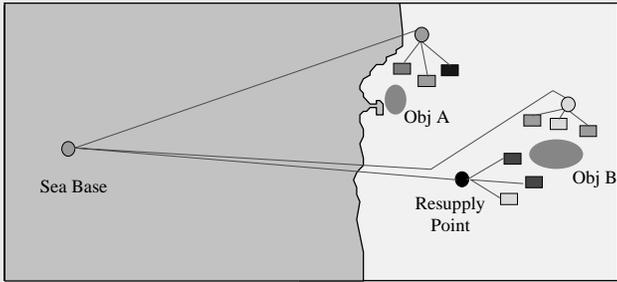


## Screen View Slide Show

### Jun 99



- If viewing within a web browser, should right click and select view full screen
- Recommend right clicking to select speaker notes.



- To print, open MS PowerPoint then open this file (screen.pps)
- Uncheck 'Print B&W' in print dialog box.
- Uncheck 'Print Hidden Slides'
- Recommend print 2 slides per page

## Tactical Logistics Distribution System

**Sponsors:**  
MARCORSYSCOM - AWT  
ONR

**Supporters:**  
MCCDC - S&A  
MCCDC - Wargaming  
Naval Doctrine Command  
N85 - Expeditionary Warfare

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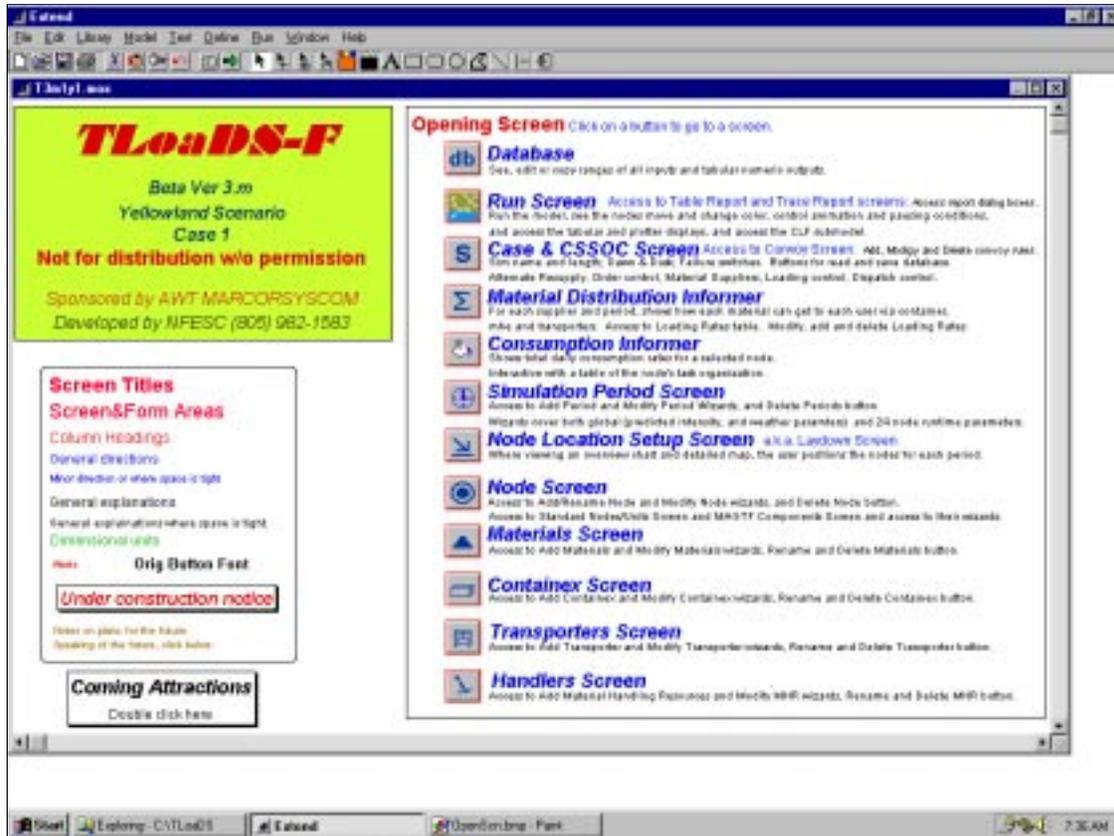
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*If you are viewing these speaker notes in the slide show mode, the best place to position this window is the upper right corner. Then only on a few slides will you need to reposition the window to view underlying content.*

*Many slides have red arrows or red dashed boxes the flash momentarily to show the viewer just what the speaker notes are talking about. These pointers are keyed to the "(click)"s in the speaker notes*

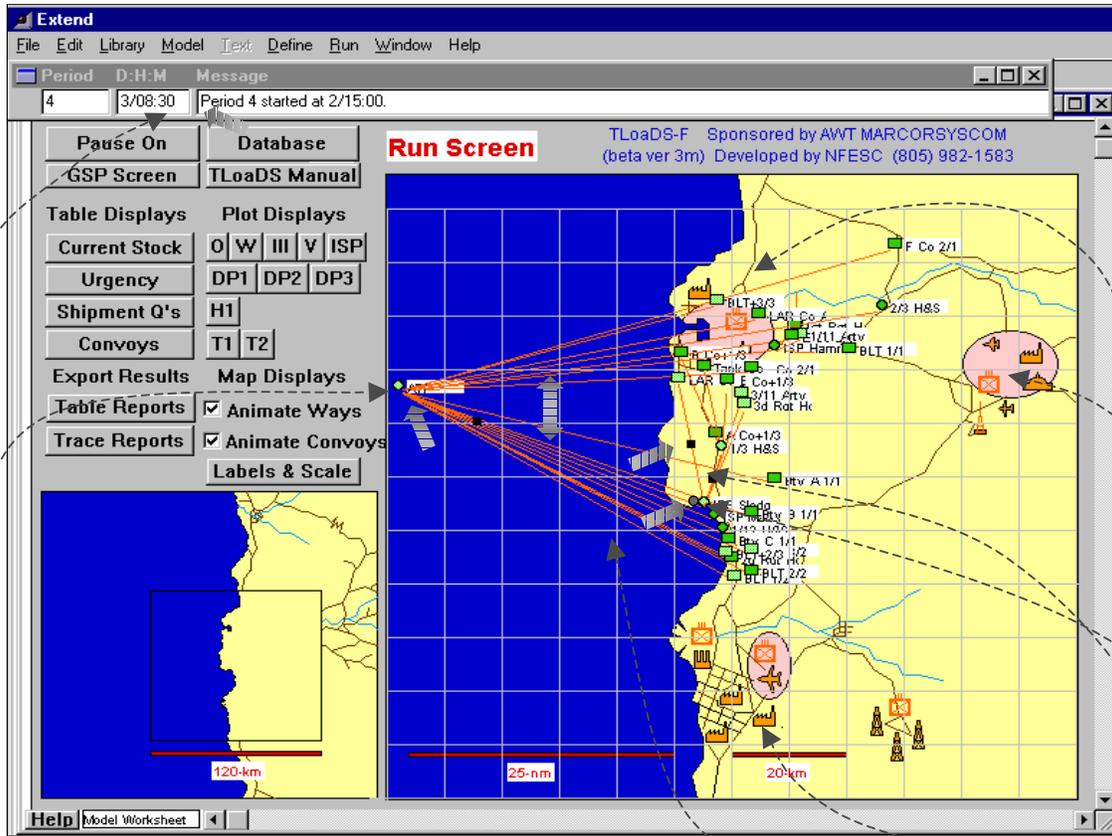
*If you are viewing the .pdf version of this file, these arrows and red dashed boxes show on the document, but are not on the TLoaDS screens..*



This is the TLoADS screen that appears when first open the model.

Clicking on the buttons takes you to the corresponding screen.

Note the “-F” in the model name stands for “Fast.” It reflects a couple of years ago when we distinguished this version of TLoADS, from TLoADS immediate predecessor, which was then called TLoADS-Discrete.



This scenario is a MEF sized MAGTF assaulting Yellowland. The objective is to secure this port and airfield for the introduction of follow-on forces. In the first period, Regimental Landing Team Hammer as been air inserted in a feint to Capitol City.

(click) Here is the sea base, (click) and the main supply links.

(click) This is the simulation clock. Note it is stopped.

Now I'll unpause the simulation.

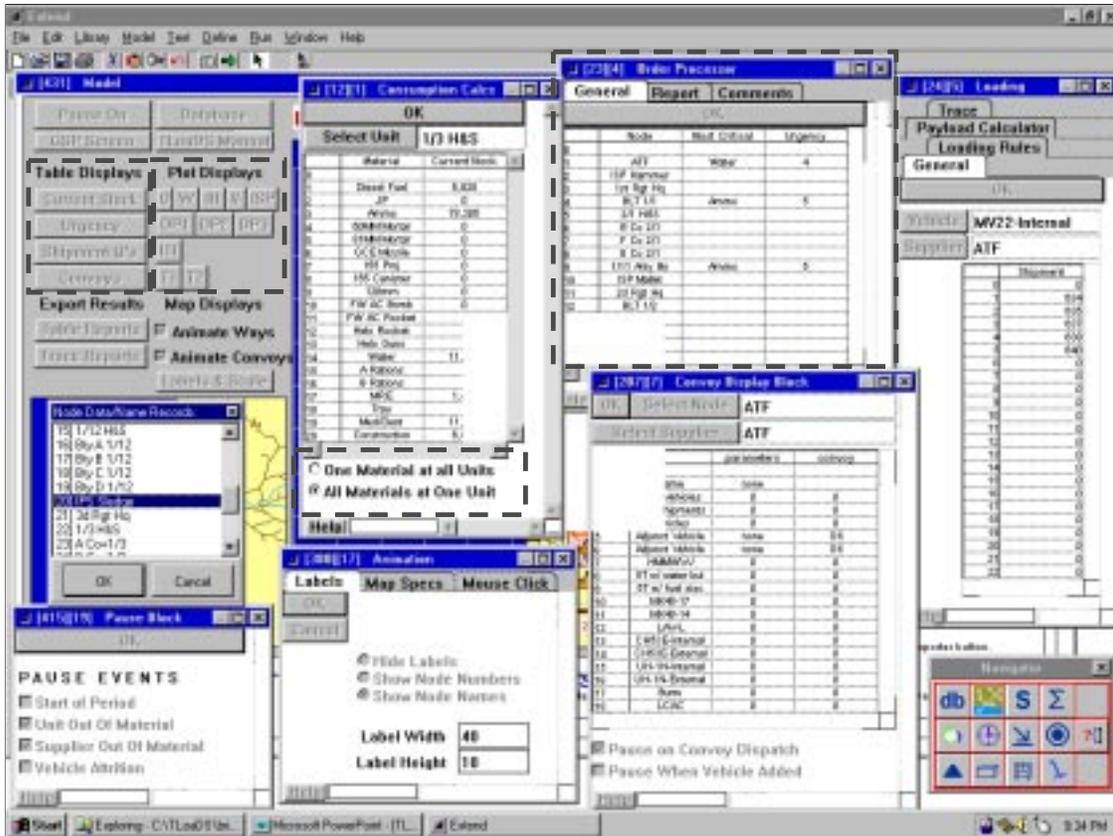
(click) You'll see transporters delivering supplies.

And when Period Two starts, you see RLT Mallet inserted as a blocking force to keep enemy forces in Factory City.

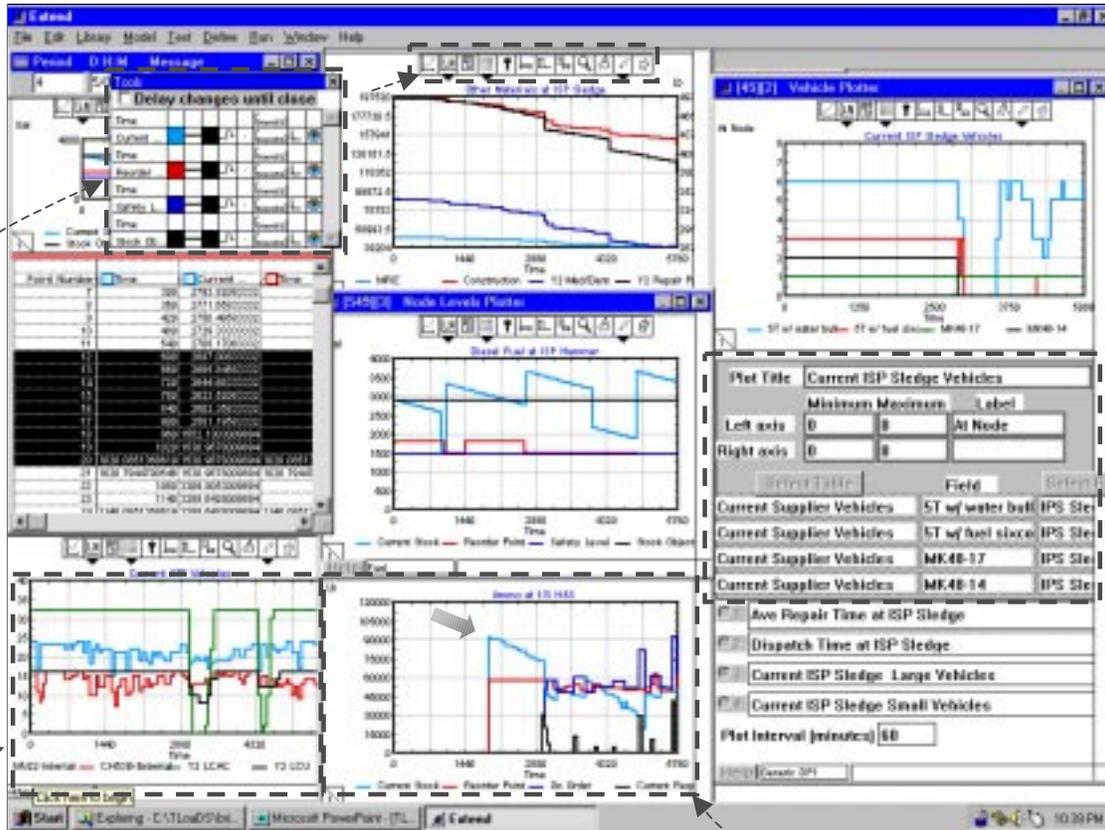
In Period Three, RLT Sledge is landing across this shore.

(click) Note Intermediate Supply Point Sledge is low\*\* on something...

\*\* Urgency status is a level of how badly a node needs to be resupplied with the material(s) it is closest to running out of.



- (click) These buttons open table displays showing current values.
- (click) This table display shows the \_\_\_\_ node is low on \_\_\_\_.
- (click) With these buttons, the user can call up the specific data he wants.
- (click) These buttons open dynamic plotters. (see next slide)



TLoADS has a good built in plotter capability.

(click) The user can set these controls to plot any variable in the internal database.

(click) Here is the standard stock plot for ammo at ISP Sledge.

(click) Note the irregular stock level line that reflects a realistically variable consumption rate.

(click) Here's a plot of transporters available in the ATF's transporter pools. The plot lines decrease when transporters are dispatched.

(click) There are dozens of controls for the user to customize each plotter.

	Unit	HEM/VV	ST m³ water buil	ST m³ fuel recon	M/40-17	M/40-14	UG/L	CHSE-2	UM	Buro	LOAC	LCU	M/22-1st	M/22-Ea	h/c
3	3rd Rpt Hz	115	160.5	160.5	0	196	0	1.0	0	0	0	0	0	0	0
4	BLT 1/1	0	0	0	0	0	0	148.18666	0	0	0	0	22.57142	0	0
5	2/3 H85	0	0	0	0	0	0	154.625	0	0	0	0	29	0	0
6	E Co 2/1	0	0	0	0	0	0	144.68666	0	0	0	0	19	0	0
7	F Co 2/1	0	0	0	0	0	0	150.33333	0	0	0	0	22.66666	0	0
8	G Co 2/1	0	0	0	0	0	0	139.68666	0	0	0	0	14.33333	0	0
9	1/11 Any Be	0	0	0	0	0	0	154.9825	0	0	0	0	26.63333	0	0
10	SP Mallet	0	0	0	0	0	0	1.29	0	0	0	0	19	0	0
11	2d Rpt Hz	0	0	0	0	0	0	130.5	0	0	0	0	13.5	0	0
12	BLT 1/2	0	0	0	0	0	0	1.51	0	0	0	0	22.2	0	0
13	BLT 2/2	0	0	0	0	0	0	147.6	0	0	0	0	23.33333	0	0
14	BLT 3/2	0	0	0	0	0	0	150.4	0	0	0	0	25.57142	0	0
15	1/12 H85	0	0	0	0	0	0	129.33333	0	0	0	0	12.66666	0	0
16	E/A 1/12	0	0	0	0	0	0	1.62	0	0	0	0	26.42857	0	0
17	E/B 1/12	0	0	0	0	0	0	160.5	0	0	0	0	32.4	0	0
18	E/C 1/12	0	0	0	0	0	0	141.18181	0	0	0	0	22.33333	0	0
19	E/D 1/12	0	0	0	0	0	0	1.0	0	0	0	0	0	0	0
20	PS Sledge	0	0	0	0	0	0	1.30	0	0	0	169.7	2131	27.89473	0
21	3d Rpt Hz	0	295	152.5	0	290	0	1.0	0	0	0	0	0	0	0
22	1/3 H85	369.8868	119.2987	149.4166	0	239	0	1.0	0	0	0	0	0	0	0
23	A Dev 1/3	17.5	3.5	2.5	0	4	0	1.0	0	0	0	0	0	0	0
24	B Dev 1/3	122.5	16.5	13.5	0	22.5	0	1.0	0	0	0	0	0	0	0
25	C Dev 1/3	75.5	8.5	7.5	0	13.5	0	1.0	0	0	0	0	0	0	0
26	Task Co	80	5	5	0	8.5	0	1.0	0	0	0	0	0	0	0
27	BLT 2/3	334.2	166.5	151.6	0	266.0	0	1.0	0	0	0	0	0	0	0

Here is the internal database.

(click) The tabs organize the 100-plus tables into logical groups.

(click) This shows just a small part of one table of the internal database.

(click) The pick list shows all the tables in one group.

(click) These are the result tables.



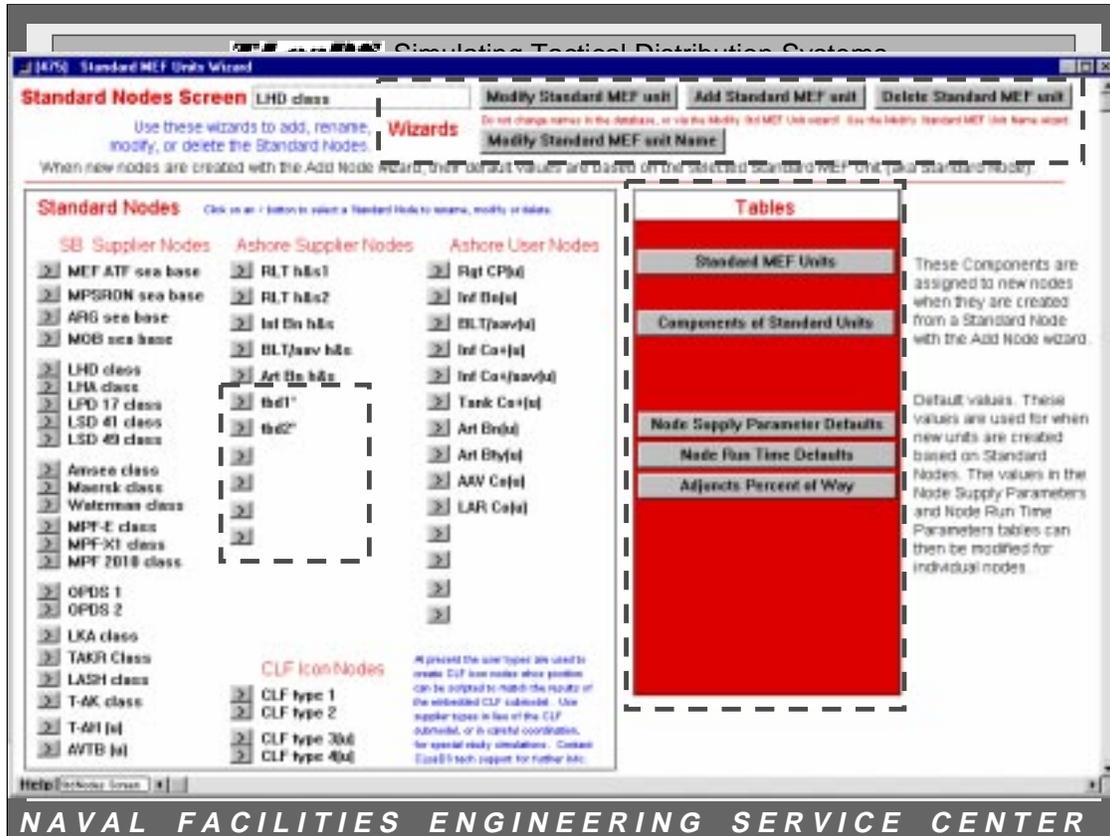
The user can customize the database many ways.

(click) Add new tabs to reorganize groups of tables,

(click) Drag table names from the list of tables to add a table to a tab.

(click) Insert text to describe subgroups of tables.

(click) Resize table list window pane and column widths and heights.



This is one of seven entity setup screens.

*(click)* It provides instant access to all related tables.

*(click)* The user can create new kinds of transporters, handlers, containers, materials, standard nodes, component units. This enables TLoADSs to explore new ideas and proposals.

*(click)* Wizards open a series of forms that step the user through all the parameters defining the selected entity or type.

**Global Static General, Resupply, Load & Transit Settings** Start Prior Next Finish

General Scenario Parameters Table		Resupply Parameters Table	
UW3 Baseline Case	Simulation Name	24	Period
8	Simulation End Time	> User Request Only	Method
1	Number of Runs	0.25	Issue Order Time

These don't apply to "User Request"

---

**Global Static Consumption Rates** Start Prior Next Finish

Consumption Weighting Factors Table	
1	Fuel
1	Ammo

If 'weighted' is selected in the Node Run Time Parameters table, this fraction is multiplied by the Tempo B consumption rates.

To reset fuel and ammo tempos for all nodes in a period, click on the 'Reset Node Tempos to Global' button below the main model map.

Material Consumption Rates Table	
1	Construction
1.72	Med/Dent
2.5	Repair Parts

Pounds per person per day consumption. This material is distributed only to supply nodes which are defined as construction, medical or repair units in the node run time parameters table. The amount distributed covers downstream unit personnel also.

Water Consumption Rates Table	
1	MOPP[1&2]
2	MOPP[3&4]
2	Drink[hot]
1	Drink[mod]
0.25	Drink[cold]
1	Cook[A]
2	Cook[B]
1	Personal
0.4	Med

Gallons per day (GPD) per person based on MOPP option selected in Node Run Time Parameters table.

GPD per person based on Climate defined for the period in the Global Run Time Parameters table.

GPD per person required for A or B rations. Rations type defined for each meal and each period in the Node Run Time Parameters table.

GPD per person required for medical and personal use.

Help Scenario Cons

Each wizard covers all the related information characterizing each entity class.

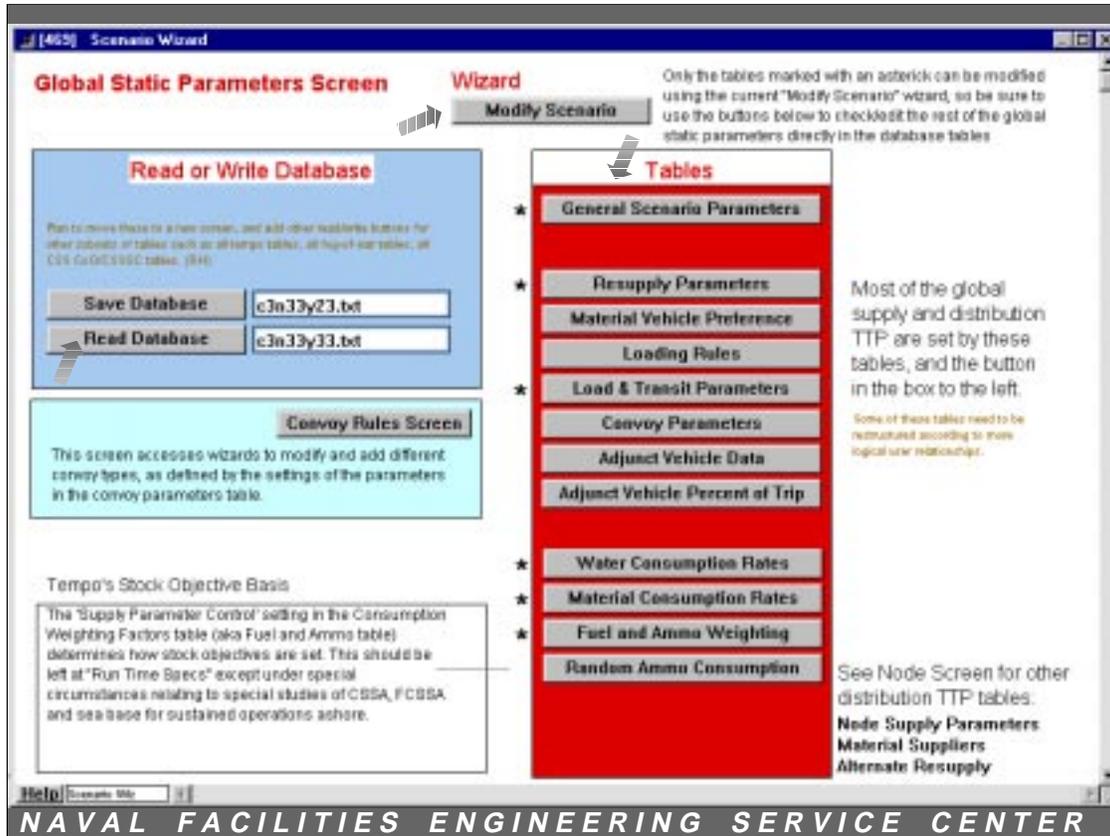
*(click)* Note the use of pop-up pick-lists to minimize data entry errors.

*(click)* Clicking the next button brings up the next form.

*(click)* Notes explain the inputs to save the user from searching the help system.

You can see there are scores of parameters describing just one supply node.

*(above wizard is not the new node wizard I'll demo)*

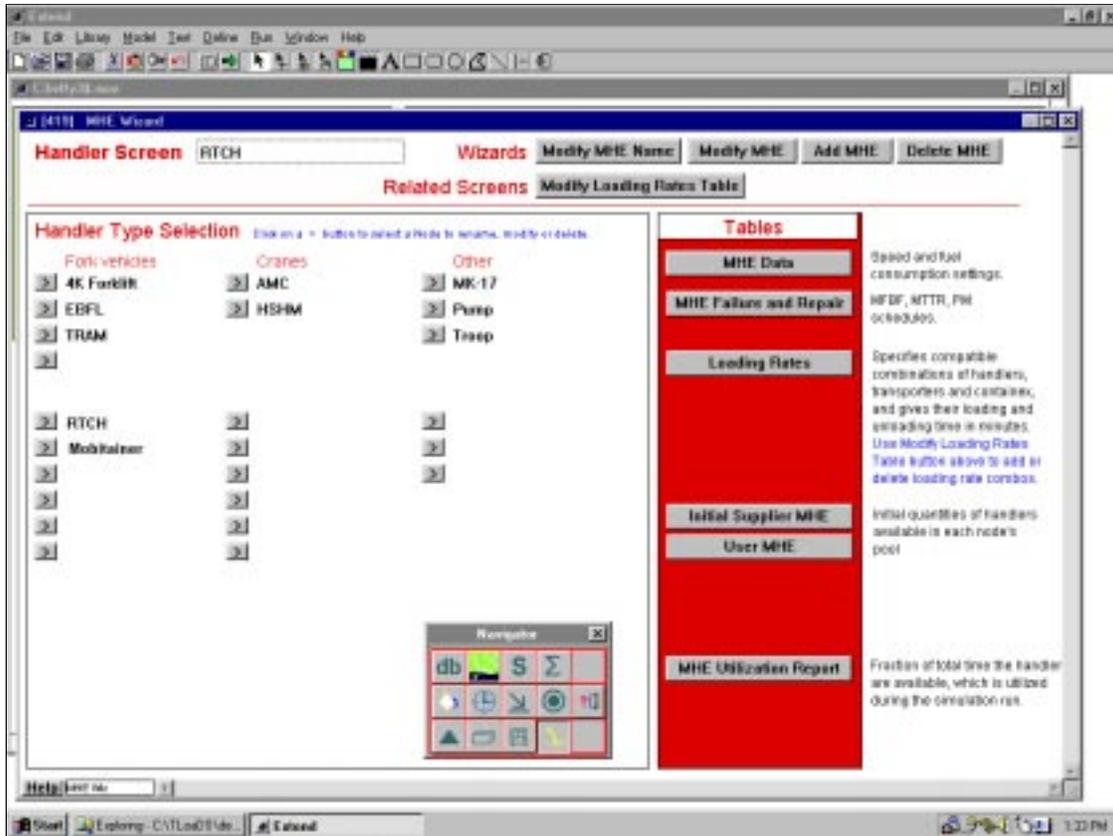


And TLoaDS has many features to make the input set up easier.

(click) The user can read-in external data,

(click) can access related tables, and

(click) use wizards that open a series of forms.



(open Handler Screen) A very important feature of the model allows the user to create new kinds of transporters, handlers, containex, materials, standard nodes, component units. This enables TLoadSs to explore new ideas and proposals.

It also helps keep TLoadS from becoming obsolete.

The screenshot displays the 'Logistics Wizard' application window. The main area is divided into two primary sections: 'Material Distribution Informer' on the left and 'Loading Rates' on the right. Below these are control panels for filtering and adding data.

**Material Distribution Informer:** This section features a table with columns for Period, Material, Container, Supplier, and Vehicle. It lists various items such as Diesel Fuel, Gasoline, Ammo, and different types of vehicles and containers. A 'Show All Elements' button is visible above the table.

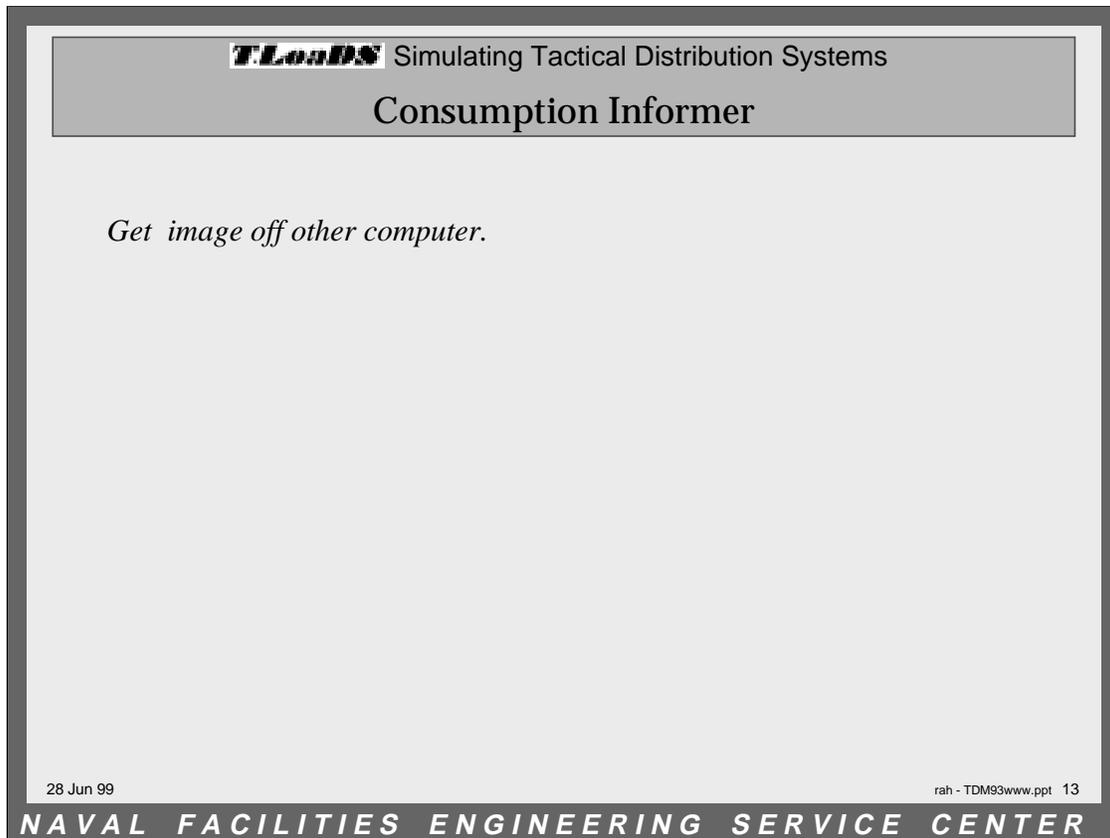
**Loading Rates:** This section contains a table with columns for Vehicle, Container, and Loading Time. It lists specific loading configurations like HMMWV with 40 Parkit containers and ET w/ water bal with 40 Parkit containers.

**Filtering and Control Panels:**

- Below the Material Distribution Informer table, there are several 'Show All' buttons for Period, Material, Container, Supplier, User, Vehicle, and Supplier MHE.
- A 'Tables' button is located at the bottom left of the main area.
- Below the Loading Rates table, there is a 'Loading Rates Mini-Wizard' panel with 'Add Loading Rows' and 'Delete Loading Rows' buttons. It includes a 'Row' selector and input fields for MHE, Vehicle, Container, Load Time (minutes), and Unload Time.

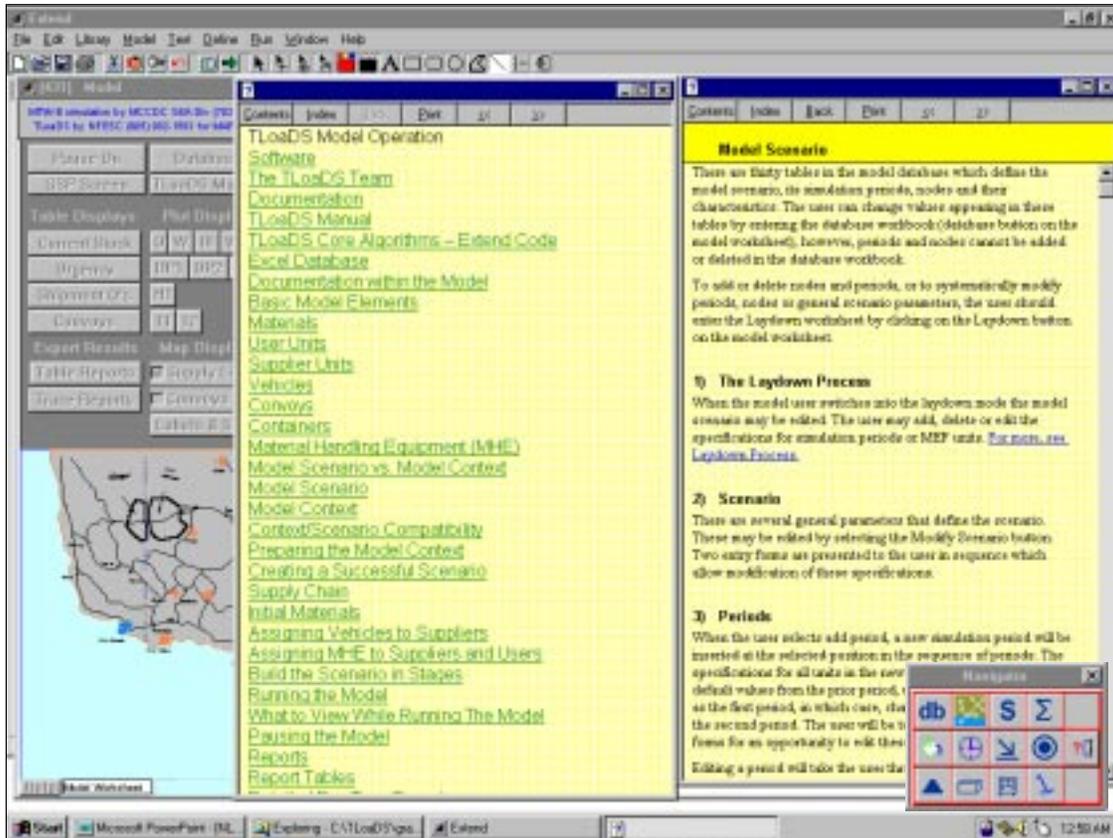
The bottom of the window features a dark banner with the text 'NAVAL FACILITIES ENGINEERING SERVICE CENTER'.

The Material Distribution Informer (aka Loading Informer) queries and filters the input database to show the complex relationships that determine the allowable methods material can be unitized, loaded, transported and unloaded between two nodes. (allowable loading methods -- Loading agent includes unitization)



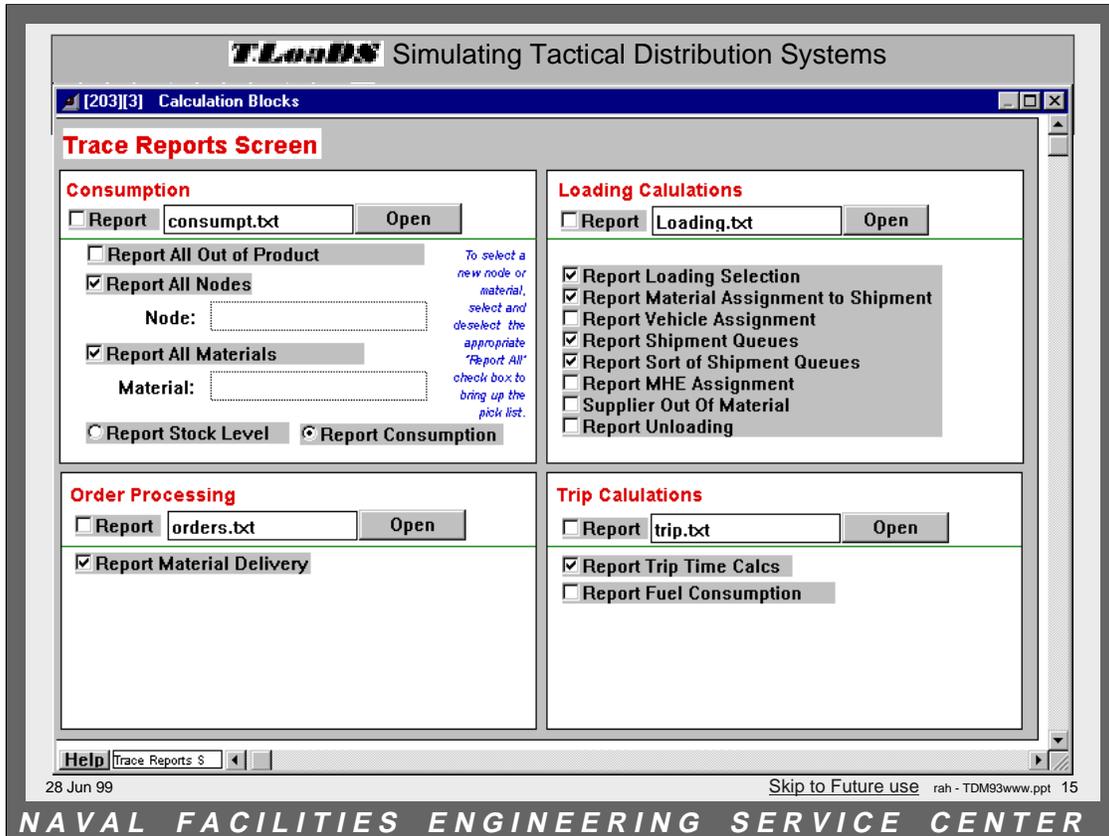
The consumption informer performs algebraic computations to show the daily consumption rates based upon the simulation inputs.

These results are used as inputs to the discrete event part of the run-time module.



*(open Manual)* Our TLoaDS Manual can be accessed thru the conventional MS Windows help interface.

*(click)* Clicking on the “help” button in each window brings up context appropriate information.



*(open Trace Reports)* This screen gives the user control of just what process decisions and events he wants a detailed narrative record of.

*(if doing a live demo and the Trip Calc's "Report" box is checked: open Excel, open Trip Calcs to show how easy it is to display trace reports)*

**TLoadS** Simulating Tactical Distribution Systems  
**Sample Trace Report**

#940	MRE stock + on order = 1297.0625. Consumption until resupply 735.3142 Request 15.751703; urgency is 6.
#941	Med/Dent stock + on order = 23370.75. Consumption until resupply 13247.115 Request 280.3651; urgency is 5.
#942	Construction stock + on order = 0. Consumption until resupply 0 Request 0; urgency is 6.
4:00:00 PM 8160#943	Do request at Ops Base & BSA. Material Med/Dent is triggering the order. In stock + on order = 23217.615; order point is 24207.363.
#944	Diesel Fuel stock + on order = 15805.443. Consumption until resupply 10989.934 Request 2137.8554; urgency is 2.
#945	Ammo stock + on order = 643712.49. Consumption until resupply 447578.06 Request 87049.57; urgency is 6.
4:08:00 PM 968	Shipment 3 is loaded. remove vehicle 1 from Q at supplier 2
4:16:00 PM 976	4K Forklift maintenance is 0.5 at Ops Base & BSA Shipment 1 is loaded. remove vehicle 3 from Q at supplier 2
4:38:00 PM 998	Pump maintenance is 0.5 at Ops Base & BSA Return 4K Forklift to motor pool at Ops Base & BSA Lookup first shipment at supplier 2. Vehicle: 1 S: 4 4K Forklift just became available and SELECTED to load 1 Pallet from shipment 4 onto a HMMWV. Time to load 1. Lookup first shipment at supplier 2. Vehicle: 5 S: 6
4:39:00 PM 999	Shipment 4 is loaded. remove vehicle 1 from Q at supplier 2 Troop SELECTED to load 24 Jerry cans from shipment 5 onto a HMMWV. time to load 6. Pump just became available and SELECTED to load 1 Sixcon tank from shipment 6 onto a MK48-14. Time to load 10.
4:41:00 PM 1001	Assign material 1 to a vehicle shipment going to node 4. Order units: 47.095458 Selecting Load Combo for supplier 2, node 4, and material 1. First OK load is 399. Loading Rates table row 32. Score for Loading Rates row 32 is 0. Rule is shortest vehicle queue length Loading Rates table row 33. At supplier 2, last shipment for vehicle 3 is 0. Node 0 1 container spaces available for container Sixcon tank. Remaining payload: 20000. Units to load 47.095458 of material 1 Shipment 7; vehicle 3; Material 1 containers to load: 1; units to load: 900. Assign material 3 to a vehicle shipment going to node 4. Order units: 3577.7623 Selecting Load Combo for supplier 2, node 4, and material 3. First OK load is 249.

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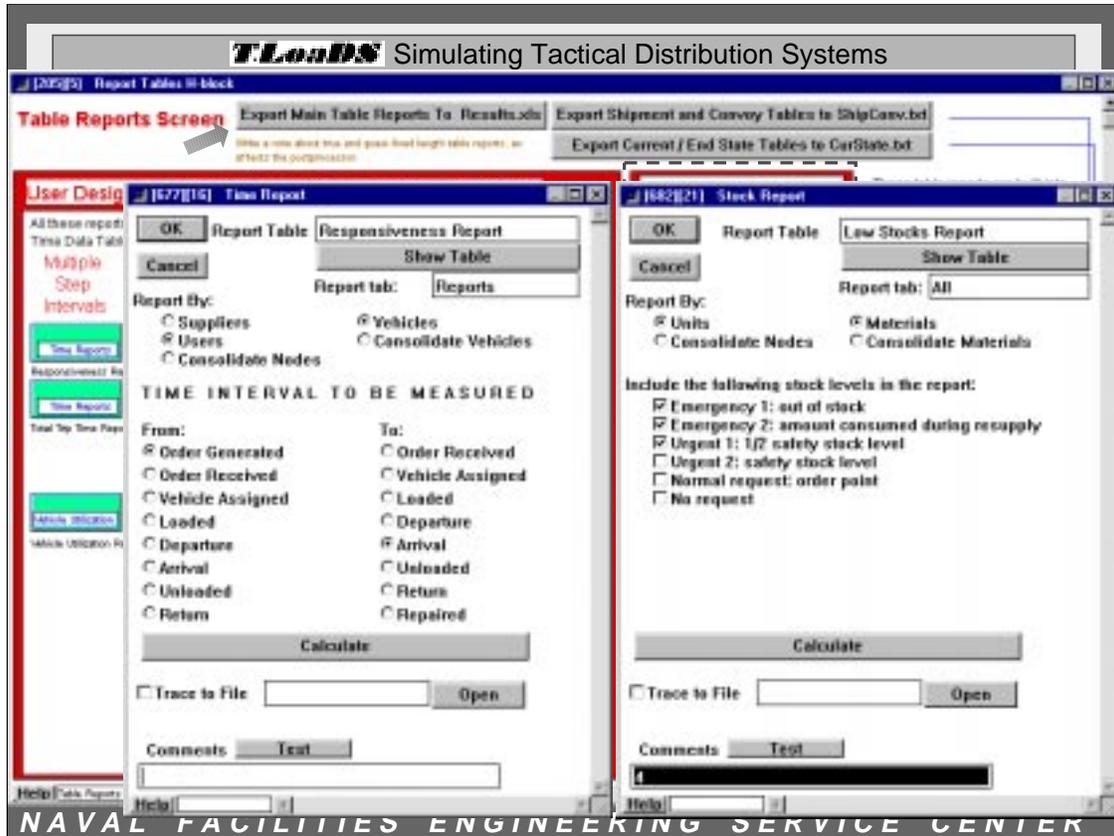
Trace files document the details of model events and decisions.

This is a tiny sample from two of the trace files. Some of these files can be extremely long if you ask for all the info for a long run.

Note the timed events and the record of decisions.

The files illustrate the realistic nature of discrete event simulation and allow the user to identify the precise sequence of events responsible for a specific occurrence.

The suppliers, vehicles (i.e. transporters), shipments and materials are identified by their index number, and thus, could efficiently aid a future digitized CSS operations center.



This screen allows the user to view, create and modify tabular form reports.

*(click)* Clicking on any of these buttons will open up the table report in the internal database.

*(click)* Here's a typical dialog box for a report based upon stock quantities, and

*(click)* Here is a typical dialog box for a report based upon event times.

Dragging in a new Report block from the block library will allow the user to create a new report that will automatically appear in the internal database.

*(click)* Clicking on this button will export all standard table reports to a tab delimited text file that is automatically opened in Excel.

The screenshot shows a Microsoft Excel spreadsheet with multiple tables of simulation data. The tables are organized into sections:

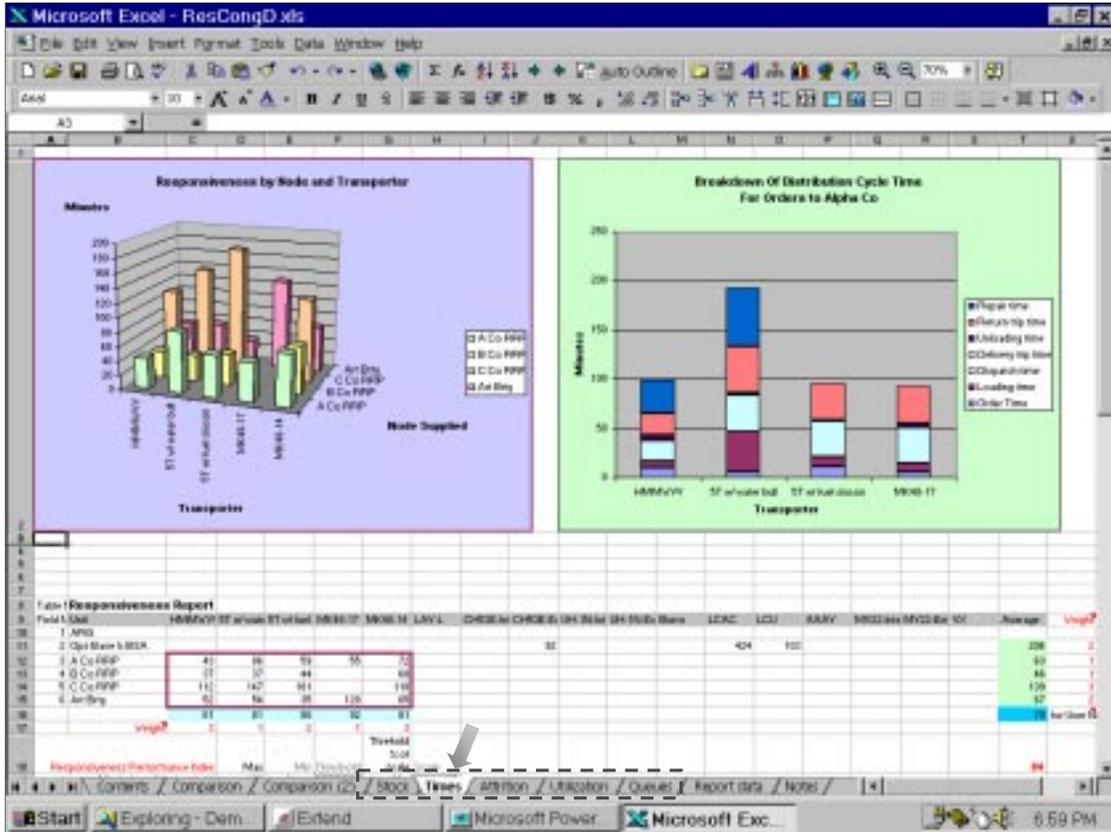
- Table Main Primary Trip Time Report (Rows 122-127):** Lists equipment like 1 APG, 2 Opt Blase, 3 A Co PFP, 4 B Co PFP, 5 C Co PFP, and 6 Air Blng. Columns include various performance metrics.
- Table Main Average Repair Time Report (Rows 128-133):** Similar to the primary trip report, showing average repair times for the same equipment.
- Table Main Current Supplies MHE (Rows 134-139):** Lists equipment like 1 APG and 2 Opt Blase, with columns for different supply types (EBPL, TRAM, AMC, HGB4, RTCH, M6-IT, Pump, Troop).
- Table Main Initial Supplies MHE (Rows 140-145):** Similar to the current supplies report, showing initial supply levels.
- Table Main Current Supplies Hades (Rows 146-151):** Lists equipment like 1 APG and 2 Opt Blase, with columns for various supply types.
- Table Main Initial Supplies Hades (Rows 152-157):** Similar to the current supplies report, showing initial supply levels.
- Table Main MHE Utilization Report (Rows 158-163):** Lists equipment like 1 APG and 2 Opt Blase, with columns for utilization percentages across different categories.
- Table Main Vehicle Utilization Report (Row 164):** Lists equipment like 1 APG and 2 Opt Blase, with columns for utilization percentages.

The spreadsheet interface includes the standard Excel menu bar (File, Edit, View, Insert, Format, Tools, Data, Window, Help), a toolbar, and a status bar at the bottom showing the Windows taskbar with the Start button and system clock (6:55 PM).

Here is a view of a small portion of the output file after exporting to Excel. This is for a simulation with only six nodes.

Note this is just a small portion of the default output. The user is free to create other results tables to examine output relevant to their study.

If you copy all the output and paste them into the compatible post processing workbook...



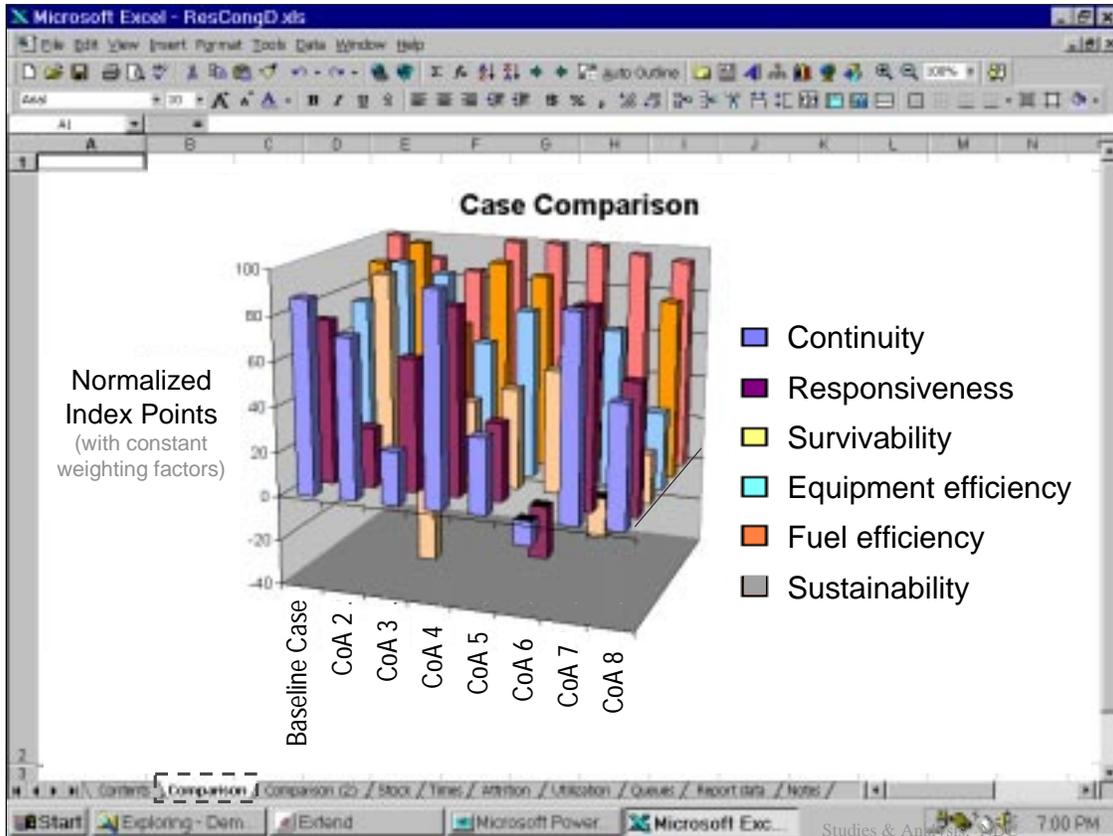
... the thousands of values are automatically analyzed and the results (*click*) are charted scores of different ways.

As usual, the user can modify or augment the default analysis.

Two of the charts on (*click*) this worksheet analyze cycle times.

The chart on the right shows the total cycle times for all orders from Alpha Co, stratified by what transporter was used, and the part of the total time due to each process step.

The chart on the left compares order-ship times for orders shipped to four different user companies, again stratified by what transporter was used.



After applying some weighting and normalizing factors, the summary results from different courses of action can be compared.

Note our summary measures of performance are most of the principles of CSS.

