



JIAT ACE Provider Set-up Guide



Prepared for DASA-CE as part of the JIAT Project

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1 Purpose

The purpose of this document is to summarize the general guidelines and recommendations for setting up ACE sessions to run in the JIAT ACE Model Runner Provider. This guide is intended to assist an ACE user with directions on ACE session set-up to maximize the effectiveness of running the session through the JIAT web browser. It should be consulted before uploading an ACE session to the JIAT website.

1.1 Example files accompanying this Guide

To get the most out of this guide an ACE example file is provided called “Powerplant for JIAT.aces.” Further this file is loaded as an example in the JIAT ACE Provider called “PowerPlant.” The images exemplified in this guide show the session in ACE and how it renders in JIAT. If at any point you have questions about this guide or the process it describes contact JIAT support at jiat_support@tecolote.com.

2 ACE Model Runner Origins

The JIAT Model Runner Providers were part of the original feature set for JIAT when the focus was to provide a platform to integrate engineering and cost models. The Model Runner Providers were developed to allow remote web based What-if drills on ACE and Excel estimating models. This document focuses on the ACE Model Runner.

Today with the obstacles many organizations face with delays or limitation in loading desktop applications to government systems, the JIAT ACE Model Runner offers the ability to run an existing ACE model/session without having to load ACE on a desktop. While JIAT does not provide the full visibility or functionality of ACE, for users that simply want to see the results of changing input values the JIAT Model Runner is an excellent alternative.

3 ACE Model Runner Overview

The primary focus of the model runners is to allow users to execute What-if drills on a model without having to download the application and the model to the resident desktop. The ACE Model Runner allows users to see a series of Input and Output variables in the model and view the impacts of running model excursions on the total and time phased results. The goal is to limit the investment of time to learn the ACE application and install the software on the desktop simply for the purposes of running What-if drills. This arrangement is effective for allowing AOA or CBA participants to see the impacts of technical, schedule, or programmatic changes on cost. An added bonus is that the model developer can choose a subset of the ACE model rows to expose to the Model Runner to better focus the users’ attention on key rows rather than intermediate model calculations.

3.1 ACE Model Runner Browser View

Figure 1 shows a simple example ACE session in the Model Runner. The model Outputs are listed first followed by the Input rows that drive the What-if excursions. The Input rows appear below the Input Variables line and users can override any input highlighted by a white cell format. The Output row



results update when the user Calculates the cases in the model.

Joint Integrated Analysis Tool - For Official Use Only/Proprietary Data

My Profile

PORTAL HOME | JIAT HOME | SEARCH DATABASES | SESSION | CER LIBRARIES | LINK LIBRARIES | DOCUMENT LIBRARIES | MULTIPLE RUN | MANAGE CONTENT

HELP

JIAT Session - Session1

Session: Save, Save As, New, Export, Delete, Rename, Copy Sheet, Manage, Copy, Go To, Paste, Convert, Calculate, Add Case

Base Year: 2010
Cost Units: \$K

Session Description
Provider Description
Model Definition

Model (Non-Time Phased): Training ACE Example
Description: This is an ACE Example for JIAT Training
Provider: ACE Provider (1.0)

	VariableName	Appropriation	ModelUnits	ConvertFrom	Baseline	Alt 1
1	OUTPUT VARIABLES					
2	Total				\$109,238.6611	\$111,516.7862
3	Manufacturing				\$79,324.3912	\$80,987.2562
4	Air Vehicle	3010			\$68,977.7315	\$70,423.7011
5	Integration	3010			\$10,346.6597	\$10,563.5552
6	SEPM	3010			\$29,350.0248	\$29,965.2848
7	Other	3080			\$564.2452	\$564.2452
8	Air Vehicle Unit Cost	3010			\$9,853.9616	\$10,060.5287
9	INPUT VARIABLES					
10	Air Vehicle Buy Quantity		unt		7.0000 *	7.0000 *
11	Air Vehicle Takeoff Weight (lbs)		lb		12000.0000 *	15000
12	Air Vehicle Range (nmi)		nmi		250.0000 *	240

Non-Time Phased Sheet

Figure 1: JIAT: JIAT Model Runner

3.2 Steps to Host an ACE model on JIAT

Any ACE model can interface with the JIAT ACE Model Runner. There are four main steps to host a model in JIAT.

- **ACE Model Preparation** – use ACE to organize rows and identify model Inputs and Outputs
- **Identify a JIAT ACE Provider** – make a request to the JIAT Administrator to create a Provider to store the ACE Models. The Administrator also needs to know which users should have access to the model.
- **Upload ACE Model to JIAT** – upload the model to the JIAT Provider
- **Run the Model via JIAT** – users with permission can run the model in one of five modes

lists the five sheet types a model can be executed in.



Table 1: JIAT Model Runner Sheet Types

Model Mode	Description
Non-Time Phased	multiple case total results viewed side by side
Time Phased	one case time phased fiscal year results
Multiple Run	runs a combination of sensitivity cases for two Inputs in the model: each Input can have up to ten values
RISK Statistics (Non-Time Phased)	single case uncertainty results: probability level results
RISK Time Phased	One case time phased fiscal year result with point estimate uncertainty information provided

4 ACE Model Preparation

To load an ACE session in a JIAT ACE Model Runner Provider the ACE session needs to be set up by specifying the model Input and Output rows. JIAT recognizes the Inputs and Output rows of an ACE session by the External Type column information. The External Codes and Types are shown on the WBS/CES and the Custom 1 Workscreens in ACE (see Figure 2). The general process for setting up an ACE Model for JIAT is similar to setting up a model for the ACEIT POST tool.

WBS/CES Description	Approp	Unique ID	Phasing Method	Equation / Throughput	Fiscal Year	Units	External Code	External Type
* General Inputs							ACE180	OUTPUT
Hrs per Pers Month		erPersMth	C		160		ACE106	INPUT
							ACE282	OUTPUT
* Powerplant System Estimate		*Estimate					*Estimate	OUTPUT
POWER GENERATION PLANT	RDTEA						ACE17	OUTPUT
RDT&E	RDTEA						ACE240	OUTPUT
Prime Mission Product	RDTEA						ACE18	OUTPUT
Hardware (HW)	RDTEA	HWS\$					ACE19	OUTPUT
Structure	RDTEA	StrucDev\$	BE	15510.4 * StrucWgt	2005	\$	ACE20	OUTPUT
Cables, Conduits, and Connectors (CCC)	RDTEA	CCCDev\$	BE	CCCcost			ACE21	OUTPUT
Engine	RDTEA		BE	Engine_T1			ACE170	OUTPUT
Software (SW)	RDTEA	SW\$					ACE114	OUTPUT
CSCI1	RDTEA		BE	SWWrapRate\$ * HrsPerPersMth			ACE119	OUTPUT
CSCI2	RDTEA		BE	SWWrapRate\$ * HrsPerPersMth			ACE116	OUTPUT
CSCI3	RDTEA		BE	SWWrapRate\$ * HrsPerPersMth			ACE117	OUTPUT
Integration and Assembly (I&A)	RDTEA		BE				ACE26	OUTPUT
I&A Check-Out	RDTEA			I&AWrapRate\$ * HrsPerPersMth *			ACE27	OUTPUT
HW/SW Integration	RDTEA			I&AWrapRate\$ * HrsPerPersMth *			ACE28	OUTPUT
Tooling and Test Equipment	RDTEA			I&AWrapRate\$ * HrsPerPersMth *			ACE29	OUTPUT
SEPM (RDT&E)	RDTEA		BE	SEPMWrapRate\$ *			ACE30	OUTPUT
Training	RDTEA		BE	TrgFactor * HWS			ACE31	OUTPUT
Data	RDTEA		BE	DataFactor * (HWS + SW\$)			ACE32	OUTPUT
System Test and Evaluation (ST&E)	RDTEA		BE	ST&EWrapRate\$ *			ACE33	OUTPUT
							ACE271	OUTPUT
*INPUT VARIABLES		*IN_VAR					ACE42	OUTPUT
* Dates Derived From Durations							ACE163	OUTPUT
HW Start Date		wStartDate	C	01MAR2011			ACE133	INPUT
HW Enddate Date		lwEndDate	C	DATEADD/HwStartDate.0.			ACE132	OUTPUT

Figure 2: ACE: Custom 1 Worksreen - External Code and Type



4.1 ACE Row Set-up

The External Codes automatically are generated and assigned by ACE. The ACE user can modify the codes if desired but each code must be unique and not include spaces. The codes are used to transfer and map the values between the rows of the ACE session and the JIAT web browser interface.

The External Type defines how JIAT is to work with the different rows of the ACE session. There are three options for the External Type as outlined in Table 2.

ACE comment rows, marked with an *, can be viewed from the JIAT ACE Model Runner, as can blank rows in the ACE session.

Table 2: ACE External Type Values

External Type Value	ACE Row Description	Row treatment in JIAT
OUTPUT	<ul style="list-style-type: none"> • Main result rows where the methodology is defined by an equation • Comment * rows in the estimate WBS • Blank rows in the estimate WBS 	Viewed only
INPUT	<ul style="list-style-type: none"> • Key model cost drivers where numeric values are entered 	Viewed and Edited (Overrides)
NONE (blank)	<ul style="list-style-type: none"> • Low level WBS Elements • Intermediate model calculations 	Not Viewed

4.2 ACE Session Example

In order to best illustrate the differences between basic ACE session set up and ACE session set up for JIAT model hosting this document walks through an example file called “Power Plant for JIAT.aces”. The example illustrates a reasonable set up for a small ACE file. The narrative starts with this file and outlines what needs to be set up differently to achieve the best possible arrangement when viewed through JIAT. Figure 3-Figure 6 shows all 109 rows of the ACE session.



WBS/CES Description	Approp	Unique ID	Phasing Method	Equation / Throughput	Fiscal Year	Units	External Code	External Type
1 * General Inputs							ACE180	OUTPUT
Hrs per Pers Month		erPersMth	C		160		ACE106	INPUT
3 * Powerplant System Estimate		*Estimate					*Estimate	OUTPUT
4 POWER GENERATION PLANT	RDTEA						ACE17	OUTPUT
RDT&E	RDTEA						ACE240	OUTPUT
Prime Mission Product	RDTEA						ACE18	OUTPUT
Hardware (HW)	RDTEA	HW\$					ACE19	OUTPUT
Structure	RDTEA	StructDev\$	BE	15510.4 * StrucWgt	2005	\$	ACE20	OUTPUT
Cables, Conduits, and Connectors (CCC)	RDTEA	CCCDev\$	BE	CCCcost			ACE21	OUTPUT
Engine	RDTEA		BE	Engine_T1			ACE170	OUTPUT
Software (SW)	RDTEA	SW\$					ACE114	OUTPUT
CSCI1	RDTEA		BE	SWWrapRate\$ * HrsPerPersMth			ACE119	OUTPUT
CSCI2	RDTEA		BE	SWWrapRate\$ * HrsPerPersMth			ACE116	OUTPUT
CSCI3	RDTEA		BE	SWWrapRate\$ * HrsPerPersMth			ACE117	OUTPUT
Integration and Assembly (I&A)	RDTEA						ACE26	OUTPUT
I&A Check-Out	RDTEA		BE	I&AWrapRate\$ * HrsPerPersMth			ACE27	OUTPUT
HW/SW Integration	RDTEA		BE	I&AWrapRate\$ * HrsPerPersMth			ACE28	OUTPUT
Tooling and Test Equipment	RDTEA		BE	I&AWrapRate\$ * HrsPerPersMth			ACE29	OUTPUT
SEPM (RDT&E)	RDTEA		BE	SEPMWrapRate\$ *			ACE30	OUTPUT
Training	RDTEA		BE	TrgFactor * HW\$			ACE31	OUTPUT
Data	RDTEA		BE	DataFactor * (HW\$ + SW\$)			ACE32	OUTPUT
System Test and Evaluation (ST&E)	RDTEA		BE	ST&EWrapRate\$ *			ACE33	OUTPUT
							ACE271	OUTPUT
Procurement	OPA						ACE246	OUTPUT
Manufacturing	OPA	PMP\$					ACE245	OUTPUT
Hardware (HW)	OPA	HW_Mfg\$					ACE244	OUTPUT
Structure	OPA		F	(TTot(@StructDev\$) / DevQty *			ACE254	OUTPUT
Cables, Conduits, and Connectors (CCC)	OPA		F	(TTot(@CCCDev\$) / DevQty *			ACE253	OUTPUT
Engine (with learning)	OPA		R	Engine_T1			ACE252	OUTPUT
Integration	OPA		F	0.15 * HW_Mfg\$			ACE243	OUTPUT
SEPM (Procurement)	OPA		F	0.37 * PMP\$			ACE242	OUTPUT
Other	OPA		TY	[Cost Throughput]			ACE241	OUTPUT

Figure 3: ACE: Example ACE Session

WBS/CES Description	Approp	Unique ID	Phasing Method	Equation / Throughput	Fiscal Year	Units	External Code	External Type
35 *INPUT VARIABLES		*IN_VAR					ACE42	OUTPUT
36 * Dates Derived From Durations							ACE163	OUTPUT
HW Start Date		wStartDate	C	01MAR2011			ACE133	INPUT
HW Enddate Date		lwEndDate	C	DATEADD(HwStartDate, 0,			ACE132	OUTPUT
							ACE139	OUTPUT
CSCI 1 Start Date		_StartDate	C	DATEADD(HwEndDate, 0, - 6)			ACE152	OUTPUT
CSCI 2 Start Date		_StartDate	C	DATEADD(CSCI1_StartDate, 0,			ACE156	OUTPUT
CSCI 2 Start Date		_StartDate	C	DATEADD(CSCI2_StartDate, 0,			ACE157	OUTPUT
							ACE177	OUTPUT
I&A Start Date		_StartDate	C	DATEADD(CSCI3_StartDate, 0,			ACE158	OUTPUT
I&A End Date		\$_EndDate	C	DATEADD(I&A\$_StartDate, 0,			ACE159	OUTPUT
							ACE162	OUTPUT
EMD End Date		o_EndDate	C	DATEADD(I&A\$_EndDate, 0,			ACE140	OUTPUT
							ACE176	OUTPUT
49 * Durations							ACE175	OUTPUT
Total EMD Duration (Months) (Accounts for overlap)		EMD_Dur	C	DATEMONTHDIFF(HwStartDate,			ACE198	OUTPUT
							ACE235	OUTPUT
Total EMD Duration (Months of Activity, not calander mon							ACE76	OUTPUT
HW Duration		rationMths	C		18		ACE138	INPUT
Software Duration							ACE77	OUTPUT
CSCI 1 Duration		CSCI1_Dur	C	CsciPM1 / StaffLvISwDev			ACE81	OUTPUT
CSCI 2 Duration		CSCI2_Dur	C	CsciPM2 / StaffLvISwDev			ACE82	OUTPUT
CSCI 3 Duration		CSCI3_Dur	C	CsciPM3 / StaffLvISwDev			ACE83	OUTPUT
HW/SW Integration Duration		_Integ_Dur	C		22		ACE78	INPUT
ST&E Duration		ST&E_Dur	C		12		ACE80	INPUT
							ACE228	OUTPUT
61 * Hardware Section							ACE75	OUTPUT

Figure 4: ACE: Example ACE Session (cont.)



	WBS/CES Description	Approp	Unique ID	Phasing Method	Equation / Throughput	Fiscal Year	Units	External Code	External Type
61	* Hardware Section							ACE75	OUTPUT
62	** How to incorporate additive uncertainty							ACE92	OUTPUT
63	Stdev for CCC		StdevCCC	C	49950			ACE85	INPUT
64	CCC Cost	RDTEA	CCCcost	C	(15032.9 + 3575.4 * CccWgt)	2005	\$	ACE281	OUTPUT
65								ACE278	OUTPUT
66	CCC Weight (Lbs)		CccWgt	C	495			ACE44	INPUT
67								ACE84	OUTPUT
68	Structural Weight (Lbs)		StrucWgt	C	1275			ACE43	INPUT
69								ACE260	OUTPUT
70	Engine T1	RDTEA	Engine_T1	C	[From COSTAT] 370.4 * kHpPerTon ^ 0.8747 * 0.878 ^ Oil	2010	\$K	ACE172	OUTPUT
71								ACE272	OUTPUT
72	kHp per Ton		kHpPerTon		2			ACE277	INPUT
73	Oil = 1, Coal = 0		Oil		1			ACE189	INPUT
74	Learning Slope		EngLrnSlp	C	95			ACE236	INPUT
75								ACE270	OUTPUT
76	Development to Production Step Factor		ProdFactor	C	0.776			ACE269	INPUT
77								ACE268	OUTPUT
78	* Quantities							ACE265	OUTPUT
79	Quantity (Development)		DevQty	C	10			ACE262	INPUT
80	Quantity (Procurement)		ProcQty	IS	[Input Throughput]			ACE167	INPUT
81								ACE264	OUTPUT
82	* Software Section							ACE182	OUTPUT
83	Total SLOC							ACE124	OUTPUT
84	CSCI 1 SLOC		SLOC1	C	55000			ACE46	INPUT
85	CSCI 2 SLOC		SLOC2	C	62000			ACE48	INPUT
86	CSCI 3 SLOC		SLOC3	C	89000			ACE49	INPUT

Figure 5: ACE: Example ACE Session (cont.)

	WBS/CES Description	Approp	Unique ID	Phasing Method	Equation / Throughput	Fiscal Year	Units	External Code	External Type
88	SW PersonMonths Based on COCOMO							ACE145	OUTPUT
89	CSCI 1 by COCOMO		CsciPM1	C	2.94 * (SLOC1 / 1000) ^ 1.1			ACE137	OUTPUT
90	CSCI 2 by COCOMO		CsciPM2	C	2.94 * (SLOC2 / 1000) ^ 1.1			ACE135	OUTPUT
91	CSCI 3 by COCOMO		CsciPM3	C	2.94 * (SLOC3 / 1000) ^ 1.1			ACE115	OUTPUT
92								ACE123	OUTPUT
93	* Staff Levels							ACE105	OUTPUT
94	Staff Level for Software Development		flvISwDev	C	30			ACE62	INPUT
95	Staff Level for IA&T Checkout (Low 8 Max 12)		ACheckOut	C	10			ACE50	INPUT
96	Staff Level HW SW Integration (Low 13 Max 17)		HwSwinteg	C	14			ACE52	INPUT
97	Staff Level Tool and Test Equipment (Low 4 Max 5)		ITool&Test	C	4			ACE64	INPUT
98	Staff Level SEPM (Low 10 Max 17)		ffLviSEPM	C	15			ACE66	INPUT
99	Staff Level ST&E		affLviST&E	C	6			ACE53	INPUT
100								ACE71	OUTPUT
101	* Factors							ACE187	OUTPUT
102	Training Factor (Mode)		TrgFactor	C	.03			ACE55	OUTPUT
103	Data Factor (Mode)		DataFactor	C	.01			ACE68	OUTPUT
104								ACE210	OUTPUT
105	* Wrap Rates							ACE188	OUTPUT
106	I&A Wrap Rate	RDTEA	WrapRate\$	C	175	2005	\$	ACE51	INPUT
107	Software Wrap Rate	RDTEA	WrapRate\$	C	220	2005	\$	ACE45	INPUT
108	SEPM Wrap Rate	RDTEA	WrapRate\$	C	150	2005	\$	ACE54	INPUT
109	ST&E Wrap Rate	RDTEA	WrapRate\$	C	195	2005	\$	ACE59	INPUT
110								ACE99	OUTPUT
111									
112									
113									
114									

Figure 6: ACE: Example ACE Session (cont.)



4.3 Challenges with ACE Model set up for JIAT Hosting

There are some key interface differences between ACE and JIAT that may require some model modifications in order to run an ACE model in the JIAT ACE Model Runner Provider. The rest of this section provides guidance on how to set up your ACE session to maximize its effectiveness in JIAT.

4.3.1 Global Input Rows at the Top of the ACE Session

In JIAT, the OUTPUT rows (rows marked with the External Code “Output”) are listed first followed by the INPUT VARIABLE rows (rows marked with the External Code “Input”). Some ACE models, as illustrated in the Power Plant example in Figure 3, use a technique where the model’s Global or General Inputs are listed at the very top of the session. This effectively highlights key Input variables to the user in ACE. In JIAT, if the External Types for these rows are set to “Input,” these rows do not appear as the first rows of the browser, they get shuffled down to the first rows under the INPUT VARIABLE header (see Figure 7). The Input rows start on row 52 in the JIAT browser.

The screenshot shows the JIAT ACE Model Runner interface. At the top, there is a navigation bar with options like PORTAL HOME, JIAT HOME, SEARCH DATABASES, SESSION, CER LIBRARIES, LINK LIBRARIES, DOCUMENT LIBRARIES, MULTIPLE RUN, MANAGE CONTENT, and HELP. Below this is a toolbar with various icons for file operations (Save, Save As, New, Export, Delete, Rename, Copy, Paste, Cut, Go To, Choices, Convert) and session management (Calculate, Add Case, Properties, Documentation). The main area displays a table of input variables for a 'Powerplant Example' model. The table has columns for VariableName, Appropriation, ModelUnits, ConvertFrom, and Baseline. Row 52 is highlighted with a red arrow and labeled 'INPUT VARIABLES'. Below the table, there are navigation controls and a page indicator showing 'Pages 4'.

	VariableName	Appropriation	ModelUnits	ConvertFrom	Baseline
41	CSCI 2 Duration				9.1803
42	CSCI 3 Duration				13.6633
43	CCC Cost	RDTEA			\$2,118.0628
44	Engine T1	RDTEA			\$637.9057
45	Total SLOC				206000.0000
46	SW PersonMonths Based on COCOMO				926.7126
47	CSCI 1 by COCOMO				241.4050
48	CSCI 2 by COCOMO				275.4090
49	CSCI 3 by COCOMO				409.8985
50	Training Factor (Mode)				0.0300
51	Data Factor (Mode)				0.0100
52	INPUT VARIABLES				
53	Hrs per Pers Month				160.0000 *
54	HW Start Date				40603.0000 *
55	HW Duration				18.0000 *
56	HW/CW Iteration Duration				?? 0000 *

Figure 7: JIAT: Global Inputs

For consistency across the platforms, it is recommended that Global/General Inputs be moved to the top of the Input Variable section in the ACE model. Figure 8 shows the recommended Global/General Input Variable set-up in ACE.



WBS/CES Description	Approp	Unique ID	Phasing Method	Equation / Throughput	Fiscal Year	Units	External Code	External Type
* Powerplant System Estimate		*Estimate					*Estimate	OUTPUT
POWER GENERATION PLANT	RDTEA						ACE17	OUTPUT
RDT&E	RDTEA						ACE240	OUTPUT
Prime Mission Product	RDTEA						ACE18	OUTPUT
SEPM (RDT&E)	RDTEA		BE	SEPMWrapRate\$ *			ACE30	OUTPUT
Training	RDTEA		BE	TrgFactor * HW\$			ACE31	OUTPUT
Data	RDTEA		BE	DataFactor * (HW\$ + SW\$)			ACE32	OUTPUT
System Test and Evaluation (ST&E)	RDTEA		BE	ST&EWrapRate\$ *			ACE33	OUTPUT
							ACE271	OUTPUT
Procurement	OPA						ACE246	OUTPUT
Manufacturing	OPA	PMP\$					ACE245	OUTPUT
SEPM (Procurement)	OPA		F	0.37 * PMP\$			ACE242	OUTPUT
Other	OPA		TY	[Cost Throughput]		\$K	ACE241	OUTPUT
							ACE41	OUTPUT
*INPUT VARIABLES		*IN_VAR					ACE42	OUTPUT
*JIAT Input Rows							ACE288	
Global Input: Hours per Person Month		sPerPersMth	C		160		ACE289	INPUT

Figure 8: ACE: Global Inputs

4.3.2 ACE Comment and Blank Rows in JIAT

Comment and blank rows in the ACE session do carry over into JIAT. In ACE, Comment and Blank rows assist with the organizational structure of the model. The Comment rows often provide header information for a group of rows and the blanks help indicate row groupings.

For JIAT, it is recommended to limit the comment and blank rows flowing through the JIAT ACE Model Runner Provider because only 20 rows are visible in the browser at a time. The consequence of this is that the more Comment and blank rows that are marked for visibility in JIAT the more pages are required to render the model in the browser making it more difficult to manipulate the inputs driving the What-if drills.

The External Type marking for comment and blank rows has meaning for where the rows render in the JIAT browser. Comment or Blank rows that should be viewed in the Output Variable section in JIAT should be marked with the External Type "Output" and those desired in the Input Variable section should be marked as "Input." Figure 9, shows example of this nuance. The External Type for comment and blank rows above the Input Variable row are marked "OUTPUT" and below are marked "INPUT."



WBS/CES Description	Approp	Unique ID	Phasing Method	Equation / Throughput	Fiscal Year	Units	External Code	External Type
* Powerplant System Estimate		*Estimate					*Estimate	OUTPUT
POWER GENERATION PLANT	RDTEA						ACE17	OUTPUT
RDT&E	RDTEA						ACE240	OUTPUT
Prime Mission Product	RDTEA						ACE18	OUTPUT
SEPM (RDT&E)	RDTEA		BE	SEPMWrapRate\$ *			ACE30	OUTPUT
Training	RDTEA		BE	TrgFactor * HW\$			ACE31	OUTPUT
Data	RDTEA		BE	DataFactor * (HW\$ + SW\$)			ACE32	OUTPUT
System Test and Evaluation (ST&E)	RDTEA		BE	ST&EWrapRate\$ *			ACE33	OUTPUT
Procurement	OPA						ACE271	OUTPUT
Manufacturing	OPA	PMP\$					ACE246	OUTPUT
SEPM (Procurement)	OPA		F	0.37 * PMP\$			ACE245	OUTPUT
Other	OPA		TY	[Cost Throughput]			ACE242	OUTPUT
							ACE241	OUTPUT
							ACE41	OUTPUT
*INPUT VARIABLES		*IN_VAR					ACE42	OUTPUT
* General Inputs							ACE180	OUTPUT
Hrs per Pers Month		erPersMth	C			160	ACE106	INPUT
							ACE178	OUTPUT
* Dates Derived From Durations							ACE163	OUTPUT
HW Start Date		wStartDate	C			01MAR2011	ACE133	INPUT
HW Endate Date		lwEndDate	C			DATEADD(HwStartDate, 0,	ACE132	OUTPUT
							ACE139	OUTPUT
CSCI 1 Start Date		_StartDate	C			DATEADD(HwEndDate, 0, - 6)	ACE152	OUTPUT
CSCI 2 Start Date		_StartDate	C			DATEADD(CSCI1_StartDate, 0,	ACE156	OUTPUT
CSCI 2 Start Date		_StartDate	C			DATEADD(CSCI2_StartDate, 0,	ACE157	OUTPUT

Figure 9: ACE: Comment and Blank Rows

4.3.3 ACE Input Variable Indented Rows in JIAT

JIAT treats each ACE row that flows through the ACE Model Runner provider independently. All the rows marked with the External Type OUTPUT are listed in the JIAT OUTPUT VARIABLE section. The INPUT Type rows follow suit in the INPUT VARIABLE Section. As a result any indenture structure like the one illustrated in Figure 10 is lost when it renders in JIAT. Look closely at Figure 10 and Figure 11, HW Duration is the child for Total EMD Duration in the ACE Session. However, in JIAT it appears to be the child of HW Start Date. This happens because all the External Type OUTPUT rows in ACE appear in the OUTPUT VARIABLE section in JIAT. Only the rows with the INPUT Type appear in the INPUT VARIABLE section in JIAT. If the model has indented rows in the input section particular care must be paid to their External Types. Without careful planning it is easy to generate an INPUT VARIABLE section in JIAT that is difficult to follow.

WBS/CES Description	Approp	Unique ID	Phasing Method	Equation / Throughput	Fiscal Year	Units	External Code	External Type
*INPUT VARIABLES		*IN_VAR					ACE42	OUTPUT
* Durations							ACE175	OUTPUT
Total EMD Duration (Months) (Accounts for overlap)		EMD_Dur	C	DATEMONTHDIFF(HwStartDate,			ACE198	OUTPUT
							ACE235	OUTPUT
Total EMD Duration (Months of Activity, not calander mon							ACE76	OUTPUT
HW Duration		rationMths	C			18	ACE138	INPUT
Software Duration							ACE77	OUTPUT
CSCI 1 Duration		CSCI1_Dur	C	CsciPM1 / StaffLvISwDev			ACE81	OUTPUT
CSCI 2 Duration		CSCI2_Dur	C	CsciPM2 / StaffLvISwDev			ACE82	OUTPUT
CSCI 3 Duration		CSCI3_Dur	C	CsciPM3 / StaffLvISwDev			ACE83	OUTPUT
HW/SW Integration Duration		_Integ_Dur	C			22	ACE78	INPUT
ST&E Duration		ST&E_Dur	C			12	ACE80	INPUT

Figure 10: ACE: Indenture Input Rows



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JIAT Session - Session1

Save, Save As, Copy Sheet, Manage, Copy, Go To, Base Year: 2014, Session Description, Cost Units: \$K, Provider Description, Model Definition, Documentation

Model (Non-Time Phased): Power Plant Example
Description:
Provider: ACE Provider (1.0)

	VariableName	Appropriation	ModelUnits	ConvertFrom	Baseline
43	CCC Cost	RDTEA			\$2,118.0628
44	Engine T1	RDTEA			\$637.9057
45	Total SLOC				206000.0000
46	SW PersonMonths Based on COCOMO				926.7126
47	CSCI 1 by COCOMO				241.4050
48	CSCI 2 by COCOMO				275.4090
49	CSCI 3 by COCOMO				409.8985
50	Training Factor (Mode)				0.0300
51	Data Factor (Mode)				0.0100
52	INPUT VARIABLES				
53	Global Input: Hrs per Pers Month				160.0000 *
54	HW Start Date				40603.0000 *
55	HW Duration				18.0000 *
56	HW/SW Integration Duration				22.0000 *
57	ST&E Duration				12.0000 *
58	Stdev for CCC				49950.0000 *
59	CCC Weight (Lbs)				495.0000 *
60	Structural Weight (Lbs)				1275.0000 *

Non-Time Phased Sheet

Pages 4

Figure 11: JIAT: Indenture Input Rows

4.4 Recommended ACE Session Output Variable Set-Up

As noted in a previous sections, the JIAT ACE Model Runner renders 20 rows at a time. This limitation is necessary to maintain browser performance. It also means that ACE sessions with hundreds of rows can appear across many pages in the JIAT browser. The JIAT browser page count is listed at the bottom right of the browser screen (see Figure 11). Our example file is 4 pages long in the JIAT model runner browser. The browser buttons in the bottom left can be used to navigate across the JIAT pages.

To make the session more manageable in JIAT it is recommended that ACE sessions with WBS hierarchies of 5+ levels of indenture be compressed to display only the highest levels of the WBS. By leaving the External Type blank, the rows will not appear in the JIAT ACE Model Runner. In the Power Plant example hiding the lowest level elements removes 12 rows from the display making it so the WBS appears on the first page of the JIAT session. While one can argue losing WBS visibility is undesirable, it is important to look at visibility/performance tradeoffs. Remember the goal is to provide What-if capability with limited time investment for the model runner.

Figure 12 shows the WBS section Output set-up for the example Power Plant Model. The External Types are left blank on the level 5 elements. Figure 13 shows how the condensed WBS looks in JIAT.



WBS/CES Description	Approp	Unique ID	Phasing Method	Equation / Throughput	Fiscal Year	Units	External Code	External Type
* Powerplant System Estimate		*Estimate					*Estimate	OUTPUT
POWER GENERATION PLANT	RDTEA						ACE17	OUTPUT
RDT&E	RDTEA						ACE240	OUTPUT
Prime Mission Product	RDTEA						ACE18	OUTPUT
Hardware (HW)	RDTEA	HW\$					ACE19	OUTPUT
Structure	RDTEA	StructDev\$	BE	15510.4 * StrucWgt	2005	\$	ACE20	
Cables, Conduits, and Connectors (CCC)	RDTEA	CCCDev\$	BE	CCCcost			ACE21	
Engine	RDTEA		BE	Engine_T1*DevQty			ACE170	
Software (SW)	RDTEA	SW\$					ACE114	OUTPUT
CSCI1	RDTEA		BE	SWWWrapRate\$ * HrsPerPersMth			ACE119	
CSCI2	RDTEA		BE	SWWWrapRate\$ * HrsPerPersMth			ACE116	
CSCI3	RDTEA		BE	SWWWrapRate\$ * HrsPerPersMth			ACE117	
Integration and Assembly (I&A)	RDTEA						ACE26	OUTPUT
I&A Check-Out	RDTEA		BE	I&AWrapRate\$ * HrsPerPersMth			ACE27	
HW/SW Integration	RDTEA		BE	I&AWrapRate\$ * HrsPerPersMth			ACE28	
Tooling and Test Equipment	RDTEA		BE	I&AWrapRate\$ * HrsPerPersMth			ACE29	
SEPM (RDT&E)	RDTEA		BE	SEPMWrapRate\$ *			ACE30	OUTPUT
Training	RDTEA		BE	TrgFactor * HW\$			ACE31	OUTPUT
Data	RDTEA		BE	DataFactor * (HW\$ + SW\$)			ACE32	OUTPUT
System Test and Evaluation (ST&E)	RDTEA		BE	ST&EWrapRate\$ *			ACE33	OUTPUT
							ACE271	OUTPUT
Procurement	OPA						ACE246	OUTPUT
Manufacturing	OPA	PMP\$					ACE245	OUTPUT
Hardware (HW)	OPA	HW_Mfg\$					ACE244	OUTPUT
Structure	OPA		F	(TTot(@StructDev\$) / DevQty *			ACE254	
Cables, Conduits, and Connectors (CCC)	OPA		F	(TTot(@CCCDev\$) / DevQty *			ACE253	
Engine	OPA		R	Engine_T1			ACE252	
Integration	OPA		F	0.15 * HW_Mfg\$			ACE243	OUTPUT
SEPM (Procurement)	OPA		F	0.37 * PMP\$			ACE242	OUTPUT
Other	OPA		TY	[Cost Throughput]		\$K	ACE241	OUTPUT
							ACE41	OUTPUT
*INPUT VARIABLES		*IN_VAR					ACE42	OUTPUT

Figure 12: ACE: WBS OUTPUT Set-Up

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JIAT Session - Session1

Base Year: 2014 | Cost Units: \$K

Model (Non-Time Phased): Power Plant Example
 Description: ACE Provider (1.0)

VariableName	Appropriation	ModelUnits	ConvertFrom	Baseline
OUTPUT VARIABLES				
POWER GENERATION PLANT	RDTEA			\$407,253.8341
RDT&E	RDTEA			\$128,286.4015
Prime Mission Product	RDTEA			\$91,142.7019
Hardware (HW)	RDTEA			\$31,964.7293
Software (SW)	RDTEA			\$38,710.0193
Integration and Assembly (I&A)	RDTEA			\$20,467.9533
SEPM (RDT&E)	RDTEA			\$32,812.2398
Training	RDTEA			\$958.9419
Data	RDTEA			\$706.7475
System Test and Evaluation (ST&E)	RDTEA			\$2,665.7705
Procurement	OPA			\$278,967.4326
Manufacturing	OPA			\$200,170.6593
Hardware (HW)	OPA			\$174,061.4428
Integration	OPA			\$26,109.2164
SEPM (Procurement)	OPA			\$74,063.1439
Other	OPA			\$4,733.6294

Non-Time Phased Sheet

Figure 13: JIAT: WBS OUTPUT Set-Up



4.5 Recommended ACE Session Input Variable Set-Up

The best approach for the JIAT Input Variable Set-up is to create a new small JIAT Input variable section in the ACE model for a smaller set of key cost model drivers. The new JIAT Input rows should feed the input value to the original ACE session row. This approach allows for a JIAT Input variable set up with minimal impact to the rest of the session and makes it easier for the JIAT model runner to understand the model Inputs.

The recommended approach is to add a new Input Variable section to the model with a comment ACE row called "JIAT Input Rows." Figure 14 shows this section starting at Row 33 of the ACE model. This section should include a row for each Input variable that is to be visible in the JIAT browser. Each JIAT Input row should have the raw Input value entered in the Equation/Throughput and a Unique ID that passes through the original row in the ACE model. In the example, "160" is entered on the JIATHrsPerPersMth row which passes through the HrsPerPersMth row that is connected to the rest of the methods in the model.

The new JIAT Input row should be marked with the External Type "INPUT" and all the other rows associated with the Input should have nothing in the External Type column.

	WBS/CES Description	Approp	Unique ID	Phasing Method	Equation / Throughput	Fiscal Year	Units	External Code	External Type
32	*INPUT VARIABLES		*IN_VAR					ACE42	OUTPUT
33	*JIAT Input Rows							ACE288	
34	Global Input: Hrs per Pers Month		JIATHrsPerPersMth	C	160			ACE289	INPUT
48								ACE293	
49	*Global Inputs		*Global					ACE283	
50	Hrs per Pers Month		HrsPerPersMth	C	JIATHrsPerPersMth			ACE106	

Figure 14: ACE: Basic INPUT Set-Up

This approach allows for an organization of Inputs in a linear list that makes the most sense for the JIAT Model Runner and for additional text in the WBS Description. In the example, the text "Global Input:" is added to the element description. This information was a Comment row in the original model arrangement.

Figure 15 shows the set up for the entire JIAT Input rows section of the Power Plant example session.



Power Plant... (BY2014\$M)										
	WBS/CES Description	Approp	Unique ID	Phasing Method	Equation / Throughput	Fiscal Year	Units	External Code	External Type	
33	*JIAT Input Rows							ACE288		
34	Global Input: Hours per Person Month		sPerPersMth	C		160		ACE289	INPUT	
35	*Schedule							ACE344	INPUT	
36	Schedule: Hardware Start Date		HwStartDate	C	01MAR2011			ACE290	INPUT	
37	Schedule Duration in Months: Hardware		DurationMths	C		18		ACE291	INPUT	
38	Schedule Duration in Months: HW/SW Integration		W_Integ_Dur	C		22		ACE301	INPUT	
39	Schedule Duration in Months: ST&E		ATST&E_Dur	C		12		ACE302	INPUT	
40	*Hardware							ACE345	INPUT	
41	Hardware Input: Structure Weight in Lbs		IATStrucWgt	C		1275		ACE306	INPUT	
42	Hardware Input: CCC Weight in Lbs		JIATcccWgt	C		495		ACE303	INPUT	
43	Hardware Input: Engine kWh per Ton		tkHpPerTon	C		2		ACE304	INPUT	
44	Hardware Input: Engine Type Oil = 1, Coal = 0		JIATOil	C		1		ACE305	INPUT	
45	Engine Quantity: Development		JIATDevQty	C		10		ACE307	INPUT	
46	Engine Quantity Procurement		JIATProcQty	IS	[Input Throughput]			ACE310	INPUT	
47	*Software							ACE346	INPUT	
48	Software Input: CSCI 1 SLOC		JIATSLOC1	C		55000		ACE308	INPUT	
49	Software Input: CSCI 2 SLOC		JIATSLOC2	C		62000		ACE292	INPUT	
50	Software Input: CSCI 3 SLOC		JIATSLOC3	C		89000		ACE311	INPUT	
51	*Personnel							ACE347	INPUT	
52	Staff Level in FTEs: Software Development		stffLvSwDev	C		30		ACE321	INPUT	
53	Staff Level in FTEs: IA&T Checkout (Low 8 Max 12)		IAIACheckOut	C		10		ACE322	INPUT	
54	Staff Level in FTEs: HW SW Integration (Low 13 Max 17)		lvHwSwInteg	C		14		ACE323	INPUT	
55	Staff Level in FTEs: Tool and Test Equipment (Low 4 Max 17)		lvTool&Test	C		4		ACE324	INPUT	
56	Staff Level in FTEs: SEPM (Low 10 Max 17)		stffLvSEPM	C		15		ACE325	INPUT	
57	Staff Level in FTEs: ST&E		stffLvST&E	C		6		ACE326	INPUT	
58	*Wrap Rates							ACE348	OUTPUT	
59	Wrap Rate: I&A		RDTEA AWrapRate\$	C		175	2005	\$	ACE334	INPUT
60	Wrap Rate: Software		RDTEA WWrapRate\$	C		220	2005	\$	ACE335	INPUT
61	Wrap Rate: SEPM		RDTEA MWrapRate\$	C		150	2005	\$	ACE336	INPUT
62	Wrap Rate: ST&E		RDTEA EWrapRate\$	C		195	2005	\$	ACE337	INPUT

Figure 15: ACE: Full Example INPUT Set-Up

4.5.1 Tips for Input Row Set-Up

The following tips should be considered when setting up the ACE session for JIAT hosting.

- Set Up a JIAT Input Row section in the model at the top of the ACE Input Variable section of the session
- Only put INPUT External Types on the rows in the JIAT Input Row section
- For the JIAT Input rows copy the Unique ID from the existing/original ACE Row and add the prefix “JIAT” to the ID
- Do not use an indenture structure on the JIAT Input Rows
- Move comment information into WBS/CES Descriptions with colon notation to incorporate header details into the element names. For Example, for the Hardware Start date row use the WBS/CES Description “Schedule: Hardware Start Date”
- Target only the main cost drivers of the model for JIAT Input Variables. Every Input value in the ACE session does not need to be a JIAT Input row. Use POST’s Sensitivity charts to identify key drivers of the model.



4.6 Adding Unit Information to JIAT hosted ACE Sessions

In addition to basic operation, JIAT can optionally be set up to accommodate non-cost unit conversion. JIAT uses a universal units conversion mechanism to allow JIAT users to enter inputs in units other than those set for the input in the model. JIAT makes a distinction between model units and input units.

- **Model Units** are the units used within the ACE estimate for the methodology or value specified on the row
- **Convert From units** are the units for an Input into the model using the JIAT interface

The universal units conversion mechanism allows a JIAT user to enter an Input in the source unit, and then JIAT converts it to the model's units. This makes it easier for the user to enter Inputs into JIAT and ensures that unit conversions are applied consistently. In ACE, cost units are specified within the model's structure by means of the appropriation, fiscal year, and units. However, non-cost units are not part of the ACE tool set. To take full advantage of the units conversion feature in JIAT, add units information to an ACE file using DEC's.

4.6.1 Adding JIAT Units DEC to the ACE Session

To add non-cost unit information to the ACE session, open it in ACE and from the Home Ribbon click the arrow drop down of the Columns item in the Construction area and select, Add DEC. Give the DEC the properties shown below (displayed in both Table 3 and Figure 16). These properties are important for JIAT to identify the units DEC correctly.

Table 3: JIAT Unit DEC Settings

Settings	Value
Column Title	JIAT Units
Unique ID	JIAT_UNITS
Cell Content	Comment
Parent "Roll-Up" Behavior	Do not sum up the results of children (leave parents empty/zero)



Add New DEC

Column Title: JIAT Units

Column Description:

Column Identifier

Unique ID: JIAT_Units Search ID List..

Change all instances of old ID to new ID?

Cell Content

Normal - Column holds non-cost data and/or equations

Cost - Column holds cost data and/or equations

Comment - Column holds comments and text that is not evaluated

Date - Column holds dates of the form DDMMYYYY

Parent 'Roll-Up' Behavior

Sum up results of children into their parents

Do not sum up results of children (leave parents empty/zero)

Store the minimum of all children into their parents

Store the maximum of all children into their parents

Show in IRV "BY DEC Results" View

OK Cancel Help

Figure 16: ACE: Add JIAT DEC to the ACE Session

4.6.2 Population the JIAT Units DEC

Once the DEC is added to the model, go to each JIAT Input variable row and enter the appropriate unit code. Appendix A lists the unit conventions available in JIAT. As an example, rows with units of pounds should show "lb" in the JIAT Units DEC. Figure 17 shows the units for the JIAT Input Rows section of the example Power Plant estimate.

Note: ACE models can run in the JIAT Model Runner Providers with or without the JIAT Units DEC. This is a value added feature not a requirement.



	WBS/CES Description	JIAT_Units (*) JIAT Units	Approp	Unique ID	Phasing Method	Equation / Throughput	Fiscal Year	Units	External Code	External Type
33	*JIAT Input Rows								ACE288	
34	Global Input: Hours per Person Month	hr		JIATHrsPerPersMth	C	160			ACE289	INPUT
35	Schedule: Hardware Start Date			JIATHwStartDate	C	01MAR2011			ACE290	INPUT
36	Schedule Duration in Months: Hardware	mo		JIATHwDurationMths	C	18			ACE291	INPUT
37	Schedule Duration in Months: HW/SW Integration	mo		JIATHwSW_Integ_Dur	C	22			ACE301	INPUT
38	Schedule Duration in Months: ST&E	mo		JIATST&E_Dur	C	12			ACE302	INPUT
39	Hardware Input: Structure Weight in Lbs	lb		JIATStrucWgt	C	1275			ACE306	INPUT
40	Hardware Input: CCC Weight in Lbs	lb		JIATCccWgt	C	495			ACE303	INPUT
41	Hardware Input: Engine kWh per Ton			JIATkHpPerTon	C	2			ACE304	INPUT
42	Hardware Input: Engine Type Oil = 1, Coal = 0			JIATOil	C	1			ACE305	INPUT
43	Engine Quantity: Development	unt		JIATDevQty	C	10			ACE307	INPUT
44	Engine Quantity Procurement	unt		JIATProcQty	IS	[Input Throughput]			ACE310	INPUT
45	Software Input: CSCI 1 SLOC	SLOC		JIATSLoc1	C	55000			ACE308	INPUT
46	Software Input: CSCI 2 SLOC	SLOC		JIATSLoc2	C	62000			ACE292	INPUT
47	Software Input: CSCI 3 SLOC	SLOC		JIATSLoc3	C	89000			ACE311	INPUT
48	Staff Level in FTEs: Software Development	prsn		JIATStaffLviSwDev	C	30			ACE321	INPUT
49	Staff Level in FTEs: IA&T Checkout (Low 8 Max 12)	prsn		ATStaffLviIACheckOut	C	10			ACE322	INPUT
50	Staff Level in FTEs: HW SW Integration (Low 13 Max 17)	prsn		IATStaffLviHwSwinteg	C	14			ACE323	INPUT
51	Staff Level in FTEs: Tool and Test Equipment (Low 4 Max 10)	prsn		JIATStaffLviTool&Test	C	4			ACE324	INPUT
52	Staff Level in FTEs: SEPM (Low 10 Max 17)	prsn		JIATStaffLviSEPM	C	15			ACE325	INPUT
53	Staff Level in FTEs: ST&E	prsn		JIATStaffLviST&E	C	6			ACE326	INPUT
54	Wrap Rate: I&A		RDTEA	JIATI&AWrapRate\$	C	175	2005	\$	ACE334	INPUT
55	Wrap Rate: Software		RDTEA	JIATSWWrapRate\$	C	220	2005	\$	ACE335	INPUT
56	Wrap Rate: SEPM		RDTEA	JIATSEPMWrapRate\$	C	150	2005	\$	ACE336	INPUT
57	Wrap Rate: ST&E		RDTEA	JIATST&EWrapRate\$	C	195	2005	\$	ACE337	INPUT

Figure 17: ACE: Full Example INPUT Set-Up with Model Units

5 Identify a JIAT ACE Provider

ACE Models are hosted in JIAT in ACE Model Runner Providers. The Model Runner Providers act like file folders. Users are given access permission to individual folders/Providers. When hosting a model in JIAT, first identify which users should have access to the ACE model. Is the model to be used by a small Working Group/IPT or should an entire department, organization or service have access to it? The JIAT administrator can help determine if an existing ACE Provider can host the model or if a new Provider is required.

Figure 18 shows the Create New Session dialog, in JIAT, where users can view all the Model Runner Providers and subsequent models they have permission to. In the Model Runner labeled “ACE Provider” there are three ACE models including the Power Plant example illustrated in this guide.

Only the JIAT Administrator can create new Model Runner Providers and assign user access privileges. To request assistance with setting up providers contact JIAT Support at jiat_support@tecolote.com.

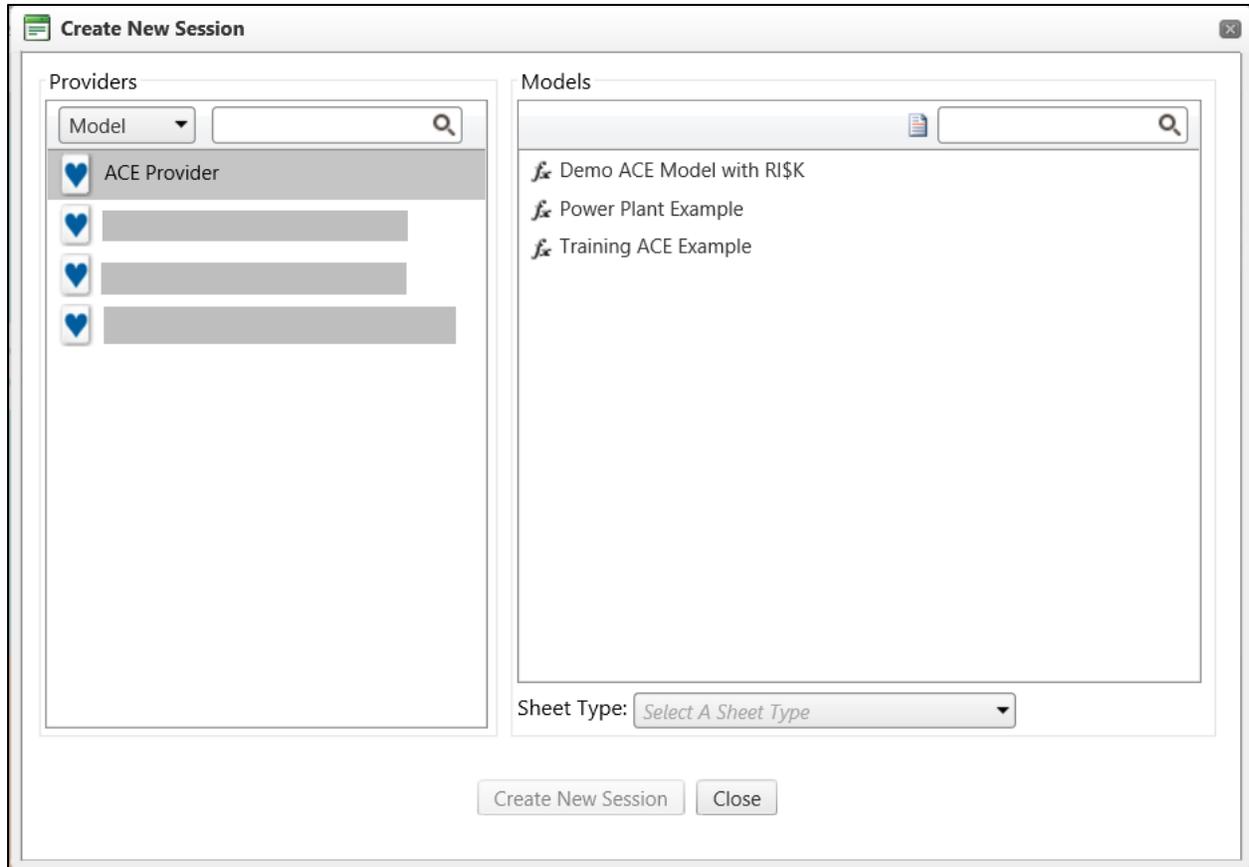


Figure 18: JIAT: ACE Model Runner Providers

6 Uploading an ACE session to the JIAT Website

Log on to the JIAT website to begin the process of hosting an ACE model. To load a model, click Manage Content and select an ACE Provider to associate the model with as shown in Figure 19. Note that you must have administrator access permissions to add/upload models to a Provider. As noted in section 5, JIAT support can assist with this.

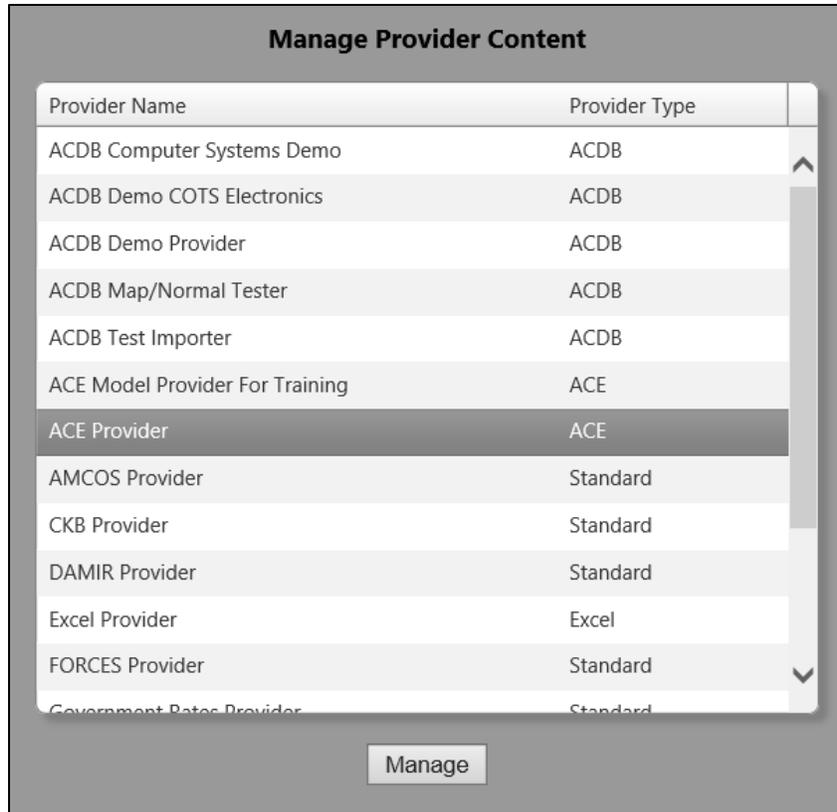


Figure 19: JIAT: Manage Providers

After selecting a Provider and clicking the “Manage” button, all the models associated with that Provider are visible. Delete models, edit model informational fields, or change the file from this location.

Press the Add New Model button to add a model to the list (see Figure 20).

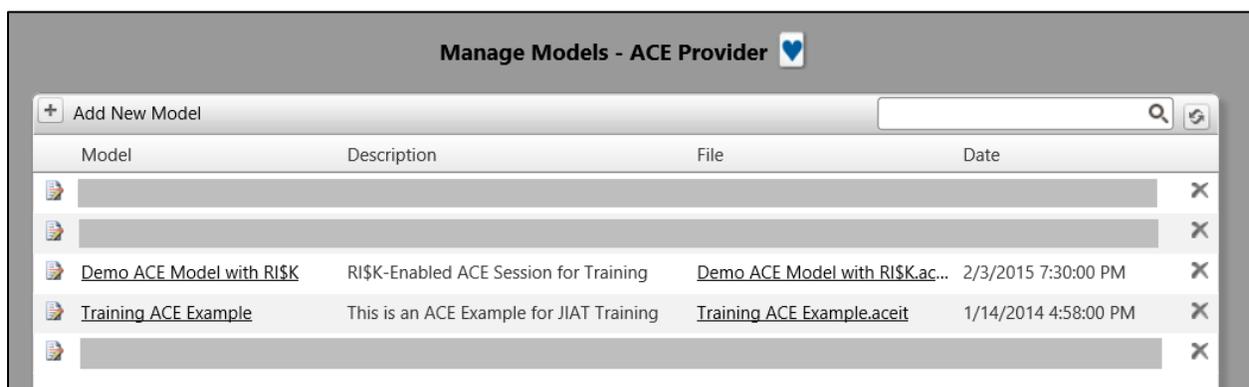


Figure 20: JIAT: Manage Models



Enter model details for the session to provide search criteria for the ACE model. The units, inflation table, Base Year and Approp Type are controlled by the ACE session. These fields are provided when hosting Excel models on JIAT. Load the ACE file name at the bottom of the page (see Figure 21). Note that all model file names must be unique (i.e. models with a name that already exists in the JIAT Provider cannot be uploaded).

Model Details

Name:

Description:

Phase

- Pre-Development
- Development
- Production
- Operations and Support
- Disposal

Subject

- Electrical Power
- Electronics
- Engine
- Engineering Chg Order
- Enviro Ctrl Systems
- Exciter

Provider: ACE Provider

Provider Type: ACE

Commodity: Cost

Domain Type:

Cost Units:

Inflation Table: Use Most Recent USG Table

Base Year: 2016

Approp Type: Terms

Status: Published

Status Description:

Allow users to download model file

Current Model File: None

Model File: C:\Users\... Documents\ACEIT Data\Sessions\Power Plant for J

ACE Session is RISK-Enabled

Note: No validation is performed on the uploaded models. Ensure that all inflation information is correct and that there are no fatal errors.

Figure 21: JIAT: Model Details

Check the box “ACE Session is RISK-Enabled” to generate RISK Non-Time Phased (Statistics) and RISK Time Phased sheets to operate.

Check the box, “Allow users to download model file(s)” to allow other users to save the ACE file to their computers.

A JIAT session can now be created with the model. Any user who has access to the Provider can run the model in any of the five sheet types.



7 Running an ACE Model in JIAT

To run a model in JIAT select either the Run Models square at the bottom of the JIAT Home Page or select Session>Create New Session from the JIAT menu bar (see Figure 22).

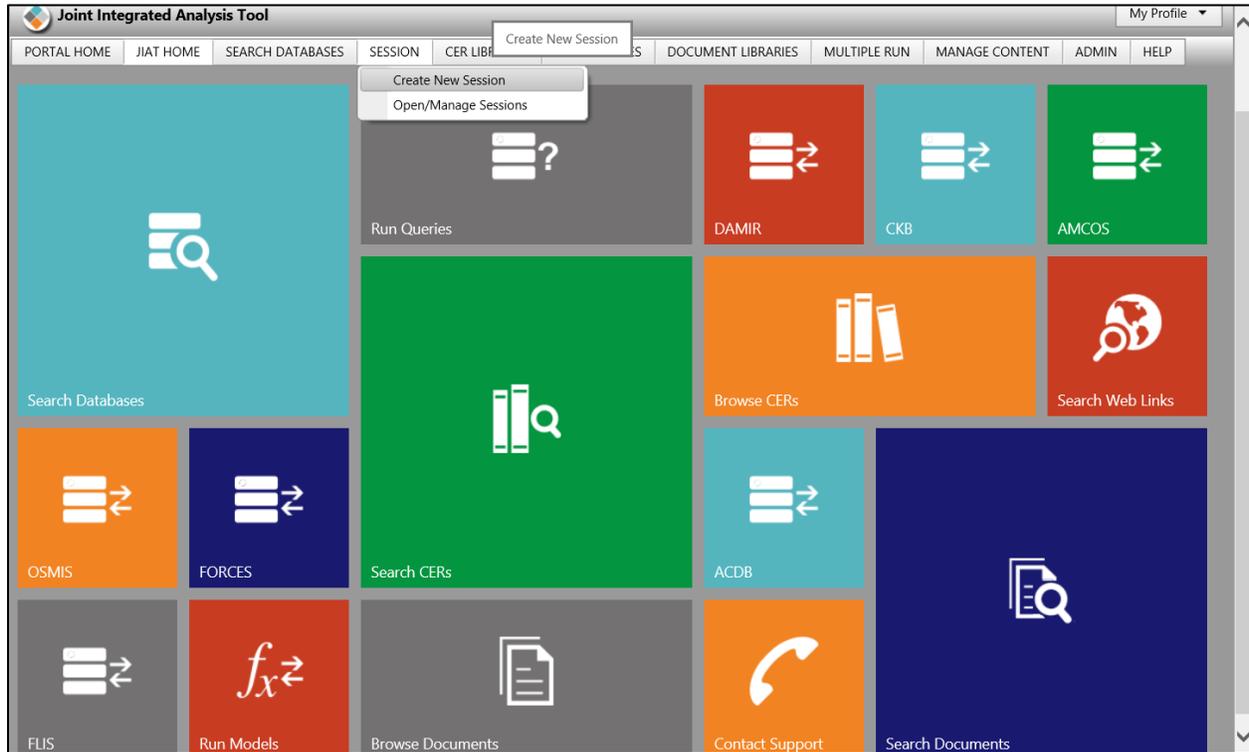


Figure 22: JIAT: JIAT Home Page

JIAT Models are run from a JIAT Session which serves as a mechanism to host and save an instance of running the model. JIAT Sessions can be saved to the users JIAT account to allow users to come back and perform additional work later.

The Create New Session dialog shown in Figure 23 lists all the Model Providers and their hosted models that the user has permissions for. Use the Provider and model section panels to browse for the model. In our example, the Power Plant file is listed in the ACE Provider.

Use the sheet type drop down to select which sheet type to run the model in (see



Table 1). The example shows the Non-Time Phased sheet type which runs the total result for multiple cases side by side.

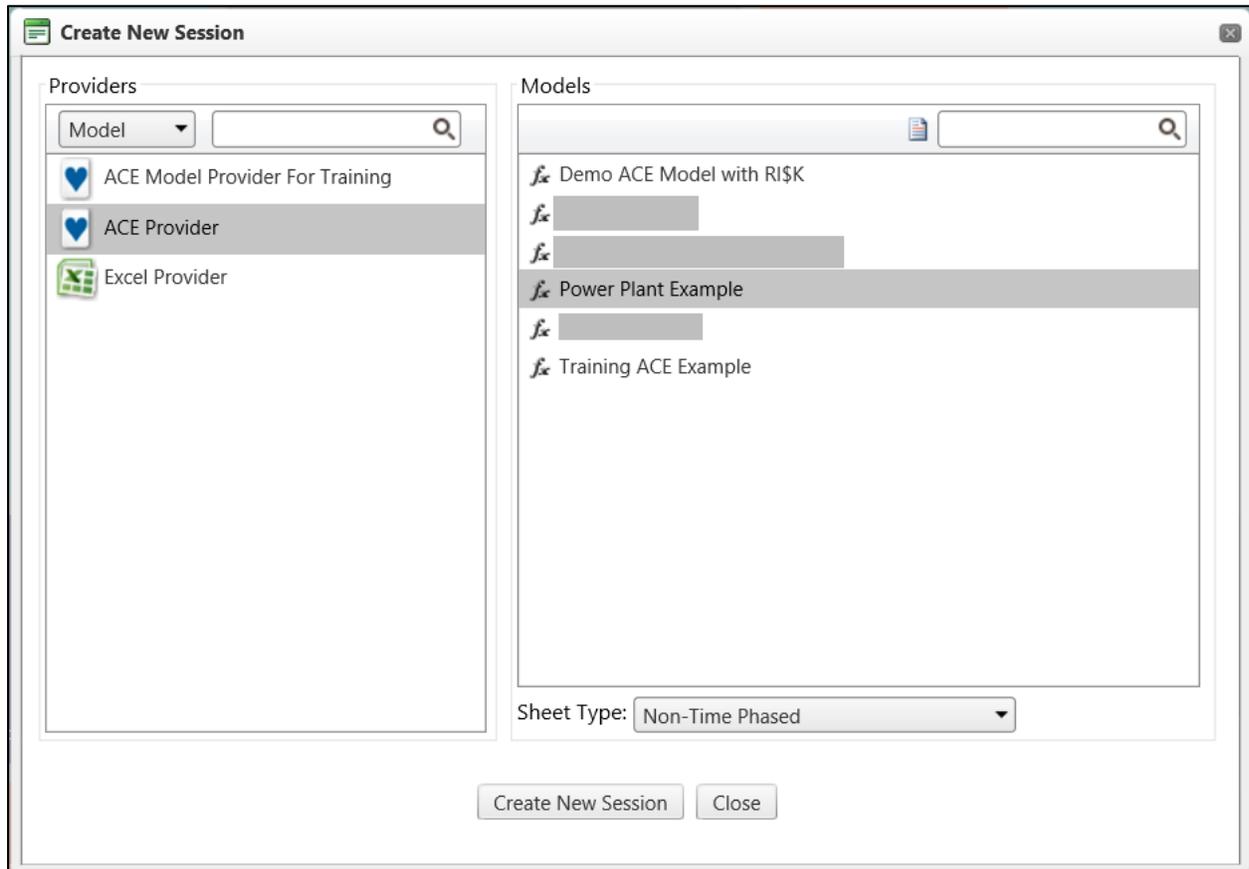


Figure 23: JIAT: Create New Session

7.1 JIAT Non-Time Phased Model

Figure 24 shows the first page of the Power Plant example model in JIAT. Users can use the Add Case button to add new What-if cases to the JIAT session. An unlimited number of cases can be added. Move to the subsequent pages in the session to view and override the model input variables. In this example the difference between the cost of the plant with oil versus coal generators is examined. Figure 25 shows the override that selects the coal parameter of the engine model CER and changing the schedule duration in months for Hardware from 18 months to 2 years.

To enter a input override in different units than specified by the model.

1. Type the override value into the case column
2. Press the Convert button in the Edit section of the Ribbon
3. Use the Convert from Units dropdown to select a different unit
4. Press Ok



The unit associated with the override value appears in the ConvertFrom column. Note the Convert button only activates when an override is entered.

Model (Non-Time Phased): Power Plant
Description: With RISK: used in ACE Provider Set Up Guide
Provider: ACE Provider (1.0)

	VariableName	Appropriation	ModelUnits	ConvertFrom	Baseline	Coal Powered
1	OUTPUT VARIABLES					
2	* Powerplant System Estimate					
3	POWER GENERATION PLANT	RDTEA			\$407.2538	\$418.4186
4	RDT&E	RDTEA			\$128.2864	\$131.7715
5	Prime Mission Product	RDTEA			\$91.1427	\$92.0291
6	Hardware (HW)	RDTEA			\$31.9647	\$32.8511
7	Software (SW)	RDTEA			\$38.7100	\$38.7100
8	Integration and Assembly (I&A)	RDTEA			\$20.4680	\$20.4680
9	SEPM (RDT&E)	RDTEA			\$32.8122	\$35.3755
10	Training	RDTEA			\$0.9589	\$0.9855
11	Data	RDTEA			\$0.7067	\$0.7156
12	System Test and Evaluation (ST&E)	RDTEA			\$2.6658	\$2.6658
13						
14	Procurement	OPA			\$278.9674	\$286.6471

Non-Time Phased Sheet

Figure 24: JIAT: Non-Time Phased Session

Model (Non-Time Phased): Power Plant
Description: With RISK: used in ACE Provider Set Up Guide
Provider: ACE Provider (1.0)

	VariableName	Appropriation	ModelUnits	ConvertFrom	Baseline	Coal Powered
22	INPUT VARIABLES					
23	Global Input: Hours per Person Month		hr		160.0000 *	160.0000 *
24	*Schedule					
25	Schedule: Hardware Start Date				40603.0000 *	40603.0000 *
26	Schedule Duration in Months: Hardware		mo	yr	18.0000 *	2
27	Schedule Duration in Months: HW/SW Integration		mo		22.0000 *	22.0000 *
28	Schedule Duration in Months: ST&E		mo		12.0000 *	12.0000 *
29	*Hardware					
30	Hardware Input: Structure Weight in Lbs		lb		1275.0000 *	1275.0000 *
31	Hardware Input: CCC Weight in Lbs		lb		495.0000 *	495.0000 *
32	Hardware Input: Engine kWh per Ton				2.0000 *	2.0000 *
33	Hardware Input: Engine Type Oil = 1, Coal = 0				1.0000 *	0
34	Engine Quantity: Development		unt		10.0000 *	10.0000 *
35	Engine Quantity: Procurement		unt		70.0000 *	70.0000 *

Non-Time Phased Sheet



Figure 25: JIAT: Non-Time Phased Session Inputs

7.2 JIAT Time Phased Model

Running models in time phased mode allows for entry of fiscal year overrides. Figure 26 shows the result of running a What-if drill with different fiscal year procurement quantities. Figure 27 shows the yearly quantity overrides for the drill. Time Phased results can be viewed in Base Year and Then Year.

VariableName	Appropriation	ModelUnits	ConvertFrom	Total	2010	2011	2012	2013	2014	2015
1 OUTPUT VARIABLES										
2 POWER GENERATION PLANT	RDTEA			\$349,235.9899		\$19,423.6898	\$33,231.2626	\$23,196.4701	\$22,372.9029	\$20,691.4752
3 RDT&E	RDTEA			\$128,286.4015		\$19,423.6898	\$33,231.2626	\$23,196.4701	\$22,372.9029	\$20,691.4752
4 Prime Mission Product	RDTEA			\$91,142.7019		\$17,422.9332	\$24,526.1466	\$13,574.2604	\$15,160.9710	\$16,638.7289
5 Hardware (HW)	RDTEA			\$31,964.7293		\$17,422.9332	\$14,541.7960			
6 Software (SW)	RDTEA			\$38,710.0193			\$9,984.3505	\$13,574.2604	\$15,151.4083	
7 Integration and Assembly (I&A)	RDTEA			\$20,467.9533					\$9,562.7	\$16,638.7289
8 SEPM (RDT&E)	RDTEA			\$32,812.2398		\$1,958.5706	\$8,521.5688	\$9,419.3255	\$7,059.8684	\$3,967.2942
9 Training	RDTEA			\$958.9419						
10 Data	RDTEA			\$706.7475		\$42.1859	\$183.5473	\$202.8842	\$152.0635	\$85.4521
11 System Test and Evaluation (ST&E)	RDTEA			\$2,665.7705						
12 Procurement	OPA			\$220,949.5883						
13 Manufacturing	OPA			\$157,821.8678						
14 Hardware (HW)	OPA			\$137,236.4068						
15 Integration	OPA			\$20,585.4610						
16 SEPM (Procurement)	OPA			\$58,394.0911						

Figure 26: JIAT: Time Phased Session

VariableName	Appropriation	ModelUnits	ConvertFrom	Total	2010	2011	2012	2013	2014	2015
21 Schedule Duration in Months: Hardware		mo		18.0000 *						
22 Schedule Duration in Months: HW/SW Integration		mo		22.0000 *						
23 Schedule Duration in Months: ST&E		mo		12.0000 *						
24 Hardware Input: Structure Weight in Lbs		lb		1275.0000 *						
25 Hardware Input: CCC Weight in Lbs		lb		495.0000 *						
26 Hardware Input: Engine kHp per Ton				2.0000 *						
27 Hardware Input: Engine Type Oil = 1, Coal = 0				1.0000 *						
28 Engine Quantity: Development		unt		10.0000 *						
29 Engine Quantity: Procurement		unt		55.0000 *						
30 Software Input: CSCI 1 SLOC		SLOC		55000.0000 *						
31 Software Input: CSCI 2 SLOC		SLOC		62000.0000 *						
32 Software Input: CSCI 3 SLOC		SLOC		89000.0000 *						
33 Staff Level in FTEs: Software Development		prsn		30.0000 *						

2018	2019	2020	2021	2022	2
10	10	10	10	15	



Figure 27: JIAT: Time Phased Session Input

7.3 Other JIAT Model Runner Sheet Options

In addition to the Non-Time Phased and Time Phased sheet types JIAT offers three additional sheet types to run on an ACE model. The Multiple Run sheet option allows for sensitivity exploration of a couple of the inputs in the model. In addition, there are two RI\$K sheet type options available when the session is RI\$K enabled as described in Section 6.

Figure 28 shows the charts JIAT provides as the result of the Multiple Run sheet.

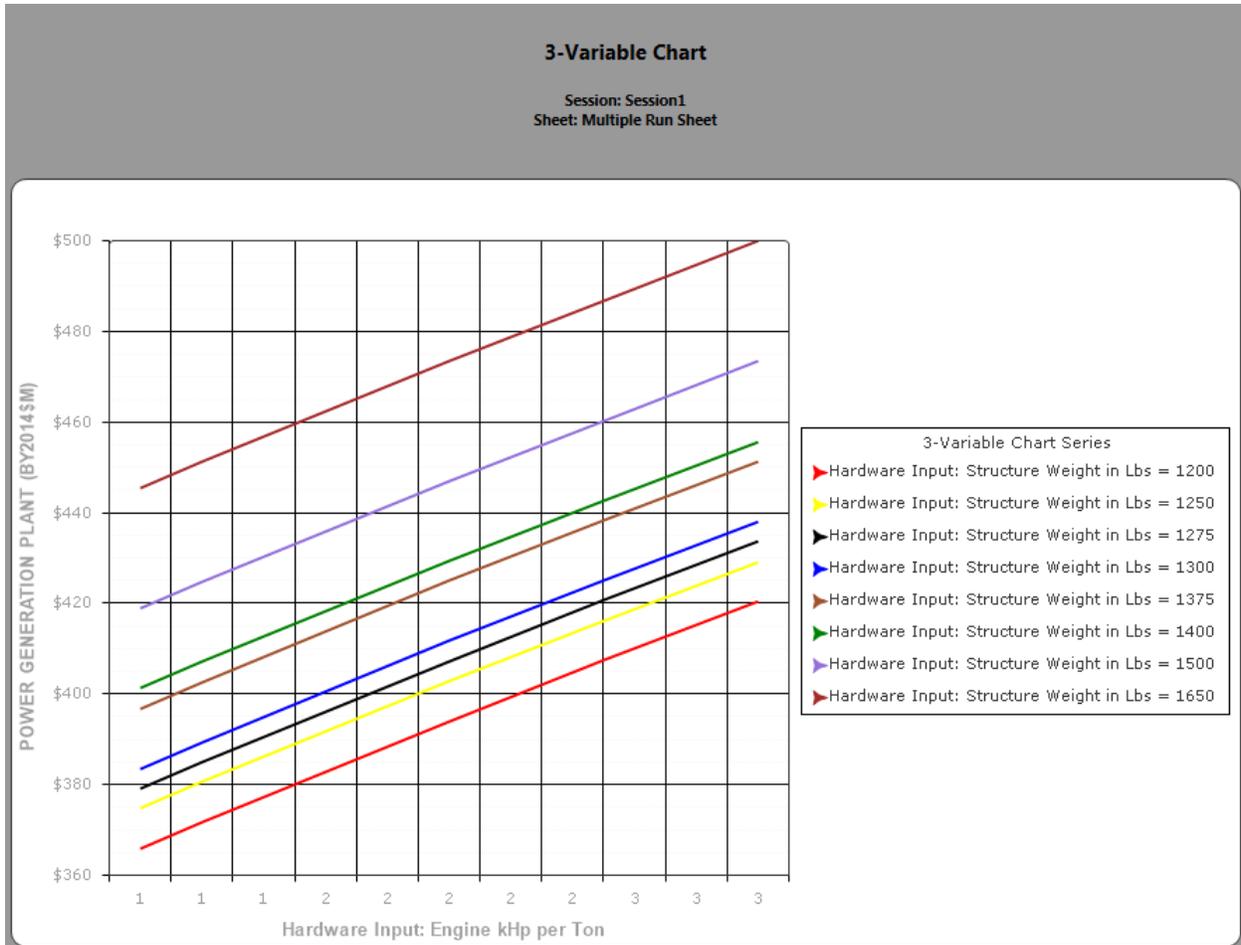


Figure 28: JIAT: Multiple Run Results

Figure 29 shows the model probability results from running the model with RI\$K.



Model (RISK Non-Time Phased): Power Plant
Description: With RISK: used in ACE Provider Set Up Guide
Provider: ACE Provider (1.0)

	VariableName	Appropr	ModelUnits	ConvertFrom	Total	Point Estimate	Mean	Std Dev	CV	5.0% Level	10.0% Level	15.0% Level	20.0% Level	25.0% Level	30.0% Level	35.0% Level	40.0% Level
1	OUTPUT VARIABLES																
2	* Powerplant System Estimate																
3	POWER GENERATION PLANT	RDTEA			\$407.2538	\$407.2538 (30%)	\$464.4841	\$95.2082	0.2050	\$323.0927	\$344.1690	\$361.6740	\$376.4418	\$391.9074	\$407.0174	\$420.6709	\$435.82
4	RDTE&E	RDTEA			\$128.2864	\$128.2864 (27%)	\$136.4695	\$12.5066	0.0916	\$115.8551	\$120.1642	\$123.5290	\$126.2979	\$127.4656	\$129.1498	\$130.8737	\$132.665
5	Prime Mission Product	RDTEA			\$91.1427	\$91.1427 (14%)	\$100.0929	\$8.2661	0.0826	\$86.7471	\$88.9670	\$91.5049	\$92.7756	\$94.2167	\$95.8826	\$96.9375	\$97.741
6	Hardware (HW)	RDTEA			\$31.9647	\$31.9647 (47%)	\$31.9780	\$5.2773	0.1650	\$23.5351	\$25.2146	\$26.4005	\$27.1501	\$28.0345	\$28.9233	\$29.8566	\$30.71
7	Software (SW)	RDTEA			\$38.7100	\$38.7100 (10%)	\$43.6363	\$4.1174	0.0944	\$37.8170	\$38.6712	\$39.3796	\$39.9408	\$40.3900	\$41.0157	\$41.5651	\$41.96
8	Integration and Assembly (I&A)	RDTEA			\$20.4680	\$20.4680 (9%)	\$24.4786	\$3.3334	0.1362	\$19.7792	\$20.5004	\$21.0782	\$21.7496	\$22.1739	\$22.5448	\$22.8594	\$23.26
9	SEPM (RDT&E)	RDTEA			\$32.8122	\$32.8122 (55%)	\$31.8614	\$5.5004	0.1726	\$22.8111	\$24.3081	\$25.6448	\$26.9520	\$27.9954	\$28.9369	\$29.6958	\$30.33
10	Training	RDTEA			\$0.9589	\$0.9589 (38%)	\$1.2026	\$0.5325	0.4428	\$0.5577	\$0.6213	\$0.6958	\$0.7500	\$0.8036	\$0.8677	\$0.9146	\$0.981
11	Data	RDTEA			\$0.7067	\$0.7067 (32%)	\$0.8395	\$0.2345	0.2793	\$0.5163	\$0.5640	\$0.6017	\$0.6385	\$0.6722	\$0.7004	\$0.7185	\$0.741
12	System Test and Evaluation (ST&E)	RDTEA			\$2.6658	\$2.6658 (69%)	\$2.4731	\$0.4127	0.1669	\$1.8476	\$1.9507	\$2.0311	\$2.1018	\$2.1848	\$2.2372	\$2.2710	\$2.331
13																	
14																	

RISK Non-Time Phased Sheet

Figure 29: JIAT: RISK Non-Time Phased Results

8 JIAT ACE Model Runner Provider Guidance and Assistance

Additional guidance and assistance on JIAT ACE Model Runner set up and maintenance is available from the JIAT support team. Please direct questions to JIAT Project Support or the JIAT Program Manager.

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APPENDIX A – Unit Conversion Codes

This appendix shows the conventional Unit codes used by JIAT. These codes are useful when preparing an ACE or Excel model to be posted to JIAT.

Table 4: JIAT Unit Codes

Element	Code
Distance	
Miles	mi
Meters	m
Kilometers	km
Centimeters	cm
Inches	ln
Yards	yd
Nautical miles	nmi
Area	
Square Meters	m ²
Square Feet	ft ²
Square Inches	in ²
Square Centimeters	cm ²
Mass	
Kilograms	Kg
Grams	G
Pounds	Lb
Newton	N
Pressure	
Pascal	Pa
kilogram-force per square millimeter	kgf/mm ²
kilogram-force per square meter	kgf/m ²
Temperature	
Degrees Kelvin	K
Degrees Celsius	C
Degrees	F
Time	
Seconds	sec
Days	d
Hours	hr
Years	yr
Minutes	min
Weeks	wk
Months	mo



Element	Code
Electric Charge	
Coulombs	C
Ampere Hours	A*h
abcoulombs	abC
Electric Current	
Amperes	A
abamperes	abA
Electric Capacitance	
Farad	F
abfarad	abF
Electric Inductance	
Henry	H
abhenry	abH
Electric Conductance	
Siemens	S
absiemens	abS
Electromotive Force	
Volts	V
abVolts	abV
Electrical Impedance	
Ohms	ohm
abohms	abohm
Other	
Percent	%
Units	unt
Systems	syst
Persons	prsn
Lines of Code	SLOC
Lines of Code per Person Month	SLOC/person mo
Functions	fctn
Functions per Person Month	Fctn/person mo
Defects	dfct
Defects per lines of code	Dfct/1000 SLOC
Level	Lvl