435

N92-11053

Network Control Center User Planning System (NCC UPS)

Brian Dealy
Computer Sciences Corporation

December 1990

Space Network Control Conference on Resource Allocation Concepts and Approaches

DSTD
Code 520

Agenda

Ups System Overview

Scheduling Interfaces

Graphics scheduling Aid

PRECEDING PAGE BLANK NOT FILMED

UPS Overview

Hardware / software Configuration

Unix Platforms running X11R4 and OSF Motif 1.1.1

Posix compliant with a few exceptions

Uses TAE Plus 4.1 - 5.0, A GUI builder developed by NASA

Software to run on various host CPUs

NCC UPS Role

Replace each of the current Mission Planning Terminals (MPTs) as the user interface to the NCC.

This interface includes:

- Interactive entry of TDRSS schedule requests
- Processing of batch request from other systems
- Transmission of requests to the NCC
- Receipt of confirmed schedules from the NCC
- Reporting to users

Major NCC UPS Functional Requirements

Provide input and validation of orbital data

Provide UPS database management

Provide interactive and batch input and validation of schedule requests

Provide transmission of SARs to the NCC

Provide reception of NCC messages and reporting to users

Interactive User Access Levels

- The Mission Coordinator:
  - Modifies database definitions
  - Adds and deletes users
  - Enters and modifies static data in the Translation
  - Map and User Environment Tables
- The Mission Scheduler:
  - Reads orbital data from tape
  - Generates schedule requests
  - Transmits SARs to the NCC
  - Generates reports and queries
- The Mission User:
  - Generates predefined reports
  - Reviews scheduling information

UPS Interfaces

- The UPS user:
  - Provides ISRs and other supporting data
  - May be one of two types:
    - -- Interactive
    - -- Electronic
- The NCC:
  - Receives SARs from the UPS
  - Transmits confirmed schedules, rejected requests, and schedule updates to the UPS

8315K(7)

Interactive User Subsystem

- Supports interactive functions
  - Information window
  - System administration
  - Mission setup
  - Orbital data operations
  - Automatic schedule request generation
  - Specific schedule request generation
  - Mission database maintenance
  - Report generation
  - Database queries
  - Message transmission

8315L(7)

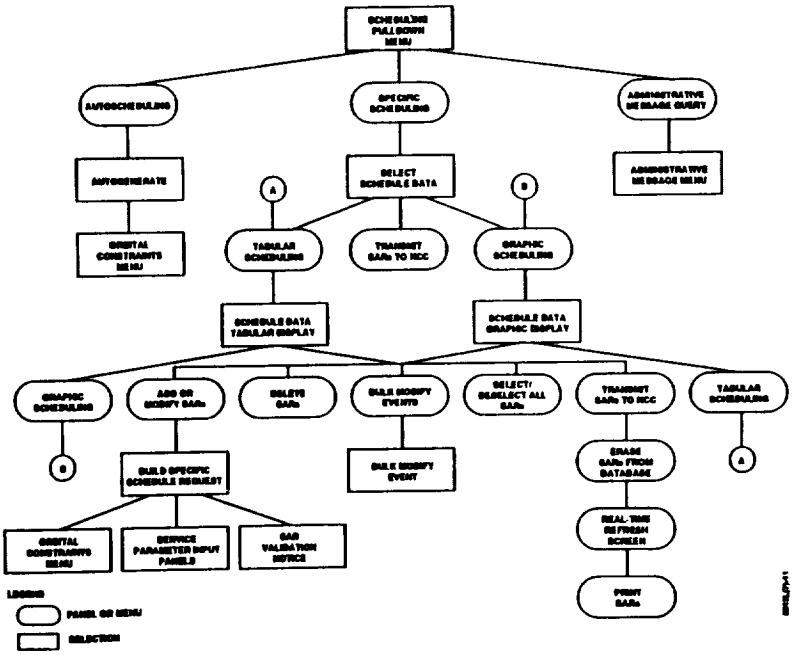
Interface Navigation

All Subsystems available from pulldown on information window

Attempted to limit interface depth to three levels where possible

Information which has been entered previously should default for lower level screens (e.g. start, stop time)

Scheduling Screen Hierarchy

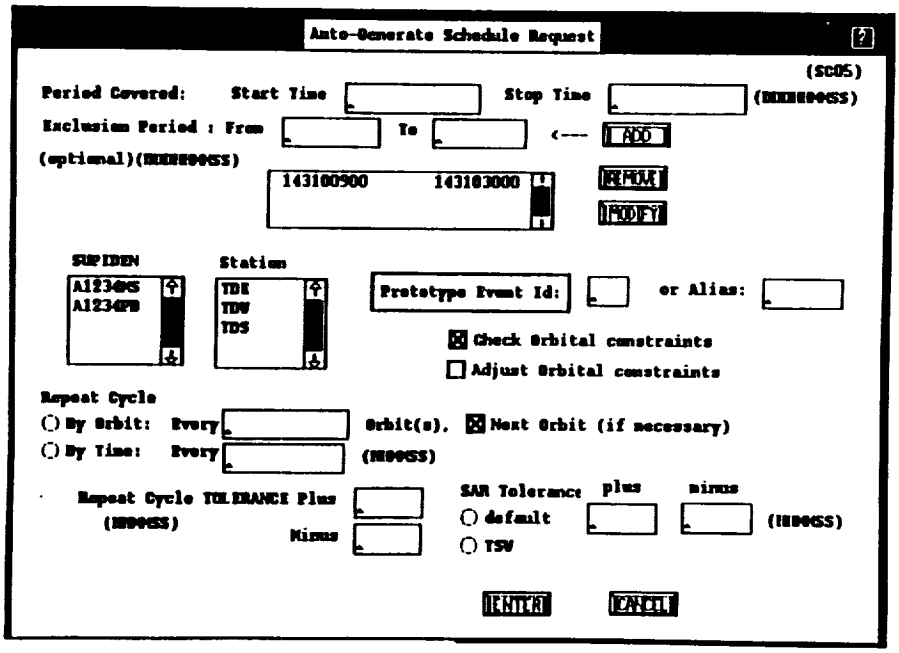


Interactive Scheduling Input Panels

- Autoscheduling
  - Autogenerate schedule request (autogenerate main panel)
    - -- Orbital constraints menu (for adjusting orbital constraints)
- Specific scheduling
  - Select schedule data (specific main panel)
    - -- Schedule data tabular display (for tabular scheduling)
    - -- Schedule data graphic display (for graphic scheduling)
  - Build specific schedule request (for adding/modifying SARs)
    - -- Orbital constraints menu (for adjusting orbital constraints)
    - -- Service parameter input panels (for editing respecifiable parameters)
    - -- SAR validation notice (for saving to database)
  - Bulk modify event (for bulk modifying SARs)

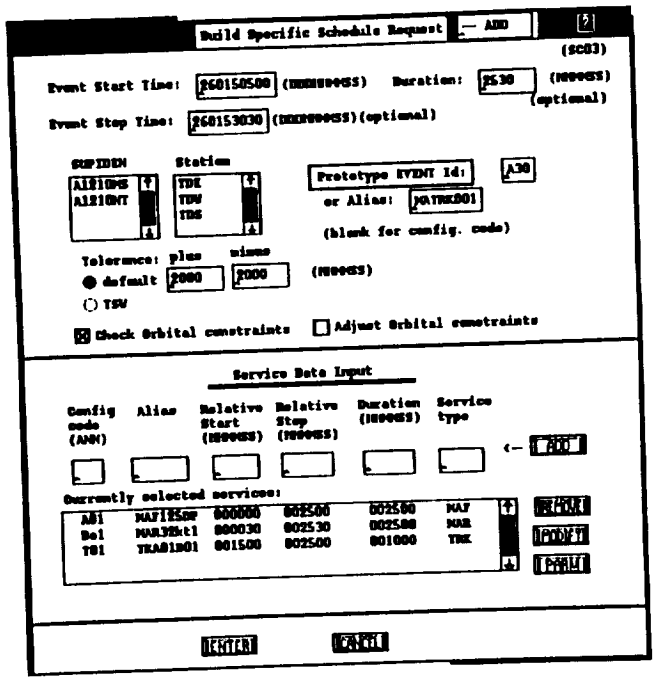
GSFC / CSC

Autogenerate Schedule Request Panel

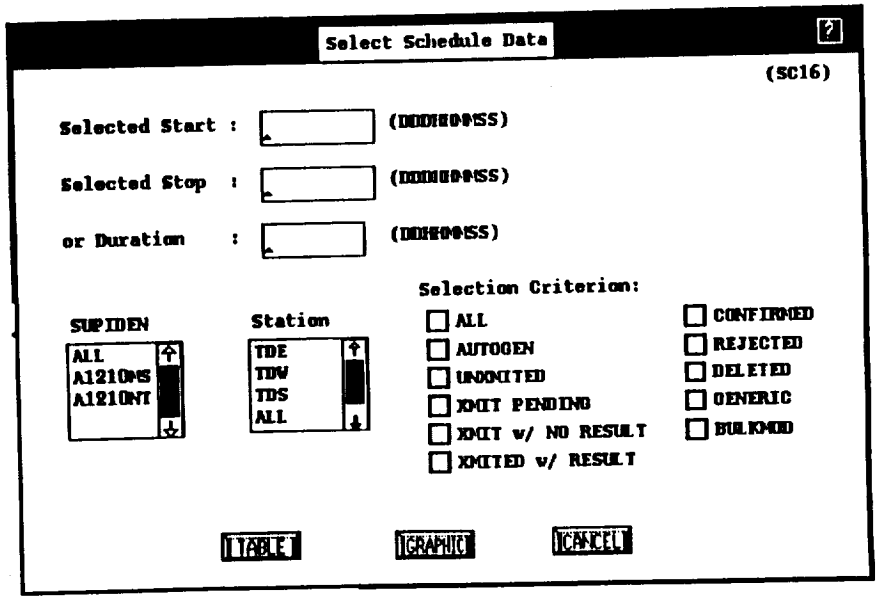


GSFC / CSC

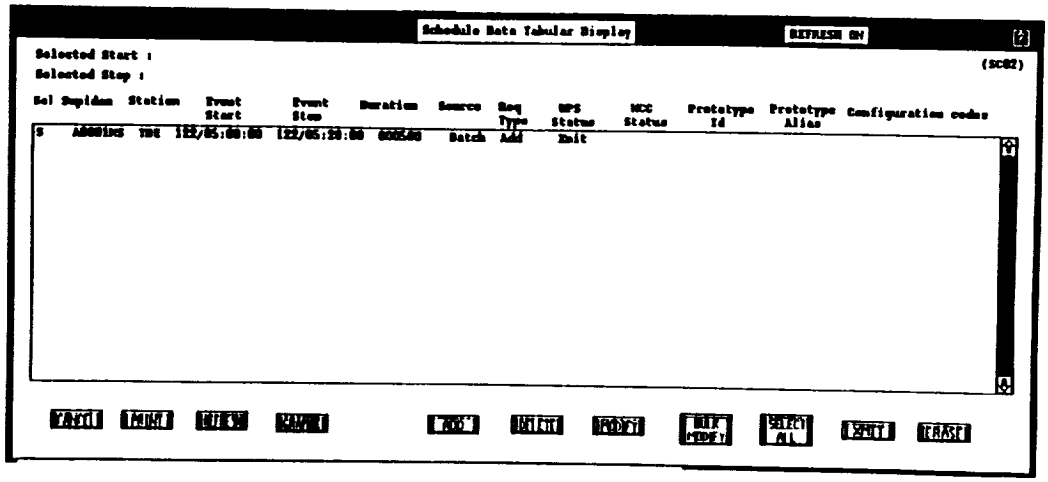
Build Specific Schedule Request Panel



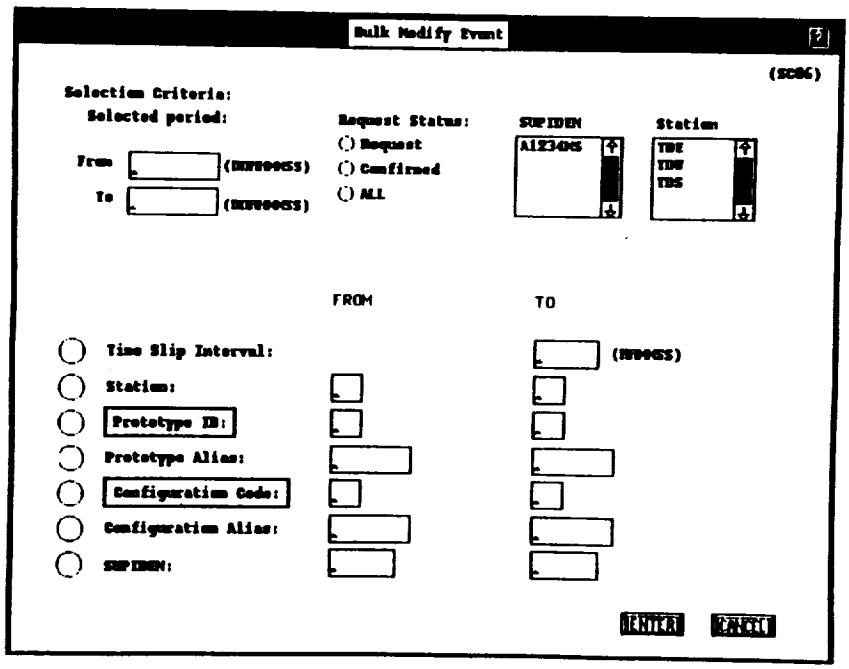
Select Schedule Data Panel



Schedule Data Tabular Display Panel



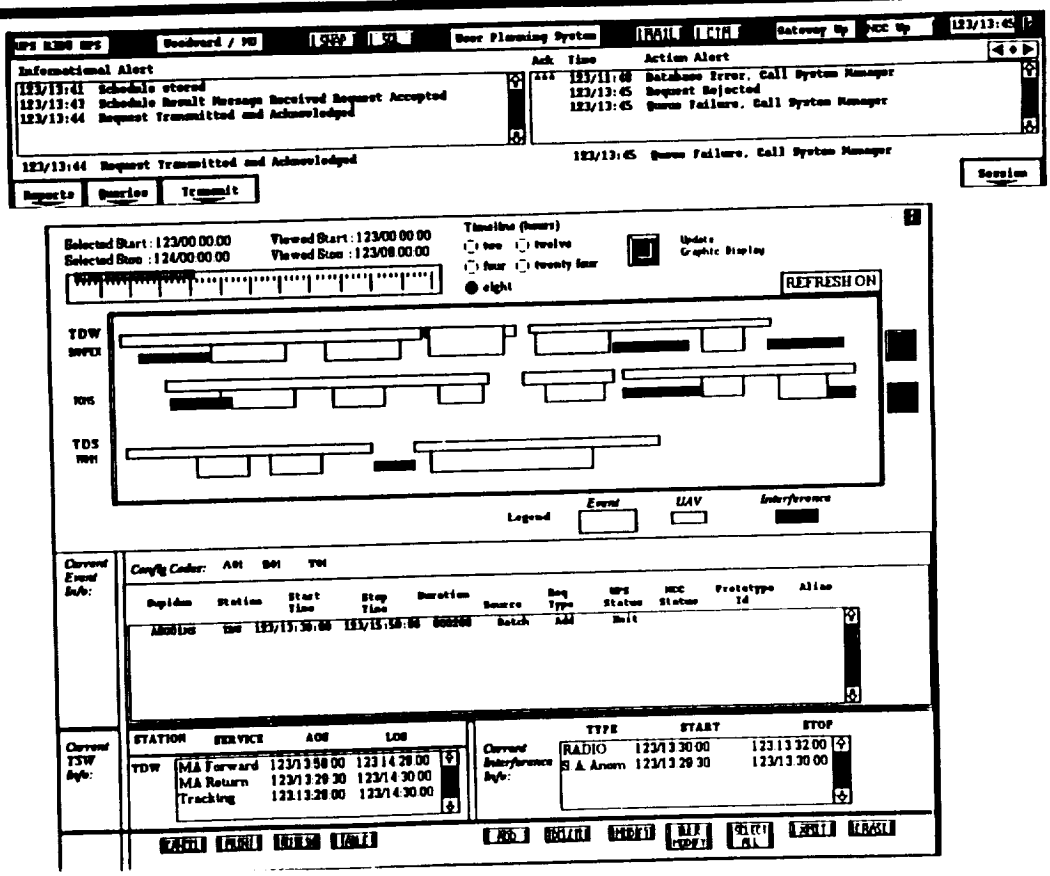
GSFC / CSC



GSFC / CSC

C-3

Schedule Data Graphic Display Panel



00-17

Graphic scheduling aid design

Allow single or multiple event mofidication, deletion or insertion

Present tabular information in an easy to interpret format

Show interrelationships between services, events, interference and intermission conflicts for resources.

Provide selection / multiple selection via mouse and control key

Provide visual cues to differentiate TSWs, Events and Interferences.

00-18

Schedule Data Graphic Display

- Select/deselect single or multiple requests by clicking on graphic requests
- Provide action buttons (see select data tabular display panel)
- Change to tabular scheduling (Table option)
- Display TSW information for services related to a selected request (from the current event information window)
- Select display range based on viewed time
  - Select range of display using Radio buttons
  - Select start time using Viewed Start input field
  - Input Viewed Stop to override the timeline radio button set (optional)
  - Update graphic display to incorporate changes using Update Graphic Display button
    - -- Graphic display configuration depends on the number of missions and TDRSs used
    - -- Scroll graphic display using the slider mechanism

GSFC / CSC

00-19