

Understanding the IMPRINT Pro Environment – OPERATIONS MODEL

Menus and Toolbars: Use these options to access helpful task network tools, execute models, run reports and save analyses.

Main Window: In addition to the Network diagram this window populates with new tabbed windows corresponding to the items you open in the Analysis tree.

Properties Window: View all properties for the selected node (analysis, task, function,..etc) at a quick glance. Values may be changed through this window.

Analysis Tree: View a list of items comprising your analysis. Main categories include:

Warfighters: the types of people you pick to perform the operation and maintenance tasks on your system.

Missions: the network of individual tasks and functions comprising the process you choose to model.

Task: a representation of a step in a process being modeled.

Functions: a subnetwork of tasks within a network.

Scheduled Functions: a subnetwork of scheduled tasks and functions.

Goals: an event that may cause mission interruption and additional workload.

RI Pairs: resource-interface pairs used to define operator workload.

Macros: user-defined algorithms called within tasks.

Variables: user-defined variables that can be called throughout your network.

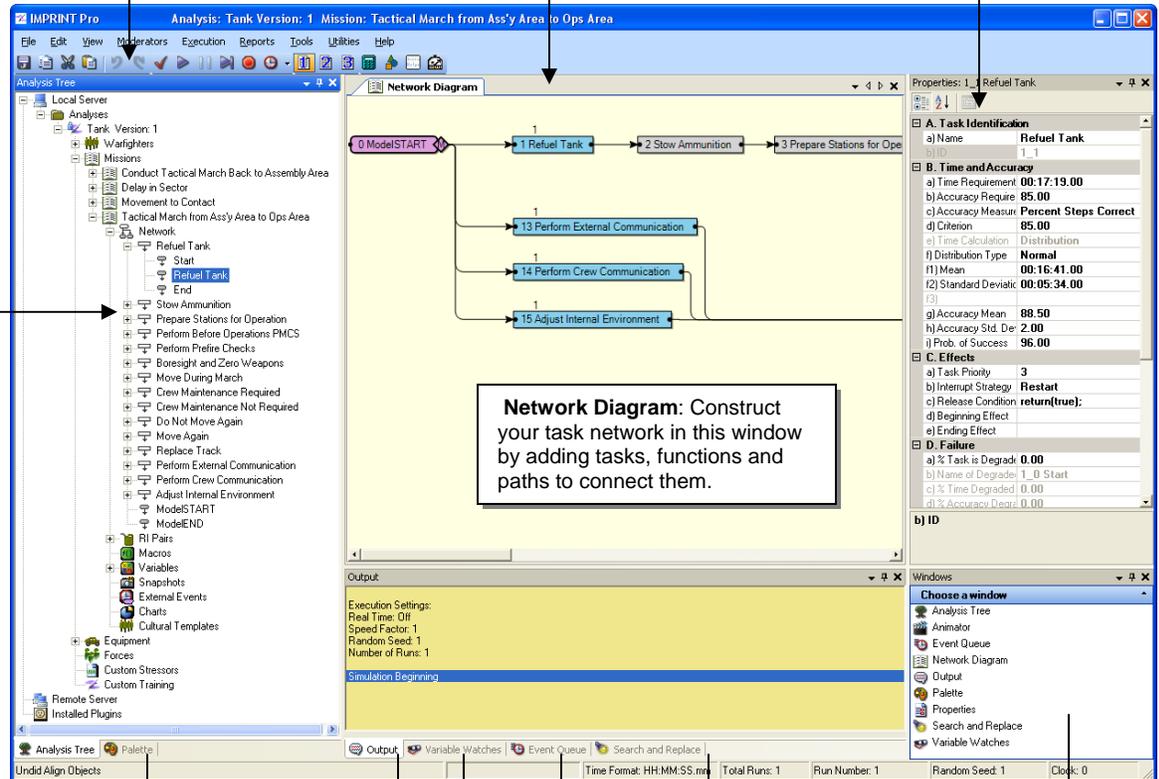
Snapshots: user-defined data collection bins.

External Events: tasks which are set to fire at a specified time.

Cultural Templates: templates that enables you to attach cultural variables to task performance.

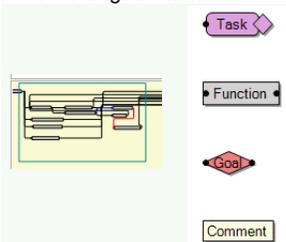
Custom Moderators: define your own custom stressors and custom training moderators to be applied to your network's tasks.

Forces: create a model of planned and unplanned activities done by a Force Unit.



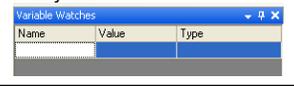
Network Diagram: Construct your task network in this window by adding tasks, functions and paths to connect them.

Palette: See a bird's-eye view of your network diagram. Also, select node objects to drag onto your network diagram for making new Tasks, Functions, Goals and Comments (objects may also be selected by right-mouse clicking inside the network diagram window).

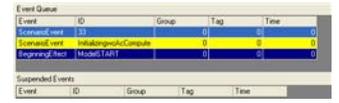


Output Window: View the trace of the model execution and any errors that occur.

Variable Watches: view the current value of any defined variable in your analysis.

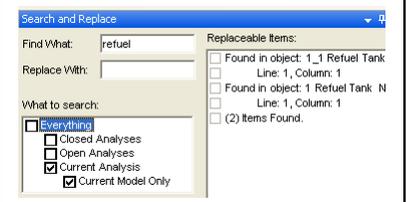


Event Queue: View the list of upcoming events in your task network.



Windows: Toggle through and/or redisplay hidden windows by clicking the corresponding icon (default location of this window: Analysis Tree Group)

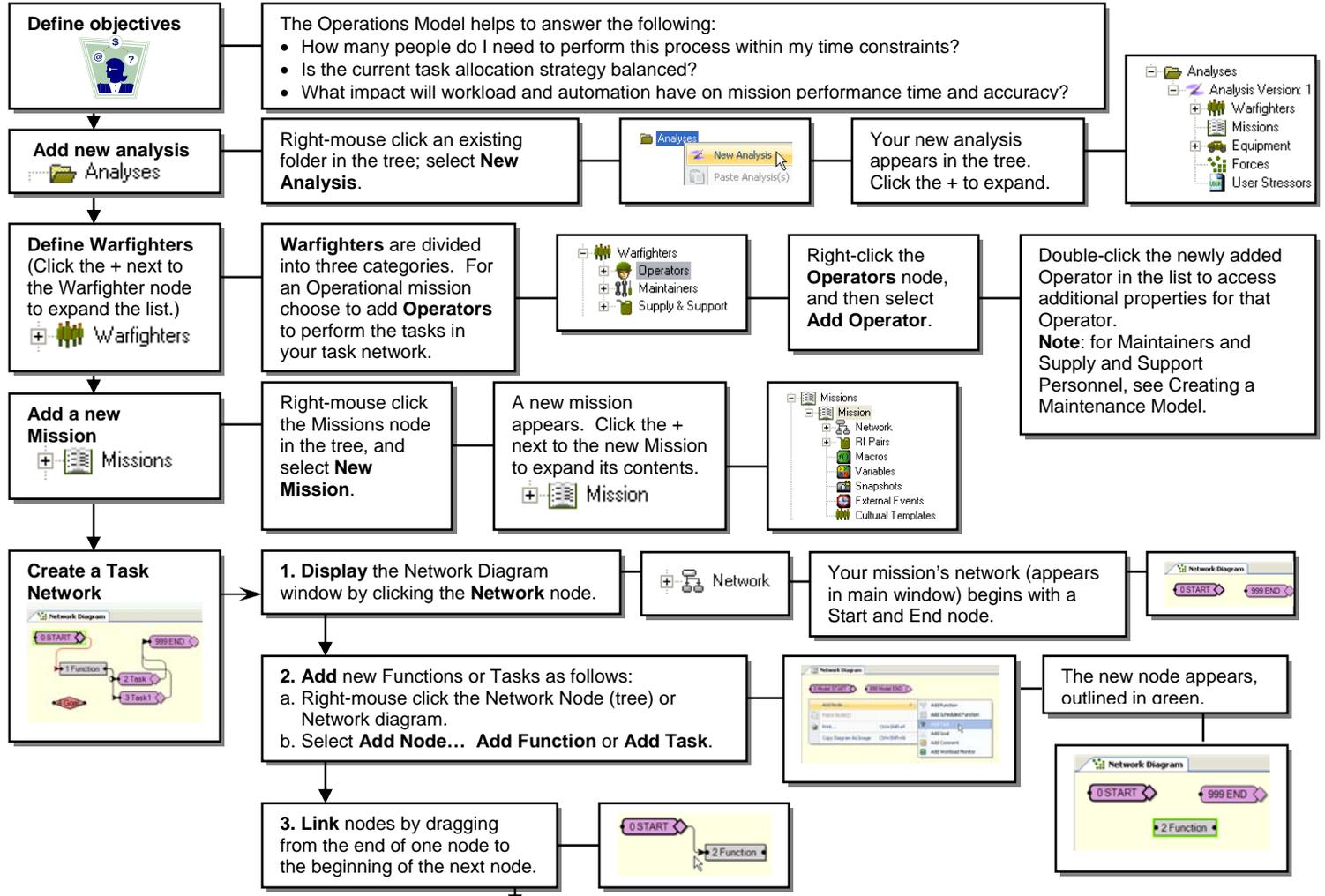
Search and Replace: Search your entire analysis, including variable names, effects code and properties, for any text string; replace found text with a new text string.



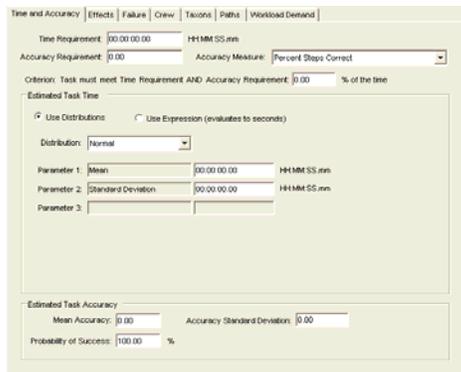
The Operations Model is defined by the following process:

1. Draw a network of tasks and functions defining a process you wish to simulate.
2. Define available operators and their respective workload thresholds.
3. Run the model and view reports to optimize operator recruitment.

Creating a New Analysis



Defining your Tasks



Time and Accuracy Tab:

- Top:** Use this section to set the "standard" for what you consider to be an acceptable time and accuracy for this task
- Middle:** Use this section to set a mean time for this task. Choose an option:
- o **Value:** Your task will always take exactly this much time until you set a non-zero value in the TimeStdDev field.
 - o **Expression:** enter an expression, followed by a "+".
- Bottom:** Use these numbers to help make your task "fail". **Note:** tasks fail based on accuracy only, not on time.
- Hint:** use the following options to assist you in defining your task time and accuracy data:
- Use the **Accuracy Calculator** (on Toolbar) to calculate Accuracy Requirement, Standard Deviation, Probability of Success and Mean accuracy, using your own data (3 of 4 required).
 - Use the **Micromodels** option (on Toolbar) to set mean times based on research data.
 - Use the **Unit Conversions** tool (on Toolbar) to convert times or distances of differing units.



Effects Tab:

- **Release Condition:** When this expression is true, the task is allowed to start.
 - **Beginning Effect:** This is what happens as a result of the task starting.
 - **Ending Effect:** This is what happens as a result of the task completing.
- Hint:** the following options may be used to enhance your Effects strategies:
- Define **Macros** to be called in your Effects code through the **Macros** node on the tree.
 - Define **Variables** to be called in your Effects code through the **Variables** node in the tree.
 - Use the **Syntax Helper** (on Toolbar) for sample code snippets of loops and conditional statements.

Time and Accuracy | Effects | Failure | Crew | Taxons | Paths | Workload Demand

0.00 % 1) Task [] is degraded
 Time is degraded [] %
 Accuracy is degraded [] %

0.00 % 2) Task [] Follows

0.00 % 3) Mission Fails

100.00 % 4) No Effect

0.00 % 5) Warfighter assignment will change
 Warfighter []
 Task []

0.00 % 6) Task Repeats

100.00 %

Failure Tab:
 Use these parameters to determine what happens next should this task fail. **Note:** The sum of all Failure Consequence probabilities must total 100%.

Time and Accuracy | Effects | Failure | Crew | Taxons | Paths | Workload Demand

Warfighter Name Assignment

Operator Primary

Crew Tab:
 Designate primary and contingency operators for this task.
 o Each task may have **only one primary** assigned
 o Up to six **contingency operators** are allowed per task.
Note: if the crewmember you're looking to add is not on the list, go to the **Warfighters node** on the Analysis Tree and add the new Warfighter (must be of type Operator).

Time and Accuracy | Effects | Failure | Crew | Taxons | Paths | Workload Demand

Perceptual
 Visual Recognition / Discrimination []

Cognitive
 Numerical Analysis []
 Information Processing / Problem Solving []

Motor
 Fine Motor - Discrete []
 Fine Motor - Continuous []
 Gross Motor - Light []
 Gross Motor - Heavy []

Communication
 Oral []
 Reading and Writing []

Map Workload Values Total Weight: 0.00

Taxon Tab:
 Taxons describe your task type and are the link between task performance and PTS (personnel, training and stressor) settings. Choose 1-3 taxons, and enter the desired weights in the fields provided.
Note: if any taxons are selected, the total sum of all Taxon weights for any given task must be 1.00 (0.00 when none selected).

Time and Accuracy | Effects | Failure | Crew | Taxons | Paths | Workload Demand

Decision Type: Multiple

1 Task1 -> 999 END
 Decision Code:
 1) return true;

1 Task1 -> 2 Task2
 Decision Code:
 1) return true;

Paths Tab
 Use this tab to set network diagram Branching Logic. Double-click any node in the network diagram to change its node type and settings.

P Probabilistic Node: set the nodes to follow and the probability of their occurrence (only numerical values allowed). One path will be chosen.

M Multiple Node: set the nodes to follow; several may occur at once. Any path whose expression evaluates to "True" is taken.
Note: confirm that all paths rejoin at specific rejoin nodes. Secondly, set the release condition of these rejoin nodes.

T Tactical Node: the path whose expression evaluates higher is taken (this node exists in the task level only.)

S Single Node: the single path exiting the task is taken.

Time and Accuracy | Effects | Failure | Crew | Taxons | Paths | Workload Demand

Interfaces Values

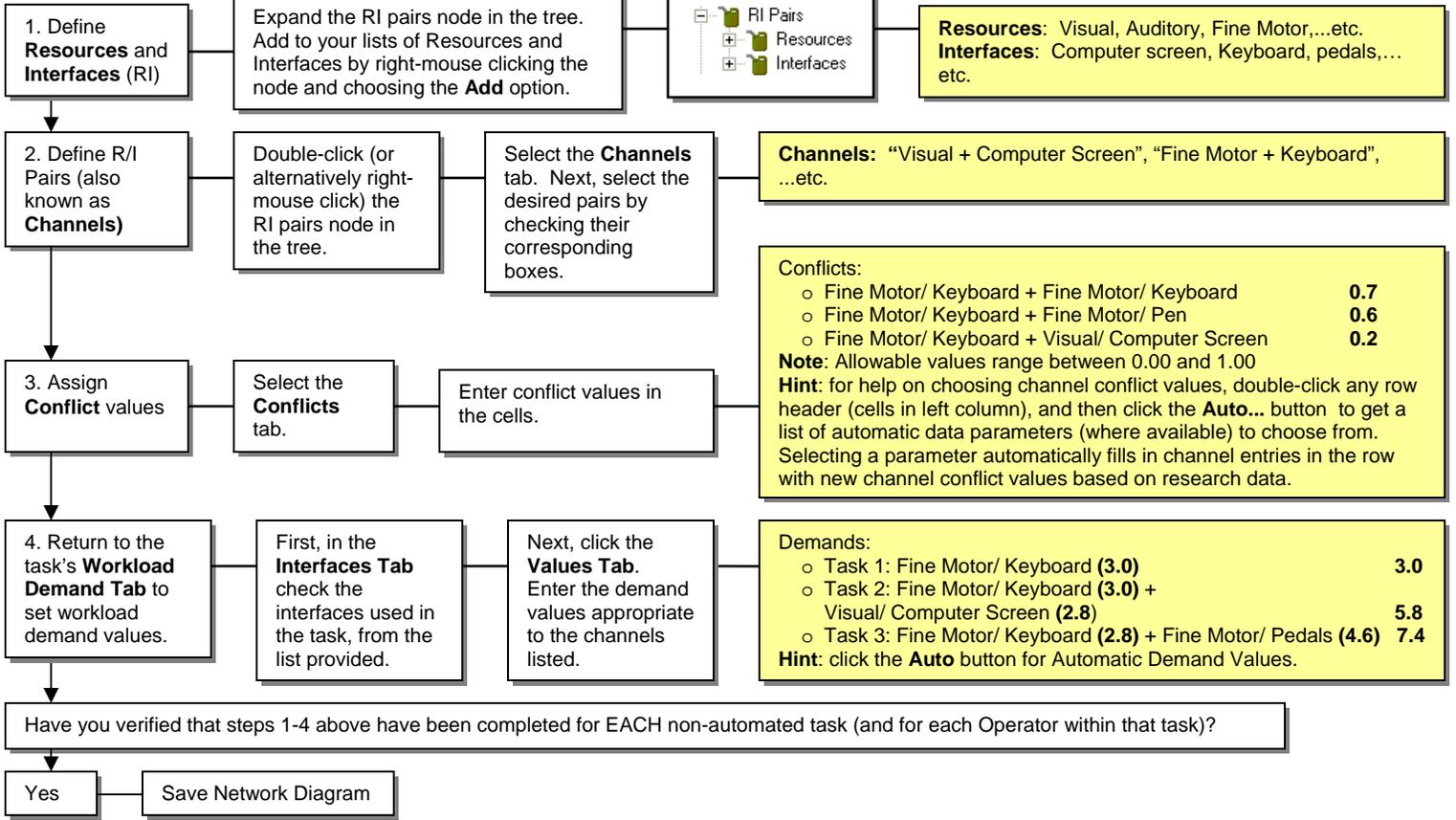
R/I Pair	Demand Value
R: Auditory I: CrewStation	0.00
R: Cognitive I: CrewStation	0.00
R: Fine Motor I: CrewStation	0.00
R: Gross Motor I: CrewStation	0.00
R: Speech I: CrewStation	0.00
R: Tactile I: CrewStation	0.00
R: Visual I: CrewStation	0.00

Workload Demand Tab:
 The last remaining tab in the Task Setup is the Workload Demand tab. Prior to entering data in this tab, you must first define Workload at the analysis level. See **Defining Workload** below.

Defining Workload



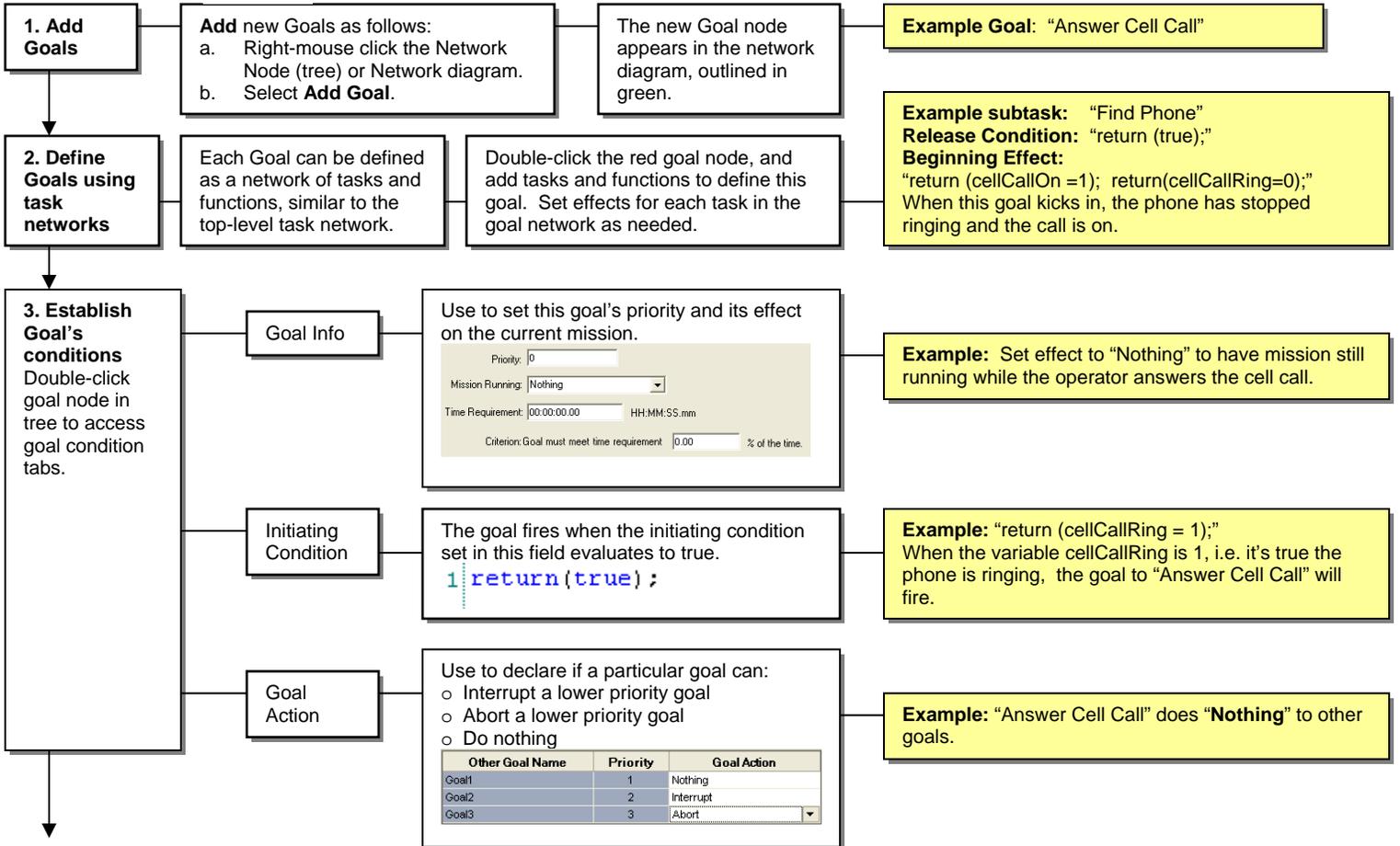
For each task, define workload types and levels.

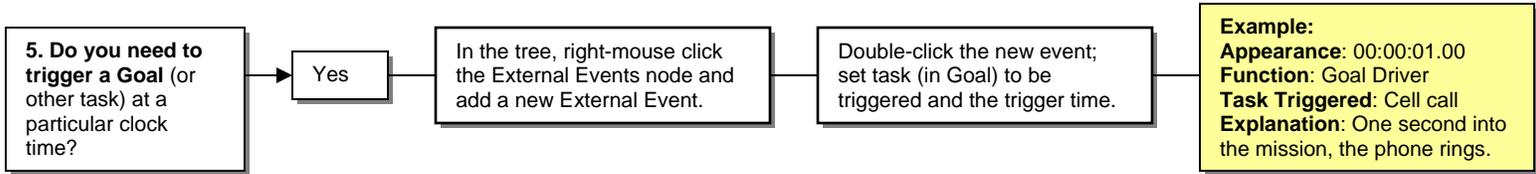


Adding Goals

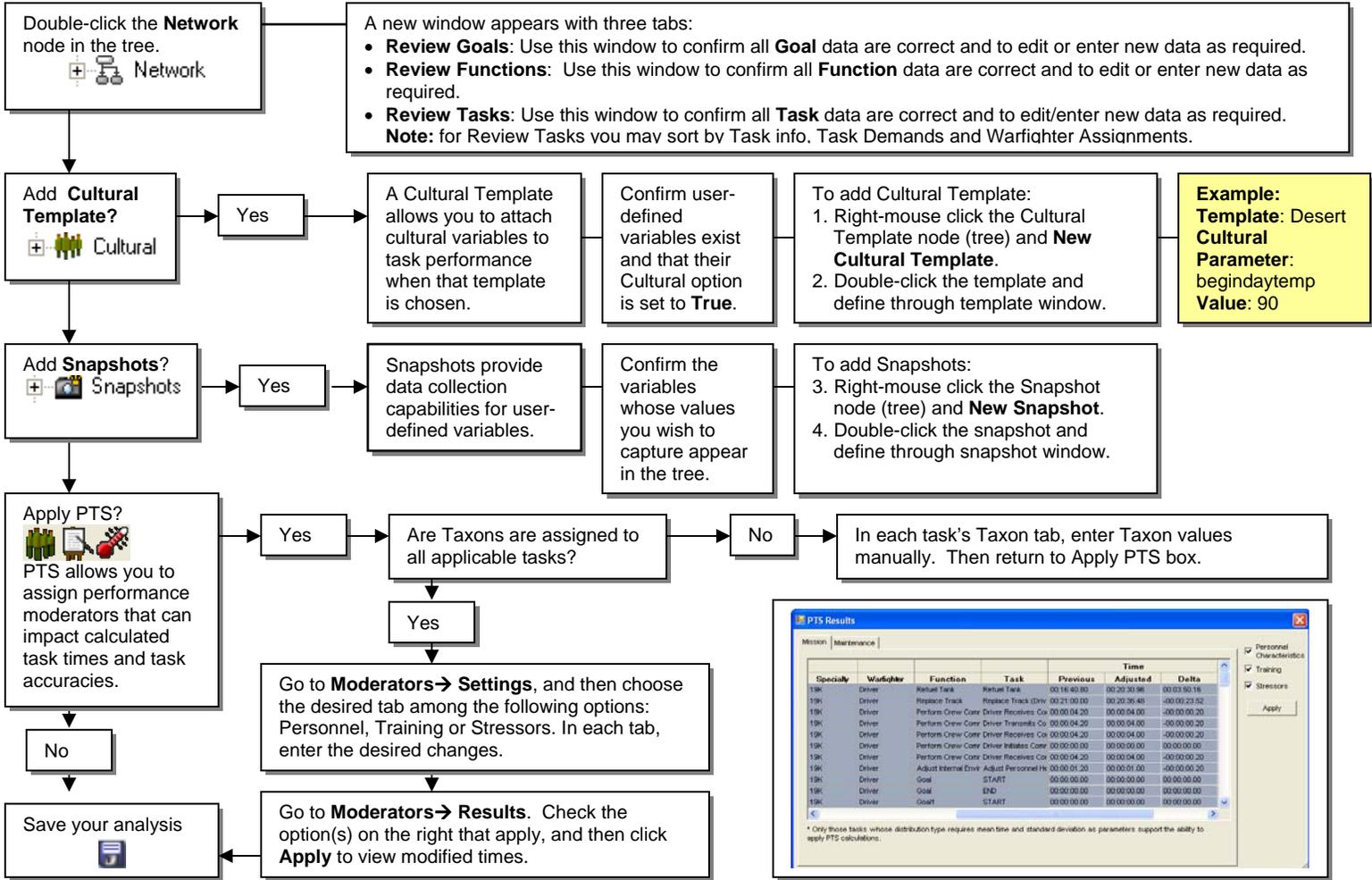


Use Goals to initiate possible actions that could potentially interrupt the mission.





Reviewing Task, Function and Goal Data



Executing your Model

