Phasing workscreen that are not associated with the Fiscal Years?
- In ACE 7.5 the Yearly Phasing workscreen could store a matrix data table that was independent of the Fiscal Year
  - Example: Mission Schedule Inputs: # Missions per year and Avg Hours per Mission
    - Service data is stored in the first two fiscal years of the session but not associated with FY 2011 or 2012
- In ACE 8.0 FY independent data inputs are good candidates to transition to new Data Tables
  - FY data inputs like this are not automatically converted to ACE 8.0 Data Tables, it is up to the model builder to make the decision to make that modeling change and move the data to a Data Table



07 - Detaile...g (BY2016$K)

§ 1 2 3 4 5 6		WBS/CES Description	Phasing Method	Approp	Lead/Lag	Sunk Cost Interpretati	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
−	230	*Buy Quantities												
−	231	Total Air Vehicle Buy Quantity												
−	232	Air Force Buy Quantities												
	233	Low Rate Initial Production	IS							1	1	1	1	
	234	Full Rate Production	IS											15
−	235	Army Buy Quantities												
	236	Low Rate Initial Production	IS							0	0	1	1	
	237	Full Rate Production	IS											10
	238	Army Transportable Ground Station Quantity	IS									1	2	
	239													
	273	* Mission Schedule Inputs (see yearly Phasing workscreen)					#Missions/yr	Avg Hrs/Mission						
−	274	Mission Hours/Year												
	275	Air Force	F				9	12						
	276	Army	F				8	14						

WBS/CES | Methodology | Yearly Phasing | Keywords

Final 7.5 Thoughts Before Moving to 8.0

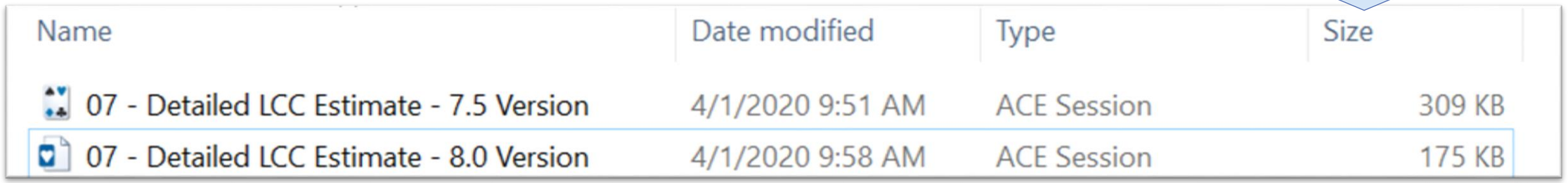
- This is a good time to examine the overall session before transitioning to ACE 8.0
- Considering the following:
  - Are major sections of the model commented out?
    - Consider removing these rows before going forward
  - Do you no longer need the same level of detail on a section of the model?
    - Maybe a section can be trimmed before moving forward
  - Are all the summary sections still needed or can summary results be generate with a report?
    - Consider implementing a different modeling approach for results to improve the efficiency of the model
  - Has the original mission of the session changed?
    - Now might be a good time to make some model revisions
- ***Finally, after all updates are made calculate and save the file before closing 7.5***

Opening the Session in ACE 8.0

Understanding File Extensions & Backwards Compatibility

- In ACE 7.5 the file name was session.aces
- In ACE 8.0 the file name is session.acex

ACE 8.0 files may be smaller than its 7.5 version



Name	Date modified	Type	Size
07 - Detailed LCC Estimate - 7.5 Version	4/1/2020 9:51 AM	ACE Session	309 KB
07 - Detailed LCC Estimate - 8.0 Version	4/1/2020 9:58 AM	ACE Session	175 KB

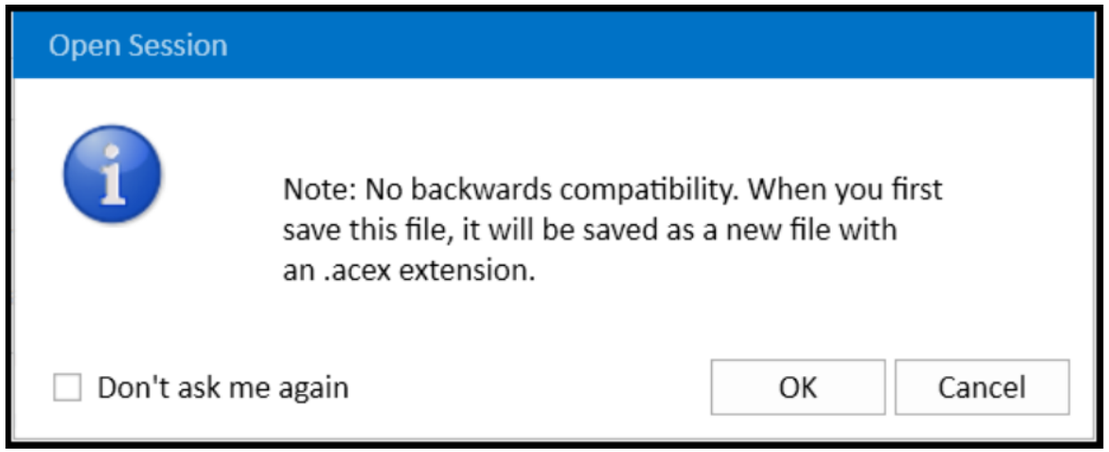
- ACE 7.5 and ACE 8.0 can be installed on the same computer
  - If you double click on a ACE 7.5 File, ACE 7.5 will open
  - If you double click on a ACE 8.0 File, ACE 8.0 will open
- ACE 8.0 files will not open in ACE 7.5; further 8.0 files cannot be saved in 7.5 format

Always save a backup copy of the session before transitioning versions

Starting the ACE 8.0 Transition

- Save a back up copy of your ACE 7.5 session
  - Save the back up file to a different folder prior to file transition

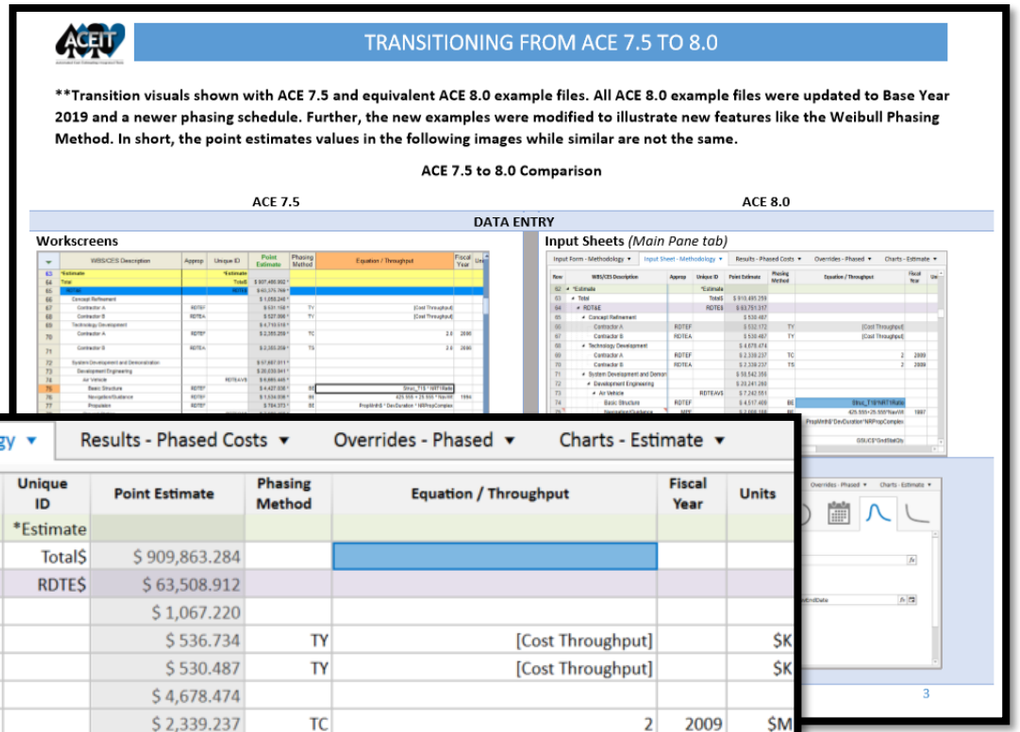
- Time for the transition
  1. Open ACE 8.0
  2. Go to File → Open
  3. Navigate to the 7.5 file and select “Open”
  4. ACE will prompt you if you want to transition the file to 8.0
  5. Select “OK”
  6. ACE will save the session as an ACE 8.0 file; .acex

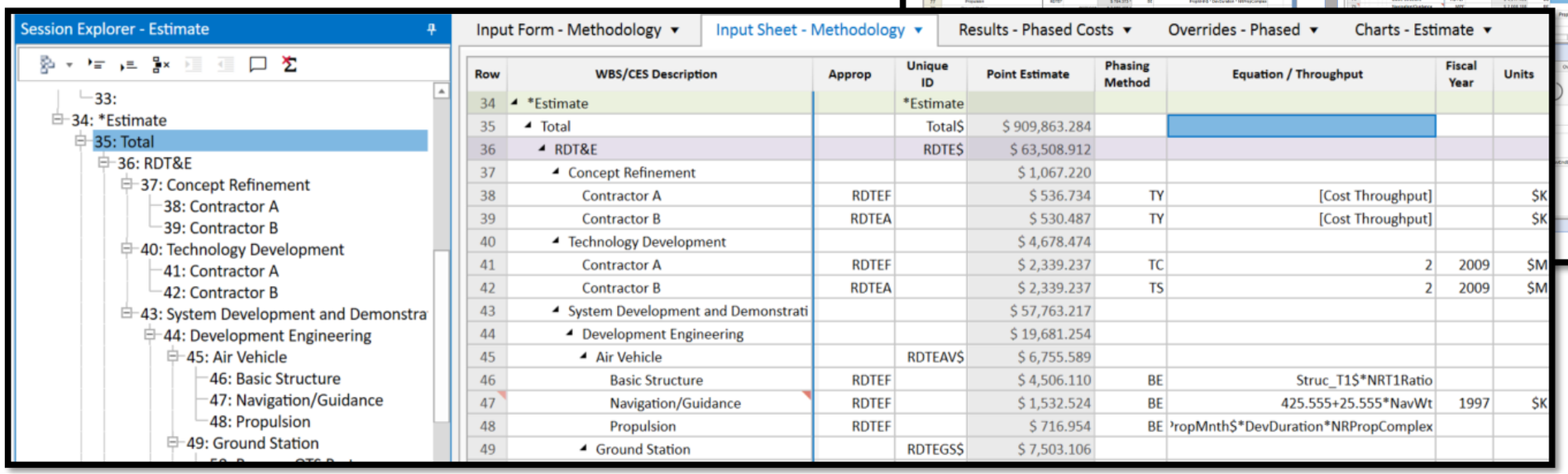


Understanding Name Changes between 7.5 and 8.0

- Key ACE 8.0 name and term changes outlined in “Transitioning From 7.5 to 8.0”

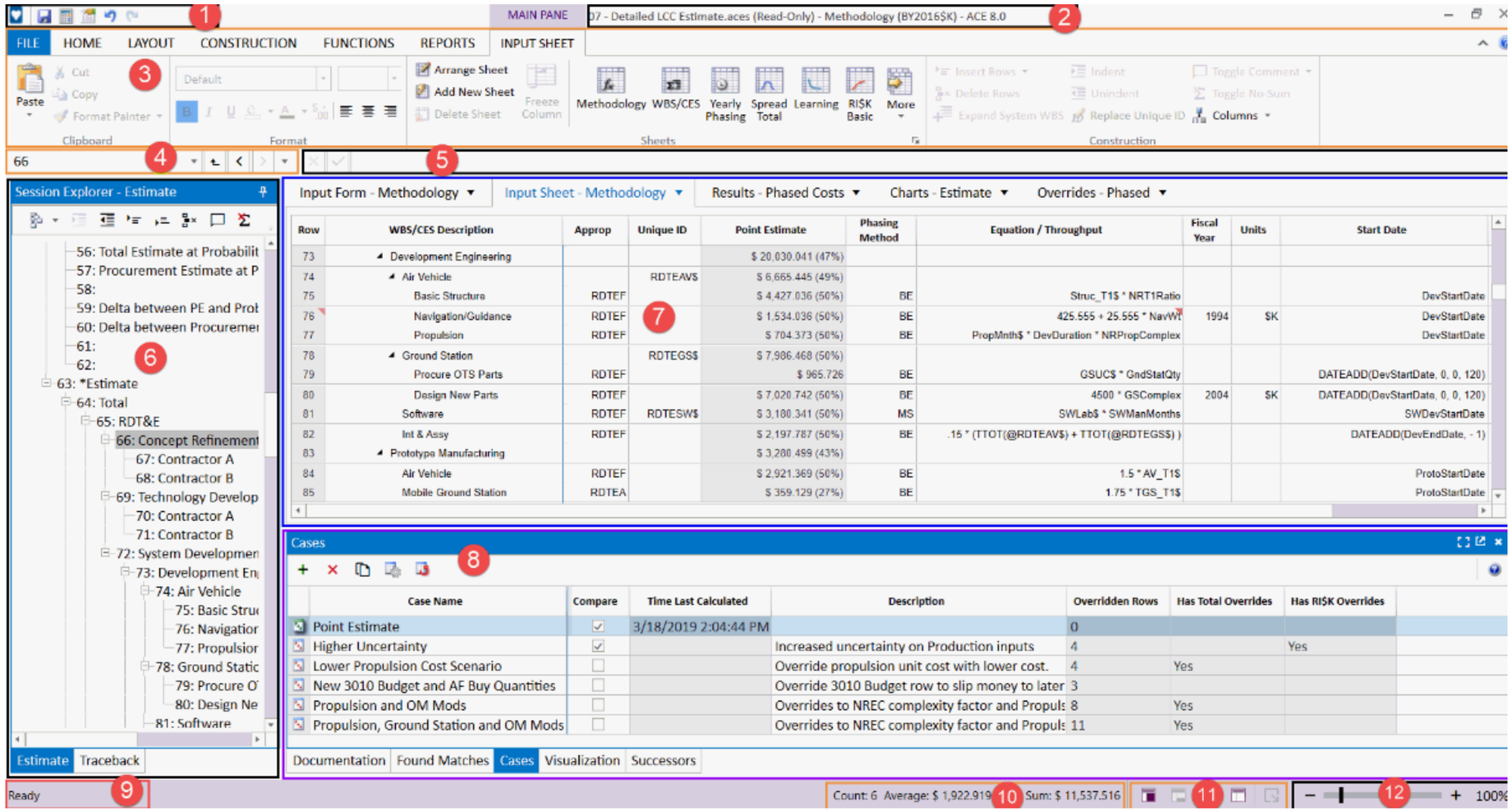
ACE 7.5	ACE 8.0
Input All Form	Input Form
Workscreens	Input Sheets
DECs, Category Columns	Custom Columns
Inputs / Results Viewer	Results tab of Main Pane





Understanding the 8.0 Interface

- Use the embedded ACE Help Text > ACE Layout topic

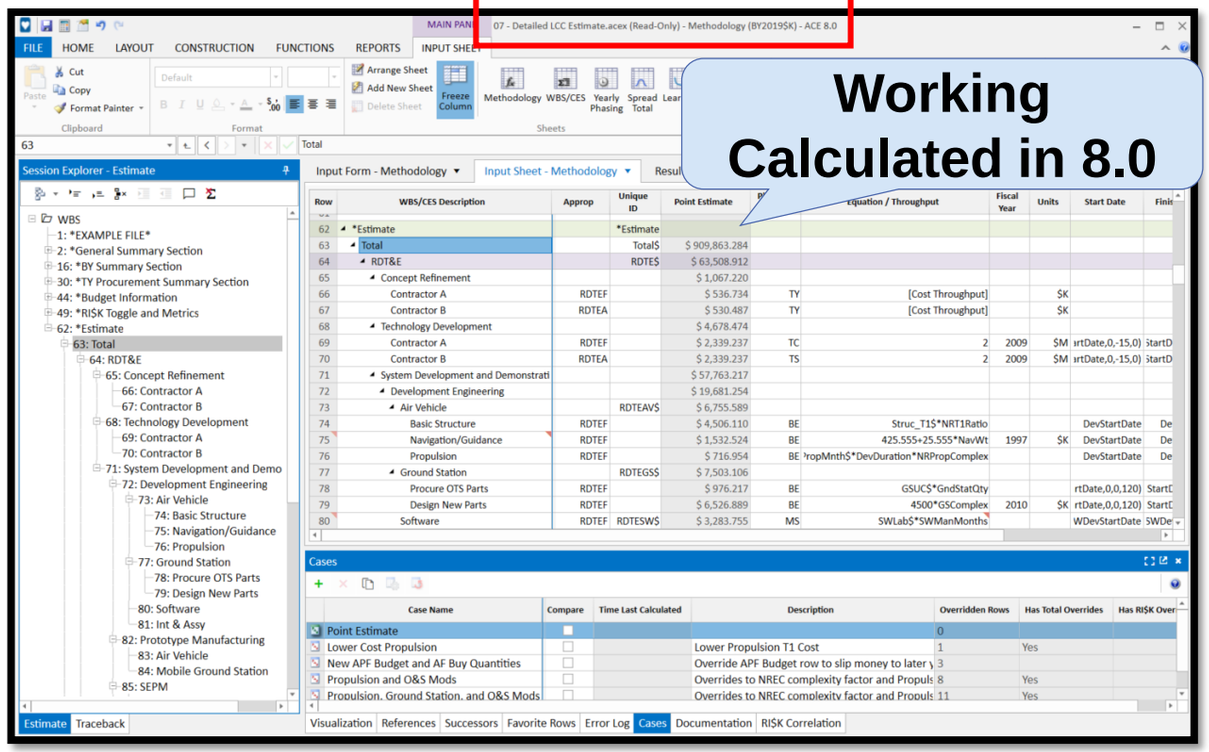


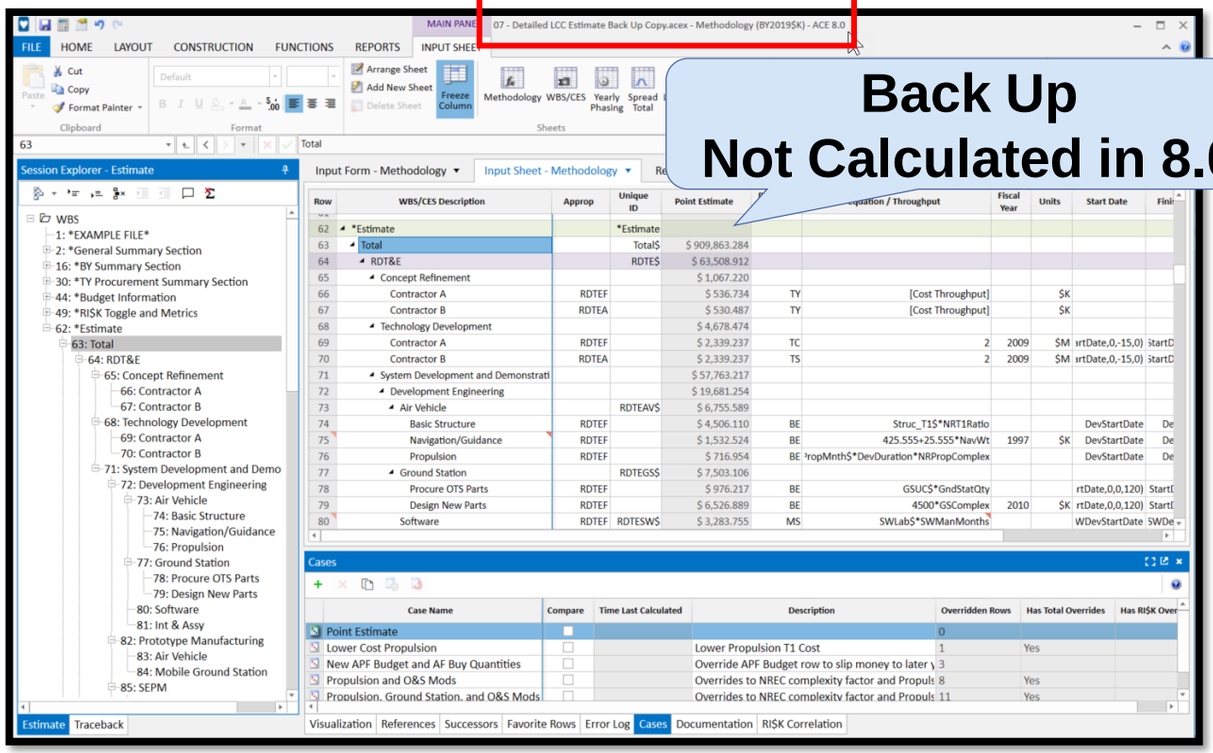
Checking the Session in ACE 8.0

- Save a copy of the new ACE 8.0 file
  - At this point you should have a backup 7.5 file, a backup 8.0 file and a new working 8.0 copy of the file *(this is recommended for any file upgrade project)*
- In the working copy, perform a Full Calculate and look at the Error Log
  - Did the session fully calculate?
  - Are the results the same as ACE 7.5?
- Review the documentation
- Review and update Custom Columns properties
- Consider transitioning FY independent inputs stored in Yearly Phasing Fiscal Years to Data Tables

Compare ACE 7.5 Calculated Result to ACE 8.0

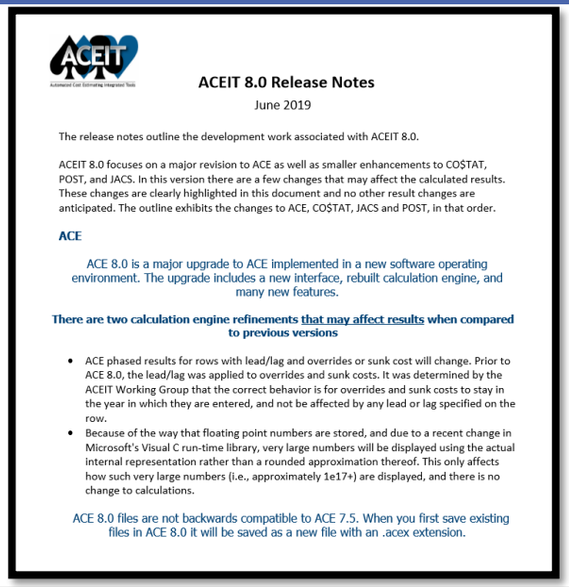
- Compare the 7.5 calculated result within 8.0 results both within the 8.0 interface
- ACE 8.0 offers multiple instances
  - Open the working copy and the back up copy of the session to begin to compare results
  - Multiple instances can be set up on dual monitors
  - Perform side by side comparison





Calculating the Session in ACE 8.0

- Compare the results of the working session to the back up copy
  - If the results are different consult the ACEIT 8.0 release notes: there are a few refinements that might affect the results of the session
- Calculate the working session
  - ACE now performs Incremental Calculations as the default calculate (F9) on the Input Form and Input Sheet.
    - This only calculates the rows that have changed since the last calculation for the default case
  - A Full Calculate (Ctrl+Alt+F9) will calculate all rows in the session for the default case. Full Calc is the default on Results, Overrides, and Charts tabs of Main Pane.
    - Recommend performing a full calculate after a series of changes are made to the session and before results presentations



ACEIT 8.0 Release Notes

June 2019

The release notes outline the development work associated with ACEIT 8.0.

ACEIT 8.0 focuses on a major revision to ACE as well as smaller enhancements to CO$TAT, POST, and JACS. In this version there are a few changes that may affect the calculated results. These changes are clearly highlighted in this document and no other result changes are anticipated. The outline exhibits the changes to ACE, CO$TAT, JACS and POST, in that order.

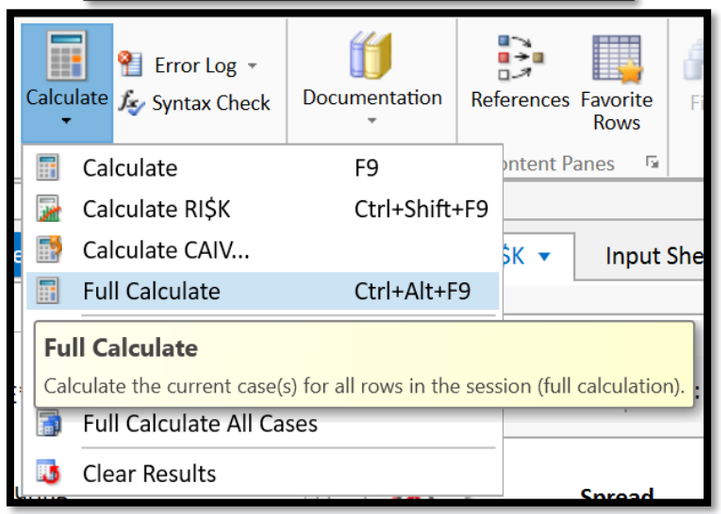
ACE

ACE 8.0 is a major upgrade to ACE implemented in a new software operating environment. The upgrade includes a new interface, rebuilt calculation engine, and many new features.

There are two calculation engine refinements that may affect results when compared to previous versions

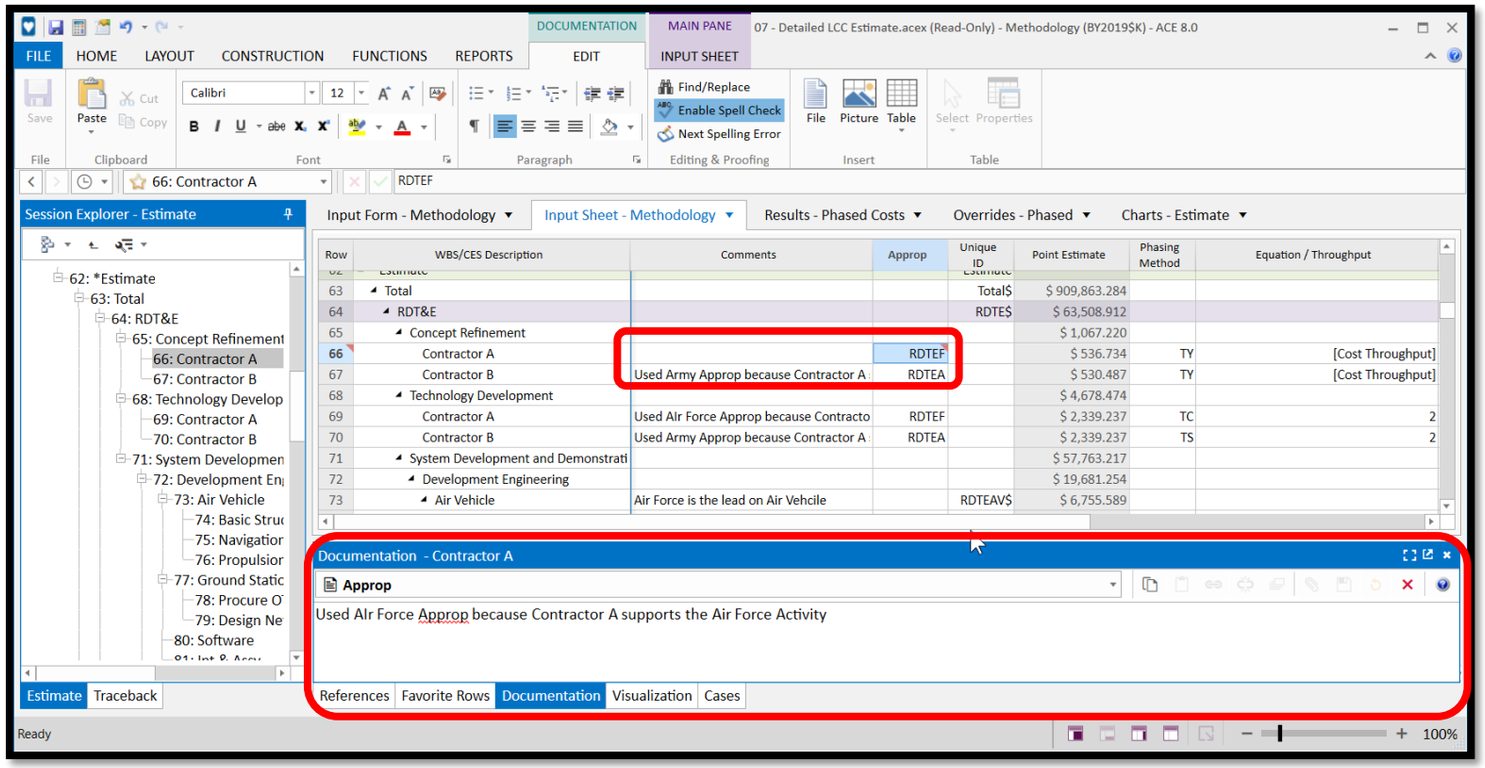
- ACE phased results for rows with lead/lag and overrides or sunk cost will change. Prior to ACE 8.0, the lead/lag was applied to overrides and sunk costs. It was determined by the ACEIT Working Group that the correct behavior is for overrides and sunk costs to stay in the year in which they are entered, and not be affected by any lead or lag specified on the row.
- Because of the way that floating point numbers are stored, and due to a recent change in Microsoft's Visual C run-time library, very large numbers will be displayed using the actual internal representation rather than a rounded approximation thereof. This only affects how such very large numbers (i.e., approximately 1e17+) are displayed, and there is no change to calculations.

ACE 8.0 files are not backwards compatible to ACE 7.5. When you first save existing files in ACE 8.0 it will be saved as a new file with an .acex extension.



Review the Documentation

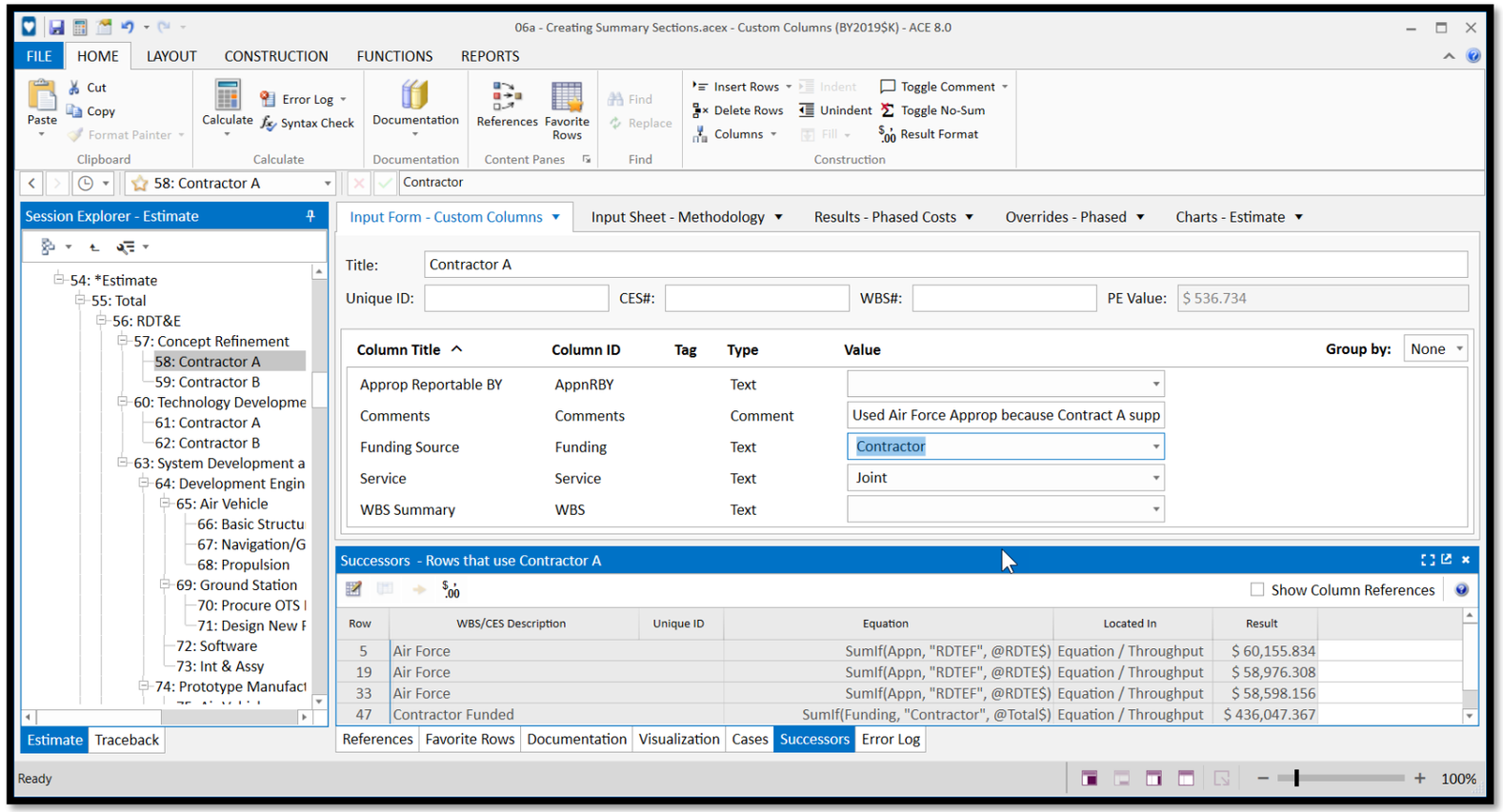
- Documentation in ACE 8.0 is now associated with cells not rows
  - Documentation will automatically be converted on file conversion
    - WBS/CES/Variable definition converts to WBS/CES Description
    - Methodology definition converts to Equation/Throughput
  - Cells with documentation shown with red triangles
  - A row with documentation on any cell indicated with red triangles
  - View the definition text and attached documents in the Documentation Content Pane



- Common 7.5 DEC comment technique for leaving notes in the session
  - Consider moving the comments to the associated column for better context about the information and to include more detailed descriptions
    - Ex: Comment provide notes about appropriation selection: moved to Approp Column

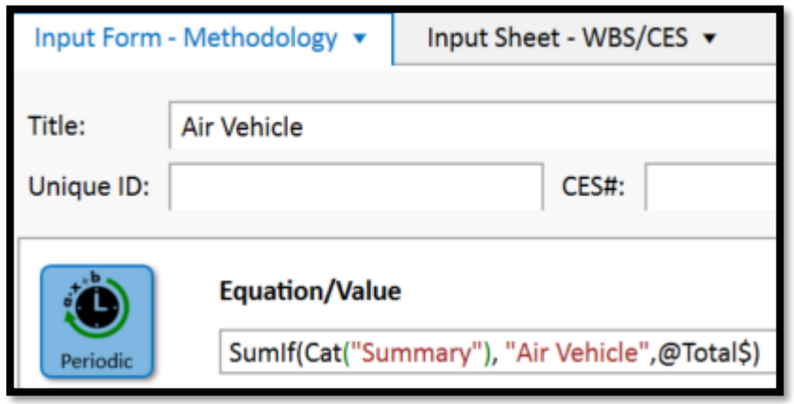
Updating Custom Columns in ACE 8.0

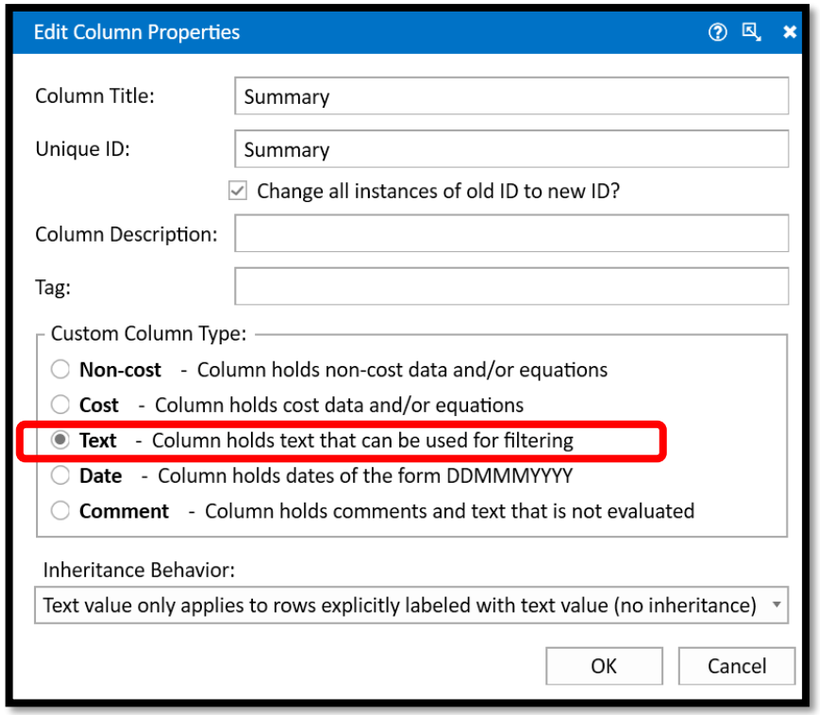
- DECs and Category columns have been combined into one new column type called Custom Columns
- New Input Form for Custom Columns
  - Enter values for all columns with drop down selection
- There are five Custom Column types:
  - Non-Cost, Cost, Text, Date, and Comment
- A Tag can be used to label sets of Custom Columns associated with different applications
  - Ex: Custom Columns associated with Plug In data



Updating Custom Columns in ACE 8.0

- The transition from DEC to Custom Column happens automatically at file conversion
- In ACE 7.5 DECs that fed into Model Summary sections that used SumIf functions could be non-cost DEC types
- ACE 8.0 Custom Columns that feed SumIF functions must be set to “text”
  - Check the Column Properties to make sure they are setup up as “Text” not “Non-cost”

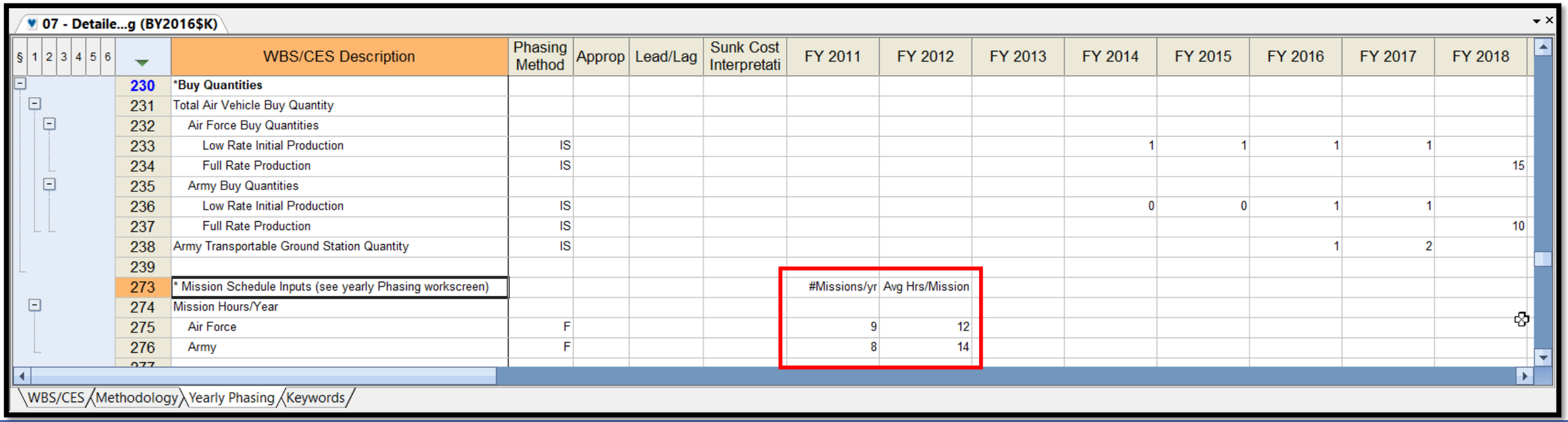




Non-cost Custom Columns that are parameters of SumIf functions will generate Fatal Errors: change to Text Custom Columns

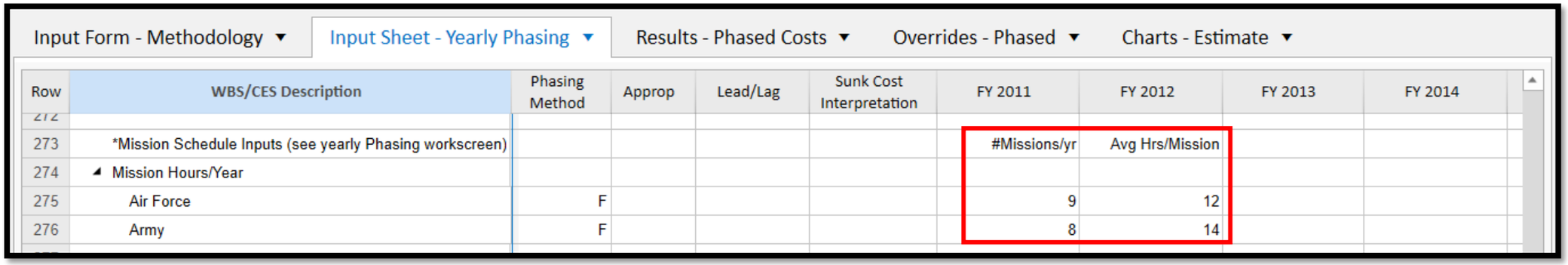
Transitioning Inputs Stored in Yearly Phasing Columns to Data Tables

- In ACE 7.5 inputs stored in Yearly Phasing columns that were not associated with the Fiscal Years were commonly referred to as Matrix Data Tables
- A main requirement for Matrix Data Tables in ACE 7.5 was that the data must be entered in the first Fiscal Year of the session
- To accommodate large data tables some sessions had to add Fiscal Years to the session to store the full table. Note: more Fiscal Years means that the session takes longer to calculate



Transitioning Inputs Stored in Yearly Phasing Columns to Data Tables

- For ACE 8.0 there is now an option to store FY Independent inputs in Data Tables rather than the Fiscal Year columns
- The New Data Tables offer an approach to set up your model differently
- Data Tables are not calculated with the session calculation, they are simply a place to store and draw on data to be used in other calculations
  - Using Data Tables can save model calculation effort
- On file conversion for ACE 7.5 to ACE 8.0 Matrix Data Tables *do not* automatically convert to Data Tables
  - Traditional Matrix Data Table set ups will calculate exactly as the did in ACE 7.5
- Changing the structure of the session to use the new Data Tables is an analyst modeling decision – consider the functions that call the data tables



Row	WBS/CES Description	Phasing Method	Approp	Lead/Lag	Sunk Cost Interpretation	FY 2011	FY 2012	FY 2013	FY 2014
273	*Mission Schedule Inputs (see yearly Phasing workscreen)					#Missions/yr	Avg Hrs/Mission		
274	Mission Hours/Year								
275	Air Force	F				9	12		
276	Army	F				8	14		

Transitioning Matrix Data into Data Tables

If you choose to transition to a new Data Table

1. Set up inputs in a FY Independent Data Table
2. Use Matrix Functions to pull values out of the table and use them in the WBS

Data Table

Name: Mission Schedule Unique ID: Mission

Type: FY Independent

Rows: 2 Columns: 3

☐ Is Cost

Enter a description and fill in values in the columns for each row in the data table. To label the columns, check "Include header row" and enter headers on the "*" row.

Save Cancel

☑ Include header row

Row	Description		
*		#Mission/yr	Avg Hrs/Mission
1	Air Force	9	12
2	Army	8	14

Input Form - Methodology ▾ | Input Sheet - Methodology ▾ | Results - Phased Costs ▾ | Overrides - Phased ▾ | Charts - Estimate ▾

Row	WBS/CES Description	ue ID	Point Estimate	Phasing Method	Equation / Throughput	Fiscal Year
268	Operational Life (years)	Life	10	C	10	
269	◢ Total Fielding		1760			
270	AF Fielded Quantities	AFFieldQty	1190	F	OPFIELDEDUNITS(@AFBuyQty, Life, Lag)	
271	Army Fielded Quantitie	ArmyFieldQty	570	F	OPFIELDEDUNITS(@ArmyBuyQty, Life, Lag)	
272						
273	*Mission Schedule Inputs					
274	◢ Mission Hours/Year	TotMsnHrs	192360			
275	Air Force	AFMsnHrs	128520	F	MATVAL(@Mission,1,1)*MATVAL(@Mission,1,2)*AFFieldQty	
276	Army	ArmyMsnHrs	63840	F	MATVAL(@Mission,2,1)*MATVAL(@Mission,2,2)*ArmyFieldQty	

Conclusion

- When transitioning a model from 7.5 to 8.0 be sure to:
  - Consult with all the session stake holders before transitioning the file to ACE 8.0
  - Review and prepare the session in 7.5 to ease the transition process, making some adjustments to the file in 7.5 can provide benefits in 8.0
  - Save a back up copy of the 7.5 file: ACE 8.0 sessions are not backwards compatible
  - Save a back up copy of the file in ACE 8.0 before making further changes to the session in 8.0
  - Familiarize yourself with new terminology and interface elements as you start working in 8.0
  - Familiarize yourself with new ACE 8.0 features to better understand new modeling approaches that can be applied in 8.0
  - Consider model enhancements to take advantage of ACE 8.0 capabilities and efficiencies