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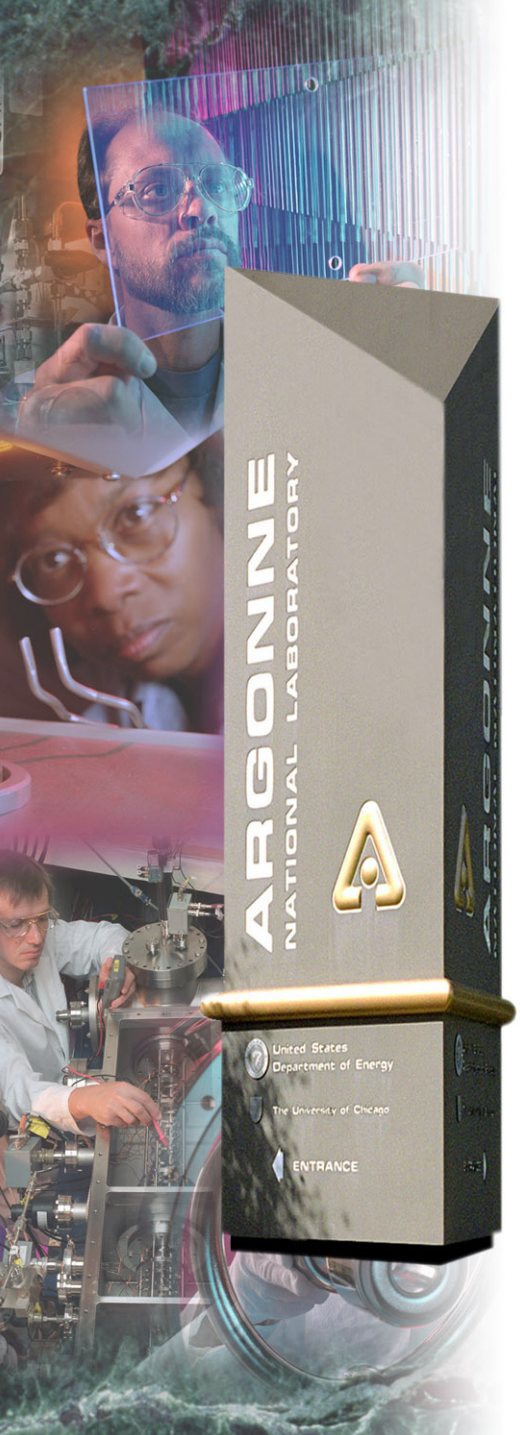

An Overview of the Joint Munitions Planning System

John R. Hummel and Al L. Winiecki
Advanced Simulation Technologies Center
Decision and Information Sciences Division

23 July 2005

Presented to:
73rd MORSS
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West Point, NY

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Briefing Outline

- Overview of the Joint Munitions Planning System
  - Development History and High Level Overview
  - Operating Environment
  - Key Features
- Examples of JMPS-Developed Sourcing Solutions
- Summary

JMPS Development History and High Level Overview

- Sponsored by US Army Field Support Command
- Developed by Argonne National Laboratory
- Began in FY 1999 with Delivery and Transitioning Scheduled for FY 2005.
- Intended as a Replacement for the Fortran-Based Ammunition Distribution System (ADS)

JMPS Development History and High Level Overview (Cont.)

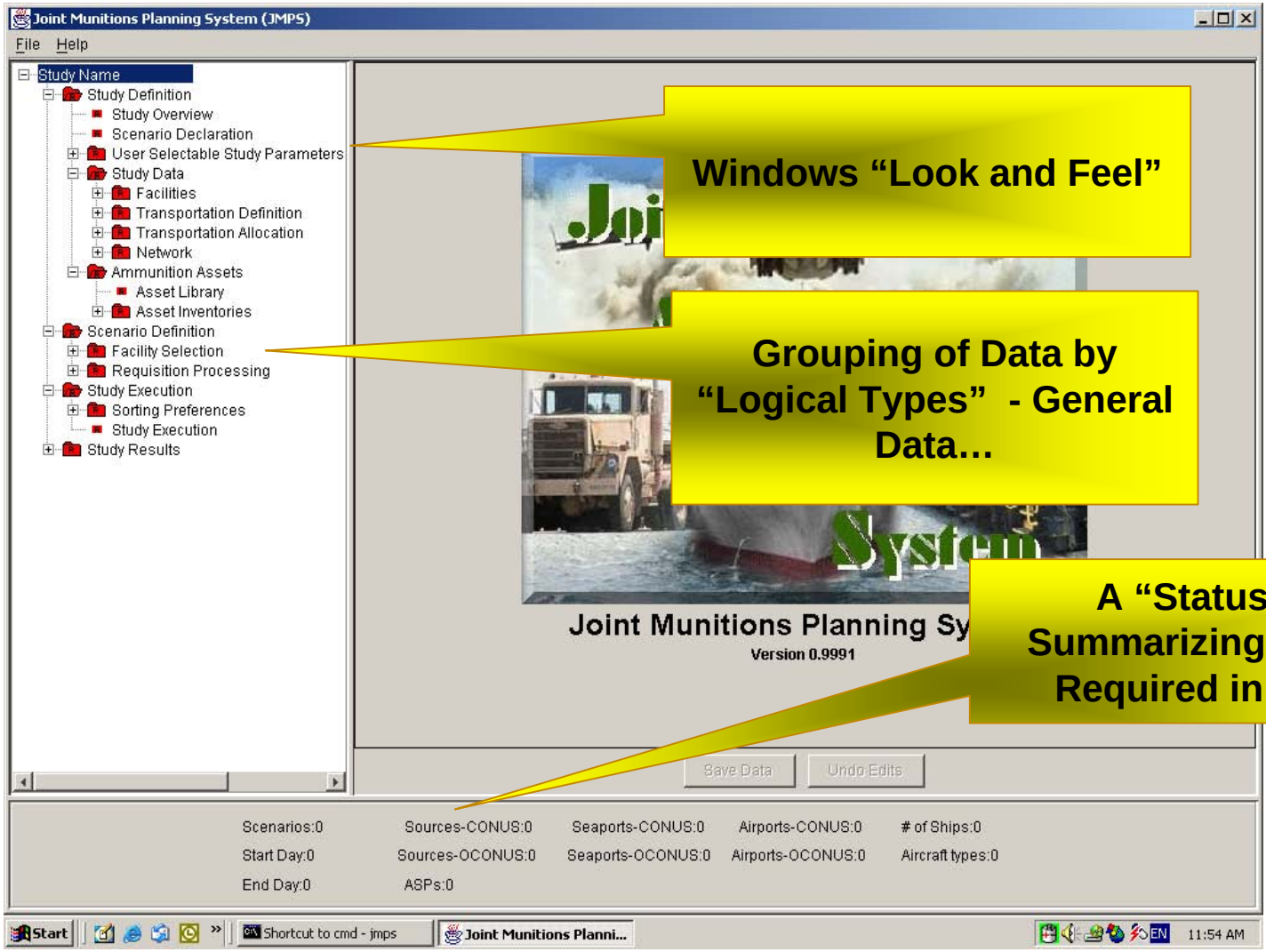
- JMPS was Developed to Support Sourcing and Movement Solutions from CONUS and OCONUS to Generate Data to Support TPFDD Development

- The Creation of JOPES Records is Done as a Two Step Process:
  - JMPS Creates External Data Files Containing Cargo Increment Numbers and Movement Data
  - These Data are Used by a Separate Program that Generates the JOPES Records

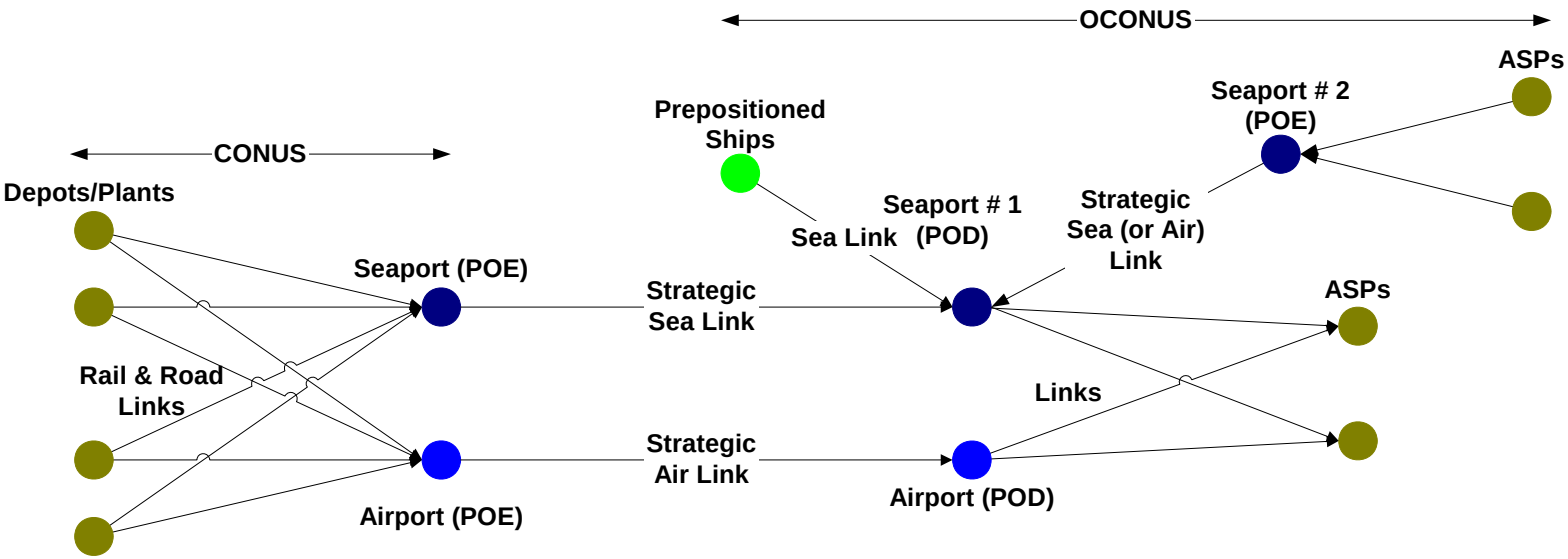
JMPS Operating Environment

- Operates Under Windows OS on a Typical PC Desktop Computer Platform (i.e., no Specialized Equipment)
- Developed Using “Vanilla” Java (i.e., no Proprietary Software)
- Analyst’s Reports Generated Offline Using Crystal Reports

Key Features of JMPS: Analyst-Oriented User Interface System



Key Features of JMPS: User Defined Transport Network

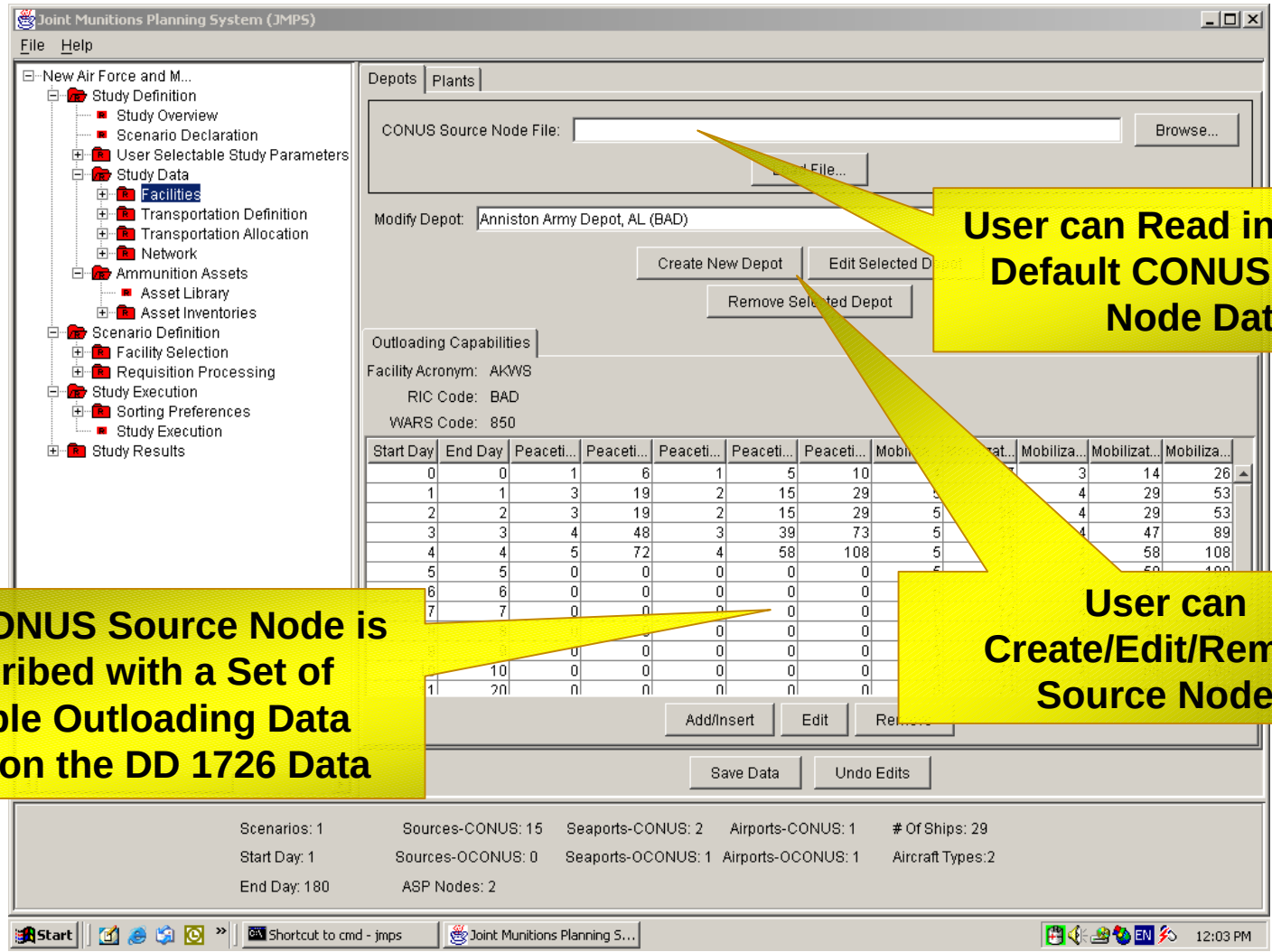


JMPS Transport Network Features

- User-Defined Nodes (Sources, Transfer Nodes, ASPs) and Links
- Drop Shipments to SPOEs and APOEs
- Ammo Production (When Required)*
- Support for Multiple POD Destinations*
- Use of Prepositioned Ships as “Floating Nodes”
- Sourcing from Non-Theater OCONUS Locations

*Future capability

Key Features of JMPS: User Defined Transport Network – CONUS Source Nodes

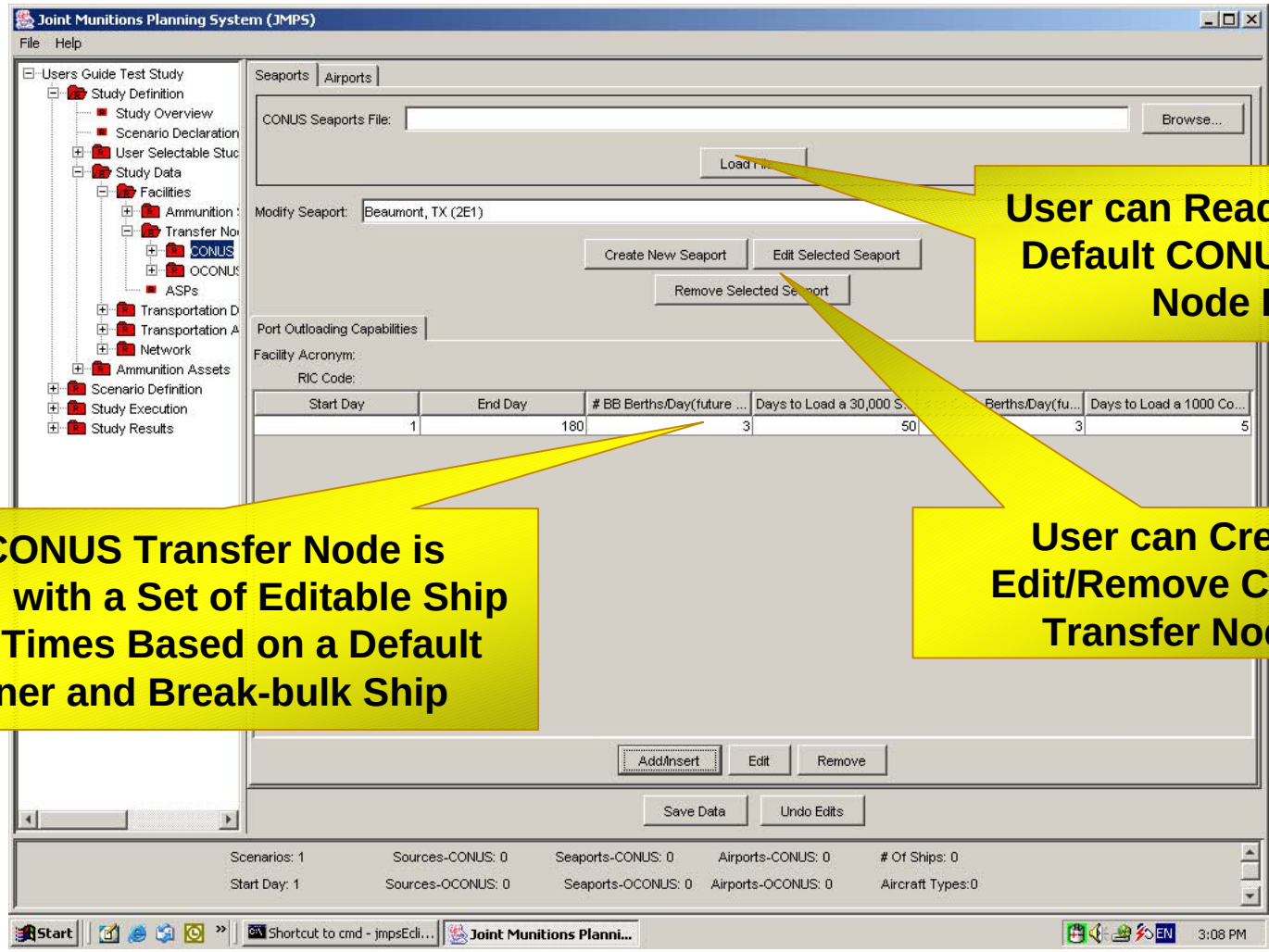


User can Read in External Default CONUS Source Node Data

Each CONUS Source Node is Described with a Set of Editable Outloading Data Based on the DD 1726 Data

User can Create/Edit/Remove Source Nodes

Key Features of JMPS: User Defined Transport Network – CONUS Transfer Nodes

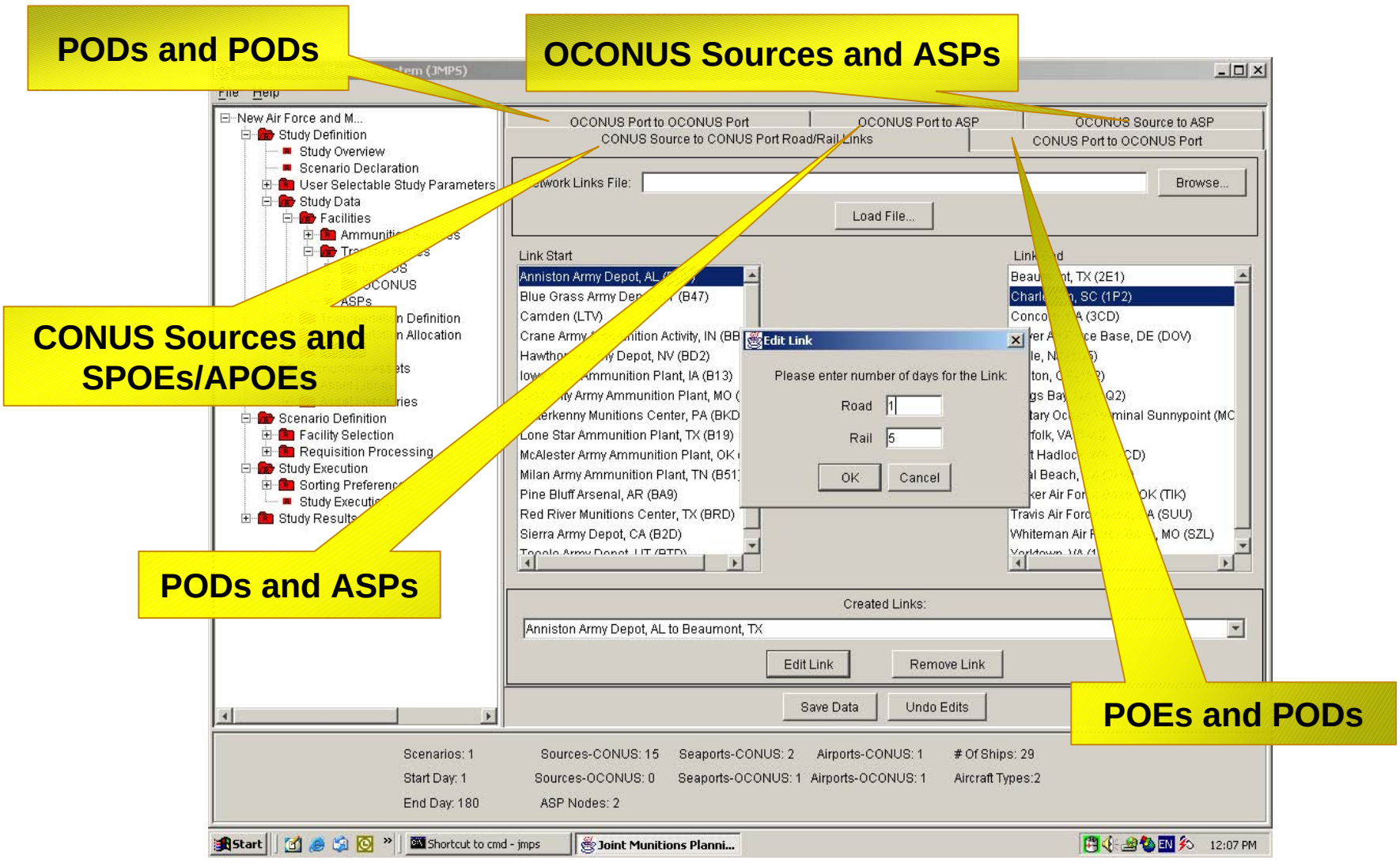


User can Read in External Default CONUS Transfer Node Data

Each CONUS Transfer Node is Described with a Set of Editable Ship Loading Times Based on a Default Container and Break-bulk Ship

User can Create/ Edit/Remove CONUS Transfer Nodes

Key Features of JMPS: User Defined Transport Network – Transportation Network Linkages



Key Features of JMPS: Use of "Real-World" Transport Asset Data

- Shipments can be Transported on 16 Default Ship Classes or on User-Defined Ships
- The # of Ships Available are User-Defined as are Their Initial "In-Port" Disposition

Photo of MV Green Wave

MV Green Ridge

- Length: 507'
- # of Holds: 1
- Hold Length: 507'
- Hold Width: 70'
- Hold Height: 27'
- Maximum # of Containers: 450
- Maximum Cargo Weight: 12,290 LT
- Maximum Speed: 17 knots

Key Features of JMPS: Use of "Real-World" Transport Asset Data

- Shipments can be Transported on 11 Default Aircraft Classes (4 Military and 7 Commercial) or on User-Defined Aircraft
- The # of Aircraft Available per Day are User-Defined

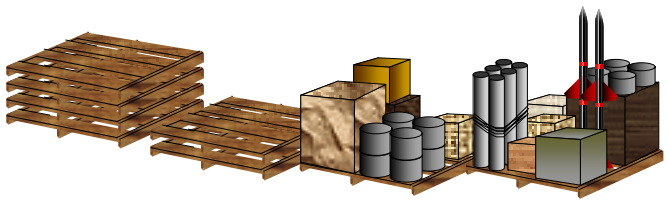
C-17 Globemaster III

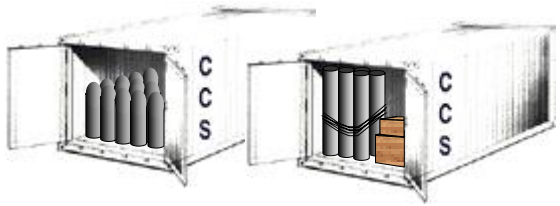
- Cargo Compartment: 1,056" L X 148" H X 216" W
- Pallet Positions: 18
- Maximum Cargo Capacity: 170,000 lbs.

Key Features of JMPS: Use of "Real-World" Transport Asset Data

- Default Data for Container and Break-bulk Trailers and Railcars are Provided
- A 20' Container is Taken as the Standard Container
- There is an Implicit Assumption that Sufficient Quantities Exist of Containers, Trucks, and Railcars

Key Features of JMPS: Explicit Stuffing of Containers

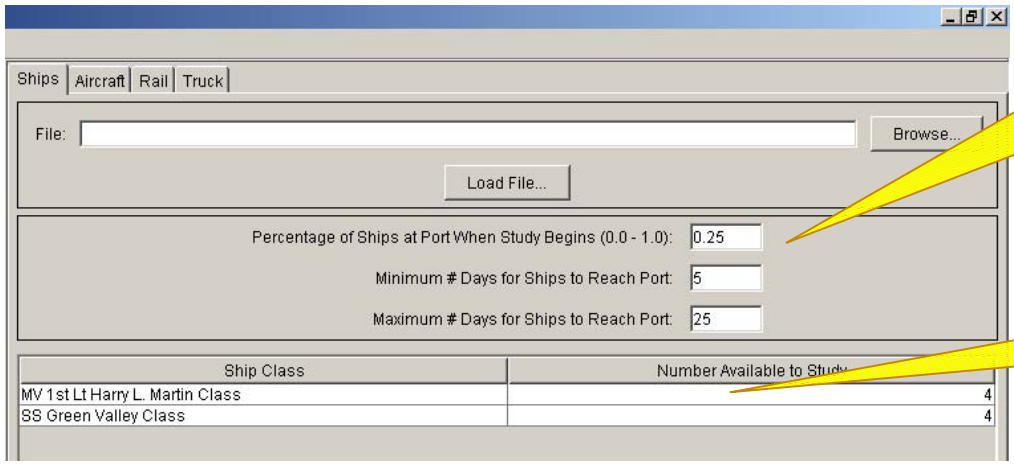




"Assets" **...are stuffed into...** "20' Containers"

- User can Modify Container Parameters (e.g. Container Specifications, Cargo Weight, Pallet Size and Weight, Amount of Dunnage, etc.)
- Single DODACs are Stuffed in a Container (Stuffing of Multiple DODACs was Designed, but Currently not Used)
- Support for Cropable Items has been Deferred

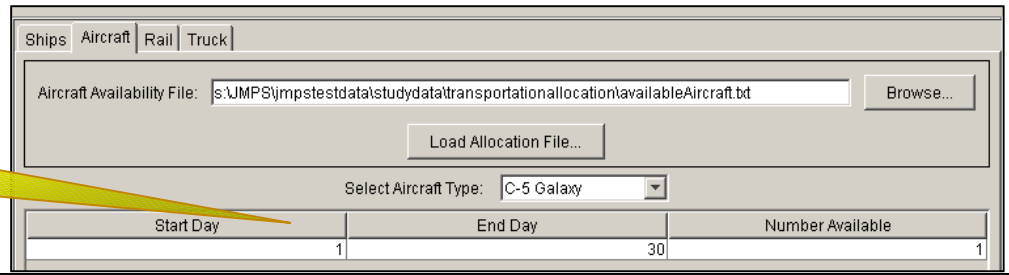
Key Features of JMPS: User Controlled Processing – Defining the Transport Allocations



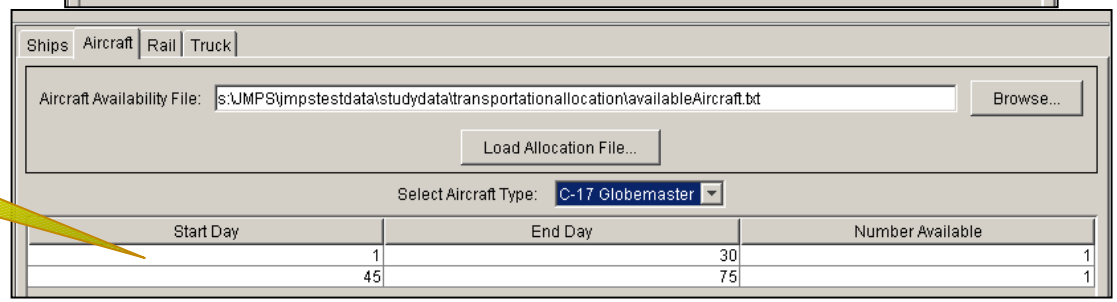
The User Defines the Initial Distribution of Ships in Port and How Long it will Take Ships to Reach Port

The User Defines the # of Each Ship Class Available for the Study

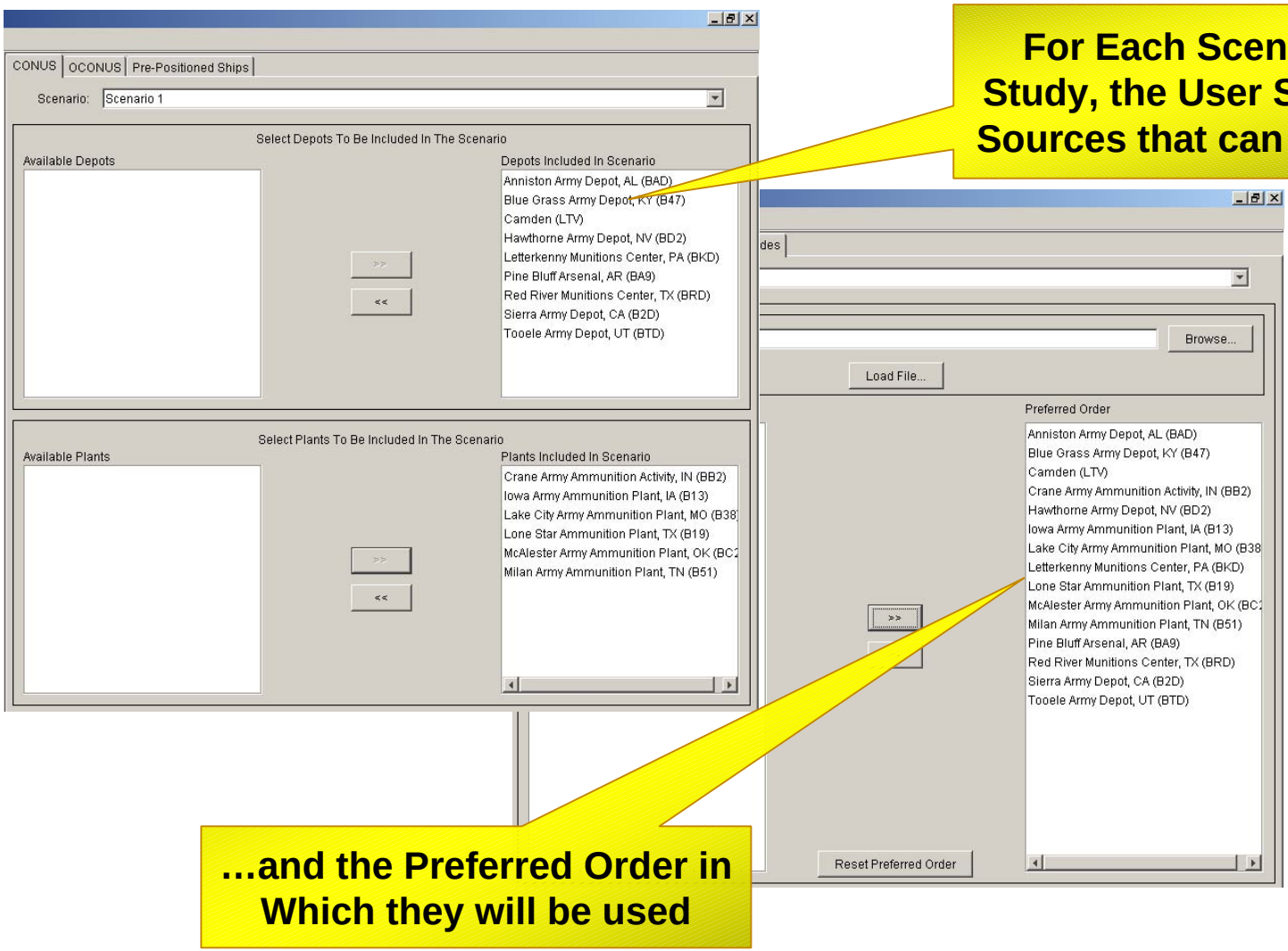
By Aircraft Type, the User Defines the # of Aircraft Available per Day



The Aircraft Allocation can Vary During the Course of a Study



Key Features of JMPS: User Controlled Processing – Defining the Ordering of the Network Nodes

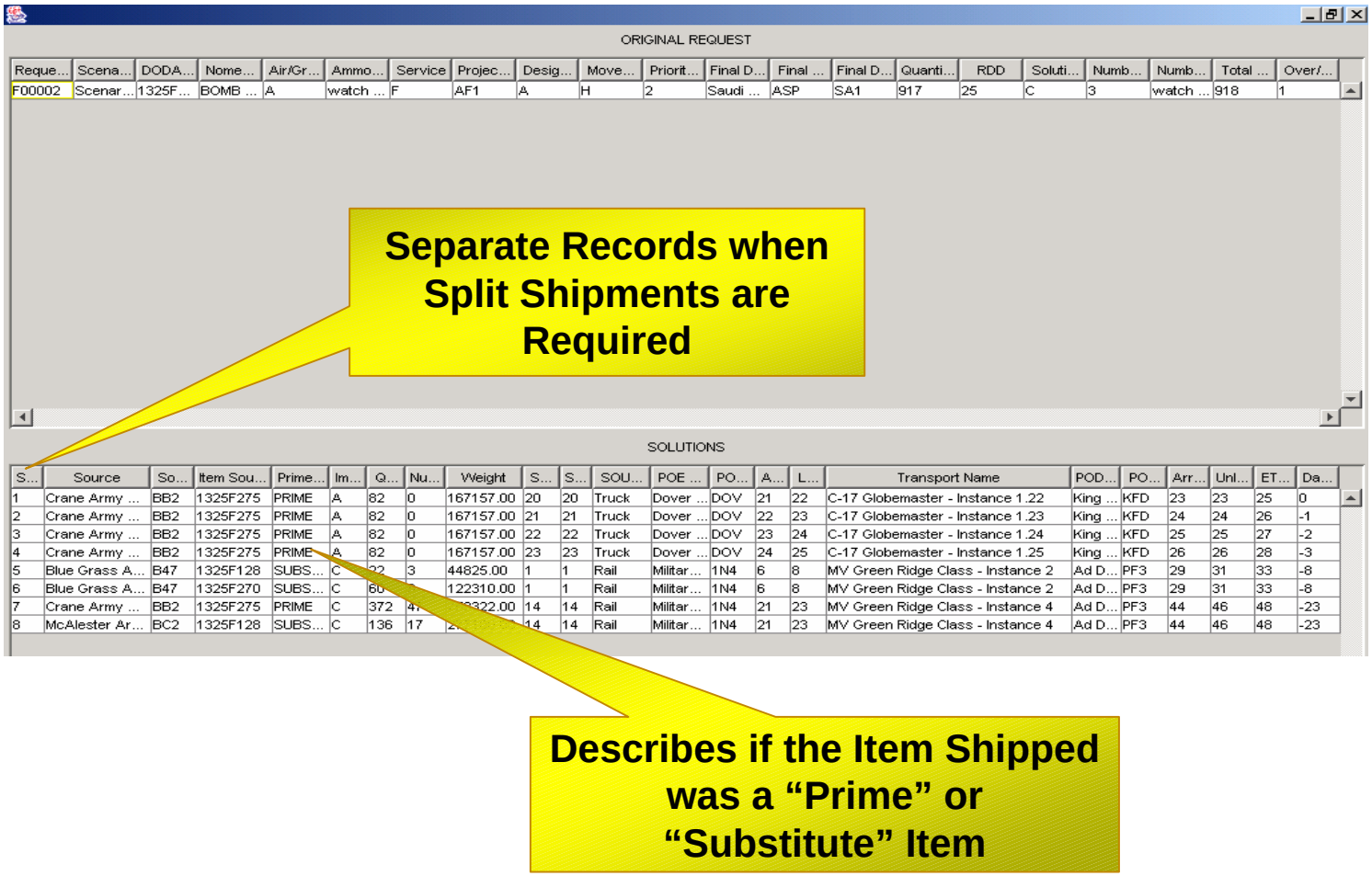


For Each Scenario in a Study, the User Selects the Sources that can be Used…

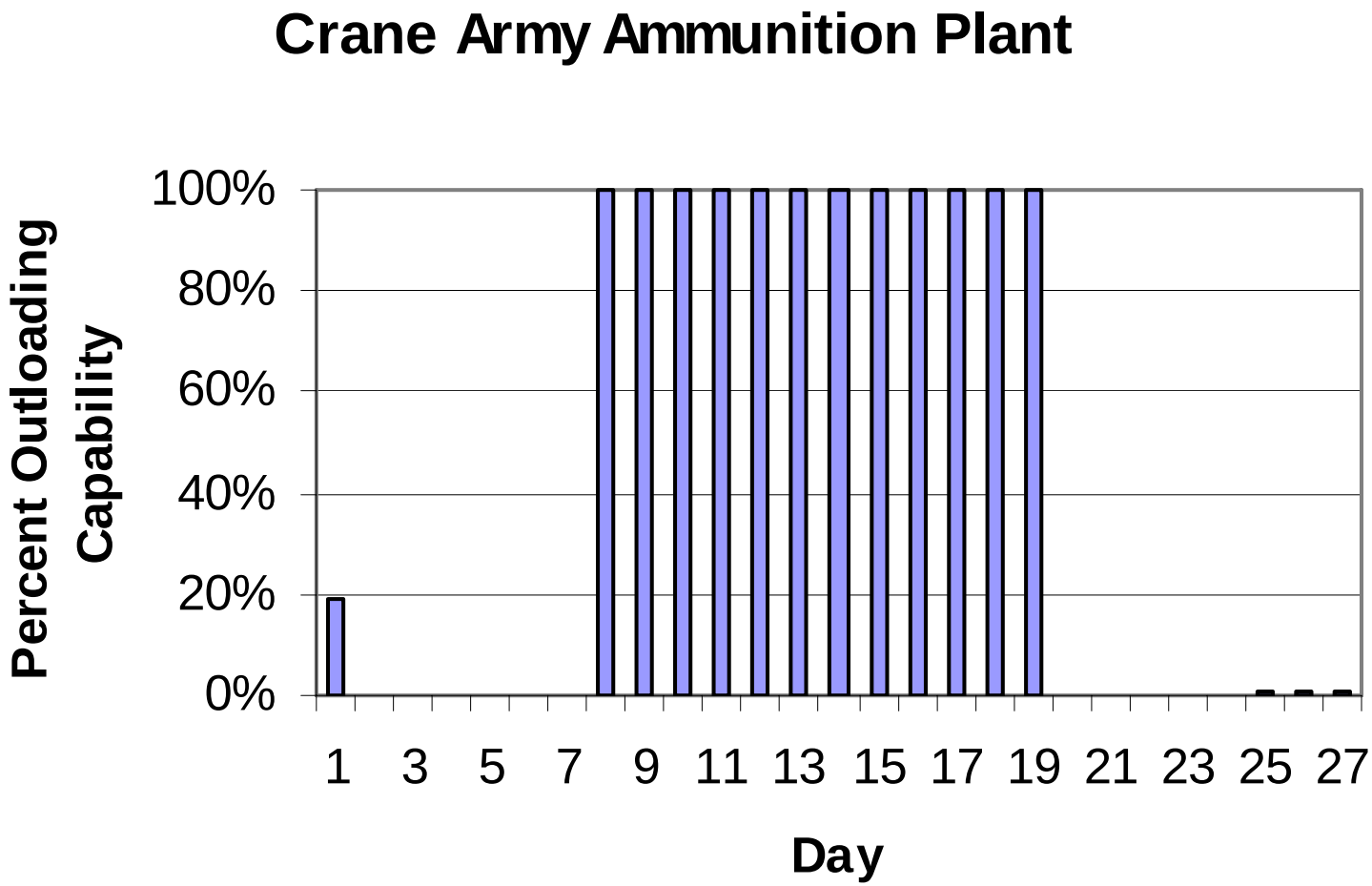
…and the Preferred Order in Which they will be used

Key Features of JMPS: Information Rich Environment

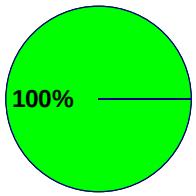
"On Screen" Review of Solutions



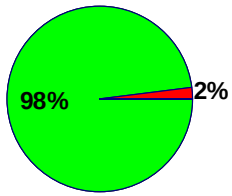
JMPS Information Rich Environment Enables Insight into Depot Outloading Issues



JMPS Information Rich Environment Enables "Better" Transport Allocation Solutions



MV Green Ridge # 1



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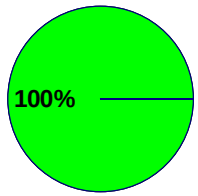

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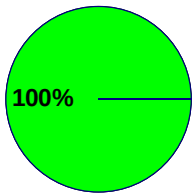

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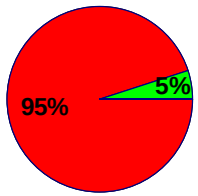
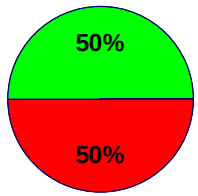


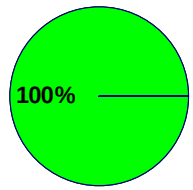
MV Capt Steven I. Bennett # 1



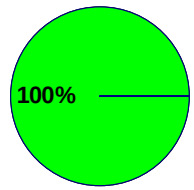
MV Capt Steven I. Bennett # 2

In JMPS, the Controlling Factor is the Initial Distribution of Ships Assumed in Port at the Beginning of a Study

A "Smarter" Initial Distribution of Ships with Fewer Ships in Port at the Beginning Maximizes Ship Usage



MV Green Ridge # 1



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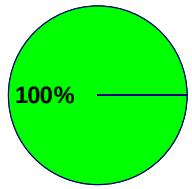

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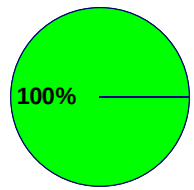
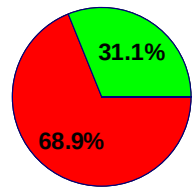


MV Green Ridge # 4



MV Capt Steven I. Bennett # 2

An Example of a JMPS Sourcing Solution: Air Force and Marine Study

- High Level Overview:
  - 458 requests involving two ASPs
  - Air window created for days 1 to 30 (1 C-5/day for days 1 – 5 and 1 C-17/day for days 6 – 30)
  - Nine classes of ships created
  - Substitute items included
  - 151 requests unsatisfied in whole or in part

JMPS Sourcing Solution: Air Force and Marine Study – High Level Overview

- 15,771,608.13 lbs of drop shipments
- 4,557,240.20 lbs of air shipments
  - 2 C-5 flights, 89 & 98 % full
  - 25 C-17 flights, 97-98% full
- 2,753 containers on 4 ships holding 72,228,324.75 lbs. of cargo
  - MV Capt Steven L. Bennett, 1,336 containers, 70% full
  - MV Green Ridge, 450 containers, 100% full
  - 1st SS Austral Rainbow, 840 containers, 100% full
  - 2nd SS Austral Rainbow, 127 containers, 15% full

JMPS Sourcing Solution: Air Force and Marine Study – High Level Overview

Sourcing Summary

Source	lbs	# containers	Avg % Booked
Anniston	1,012,241	58	2.0
Blue Grass	948,419	39	1.6
Crane	73,200,233	2,003	86.5
Hawthorne	833,840	48	1.0
Letterkenny	284,540	22	0.8
McAlester	12,251,720	384	6.0
Pine Bluff	598,516	24	0.3
Red River	22,398	2	0.1
Sierra	261,933	16	0.2
Tooele	3,203,329	157	3.9

Summary

- JMPS will Provide AFSC/JMC with an Advanced Tool for the Deliberate Planning of Class V Materiel
- A JMPS Study Uses “Real World” Data and “Business Practices”
- JMPS has been Developed for the Analyst to Enable Her/Him to Quickly Set Up a Study, Run it, and Analyze it
- JMPS Tools are Being Provided to Enable the Analyst to Understand *How* and *Why* a Sourcing Solution was Achieved

Questions???

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