Flight Schedule Monitor

User's Guide

Version 8.90 Client
Prepared for Federal Aviation Administration
Traffic Management Applications
by
Metron Aviation, Inc.

Table of Contents

Chapter 1: FSM Overview *1-1*
Introduction 1-1
Purpose and Scope 1-2
Limitations and Contacts 1-2
Conventions 1-3
Common Terms Used in This Document 1-4
Chapter 2: Understanding FSM Features *2-1*
Introduction 2-1
Understanding Monitored Live Mode 2-1
Understanding Historical Mode 2-2
Understanding Ground Delay Tools 2-3
Understanding Integrated Program Modeling Mode 2-5
FSM Software Technical and Visual Cues 2-6
Windows Conventions 2-6
Title Bar 2-7
Menu Bar 2-7
Toolbar 2-8
Shortcut Buttons 2-9
Tabs 2-10
Windows Position and Resizing 2-10
Moving a Window 2-10
Chapter 3: Understanding Components *3-1*
Monitored Live Mode Components 3-1
Control Panel Component 3-1
Open Data Set Component 3-14
Map Component 3-21
Query Manager Component 3-26
Bar Graph Component 3-29
Time Line Component 3-43
Element Display Component 3-56
Ground Delay Tools Components 3-58
GDT Setup Component 3-60
GDT Map Component 3-82
GDT Bar Graph Component 3-88
GDT Data Graph Component 3-90
Demand By Center Component 3-93
GDT Time Line Component 3-95
GDT Coversheet 3-97
Integrated Program Modeling Components 3-119
Opening IPM Mode 3-120
Scenario Manager Component 3-121
Multi Graph Component 3-128
IPM Setup Components 3-135

IPM Setup Component Tabs 3-138
IPM Map Component 3-154
IPM Bar Graph Component 3-157
IPM Data Graph Component 3-158
IPM Demand By Center Component 3-161
IPM Time Line Component 3-163
IPM Flight List Component 3-166
Chapter 4: Opening FSM 4-1
Opening a Data Set 4-1
Opening FSM in Monitored Live Mode 4-2
Using the Map to Open Components in Monitored Live 4-4
Opening FSM in Historical Mode 4-7
Begin Monitoring an Airport, FEA, or FCA 4-8
Managing Historical Data 4-10
Opening FSM in GDT Mode 4-10
Opening Components from the Data Set Button 4-11
User Defined Groups 4-13
FSM Settings and User Defined Groups 4-13
FSM Functionality and User Defined Groups 4-14
Chapter 5: Viewing Demand 5-1
Bar Graphs 5-1
About the Display 5-2
Arrival vs. Departure Bars on the Graph 5-2
Original vs. Modeled Data Bars on the GDT Bar Graph 5-4
Show Cancelled Flights 5-4
Drop Out Flights 5-4
Show Unassigned Slots 5-6
Show Legend 5-6
Changing the Time Increments Display 5-6
Tracking Time 5-7
Track GDP/AFP/GS Hours 5-7
Arrival/Departure Flow Rate 5-7
Show More/Less Hours 5-7
View the AAR and ADR 5-8
Viewing the Model Program Rate 5-8
Changing the Program Rate 5-8
Demand Counts 5-9
Chapter 6: Viewing Flight Information 6-1
Roll-Over Events 6-1
Right-Click Capabilities 6-3
FSM Flight Coloring 6-7
Color By Status 6-8
Color By Arrival/Departure 6-10
Color By Aircraft Category 6-10
Color By Aircraft Class 6-10

Color By Carrier 6-11
Color By Centers 6-14
Color by Arrival Fix 6-14
Color by Departure Fix 6-15
Color by Exemption 6-15
Color By User 6-15
Color by Alarm Status 6-16
Color by Distance 6-16
Color by Substitution Status 6-16
Color by CDM Participation 6-16
Color by Program Delay 6-17
Color by Control Type 6-17
Viewing Information in the Time Line Component 6-18
View Open Arrival Slots 6-20
Time Line Flight Count 6-20
Time Line Flight List 6-21
Time Line Display Options 6-22
Flight Lists 6-24
Flight List Filters 6-24
Flight List Menu 6-26
Flight List Buttons 6-27
Opening Flight Lists 6-27
Flight List Format 6-29
Selecting Flight List Information 6-29
Using the Global Default 6-33
Grouping Information in the Flight List 6-36
Sorting Information in the Flight List 6-39
Multi-Level Sorting 6-40
Using the Apply Filters Window 6-40
Exporting Flight List 6-41
Viewing a Single Flight 6-42
Search By Callsign 6-42
Flight Info Window 6-44
Flight Detail Window 6-47
Viewing Problem Flights 6-50
Other Flight Reports 6-50
Compliance Flight Lists 6-50
Query Manager Flight Lists 6-51
Chapter 7: Evaluating Airport and Airspace Conditions 7-1
Evaluating Demand Versus Capacity 7-1
Bar Graph 7-1
Time Line 7-1
TMI Evaluation Using Carrier Statistics Report 7-2
Modifying Program Rates 7-3
Specify Model Program Rate 7-3

Changing the Rate 7-3
View Model Program Rate 7-4
Apply or Clear Program Rate Changes 7-5
Specify Model Program Rate Menu Options 7-5
Reset Program Rate Model Data 7-5
Manipulating Data Time 7-5
Set Time (Historical Mode) 7-5
Modify Data Time (GDT Mode only) 7-6
Update Data Time (Historical Mode Only) 7-7
Remove and Restore Flights (CSA Only) 7-8
Remove Flights 7-8
Restore Flights 7-8
Chapter 8: Modeling a Ground Delay Program 8-1
Modeling a GDP Using Parameters You Specify 8-1
Modeling a GDP Using Proposed Parameters 8-4
Impact Modeling 8-5
Modeling Analysis 8-8
Preview Your Work 8-8
GDT Data Graph Component 8-10
GDT Map Component 8-11
GDT Flight List Component 8-12
GDT Demand By Center Component 8-13
The Analysis Report 8-14
Reload the Data 8-16
Chapter 9: Modeling an Airspace Flow Program 9-1
Modeling an AFP Using Parameters You Specify 9-1
Modeling an AFP Using Proposed Parameters 9-6
Impact Modeling 9-6
Modeling Analysis 9-10
Preview Your Work 9-10
GDT Data Graph Component 9-11
The Analysis Report 9-12
Reload the Data 9-13
Chapter 10: Using Integrated Program Modeling 10-1
Building Scenarios 10-1
Using Modeled Data in a Program 10-6
Modeling Analysis 10-7
Preview Your Work 10-7
IPM Multi Graph Component 10-7
IPM Metrics Tab 10-8
IPM Time Line Component 10-9
IPM Bar Graph Component 10-10
IPM Data Graph Component 10-11
IPM Map Component 10-12
IPM Flight List Component 10-13

IPM Demand By Center Component 10-14
Chapter 11: Issuing an Initial Program 11-1
GDP/AFP Coversheet 11-1
Reviewing Program Parameters 11-2
Creating an Advisory 11-3
Program Manager 11-4
Resending Coversheet Information 11-5
Purging a Program 11-7
Purge Coversheet 11-9
Viewing Flight Information before Purging a Program 11-9
Issuing a GDP Example 11-9
Chapter 12: Monitoring Program Delivery 12-1
Introduction 12-1
Monitoring Delivery Using the Time Line and Bar Graph 12-1
Time Line Component 12-1
Bar Graph Component 12-1
Flight List Component 12-2
Monitoring Effects on NAS Users 12-4
Surface Delay Report 12-4
Priority Flight List 12-4
Time Out Delay List 12-4
Time Out Cancel List 12-4
Slot Hold 12-4
Sub Opportunities (Airline and General Aviation Users Only) 12-4
Slot List 12-5
Carrier Statistics 12-8
Monitoring Flight Counts 12-9
Monitoring Flight Compliance 12-10
Monitoring Delay Histograms 12-10
Monitoring Program Parameters 12-11
FADT Parameters Updated 12-11
SCS Bridge 12-12
GDP or AFP Parameters 12-12
GS Parameters 12-14
Compression Parameters 12-14
Blanket Parameters 12-15
Parameters Block 12-15
Chapter 13: Monitoring EDCT Compliance 13-1
Viewing a Single Flight 13-3
Adding ADL Fields 13-4
Column Positioning 13-4
Sorting Information in the CTD Compliance List 13-4
Multi-Level Sorting 13-4
Compliance List Menu 13-4
Exporting Compliance List to an Excel Spreadsheet 13-5

Confirming an EDCT 13-6
Adjusting an EDCT 13-7
Chapter 14: EDCT Change Request (ECR) ***14-1***
ECR Menu Bar 14-2
Opening ECR 14-3
Locating a Flight 14-5
Viewing Flight Information 14-6
Updating an EDCT for a Flight 14-7
Adjusting the CTA Range 14-8
Setting the ERTA 14-9
Flight Placement for Limited and Unlimited Update Options 14-10
Update Options 14-11
Viewing SCS Response 14-11
Control Types Associated with ECR 14-12
Chapter 15: Revising/Extending a Ground Delay Program or Airspace Flow Program ***15-1***
Getting Current Demand and Weather Information 15-1
Deciding When to Revise a Program 15-2
Revising a GDP 15-2
Revising an AFP 15-2
Extending the Program 15-3
Modifying the Program Rate 15-4
Reducing/Expanding the Scope of a GDP 15-5
Reducing/Expanding the Scope of an AFP 15-5
Purging Flights Outside of the Revised Program Parameters 15-5
Revising a GAAP Program 15-6
Sending a Proposed Program and Advisory 15-6
Suspend Airline Substitutions and Slot Credit Substitutions 15-9
Issuing the Revision 15-10
Exempt AFP Flights from GDP 15-11
Exempting an AFP from a GDP 15-11
Example Revision 15-14
Chapter 16: Issuing Compress Flight Program ***16-1***
Adaptive Compression in FSM 16-2
Suspending Airline Substitutions and Slot Credit Substitutions 16-3
Opening GDT Mode 16-4
Entering Parameters 16-5
Using Run to Generate the Compression Coversheet 16-6
Creating the Advisory 16-7
Issuing the Compress Flight Program 16-8
GAAP GDP - Compress Slots Program Type 16-10
Compressing Unassigned Slots 16-10
Chapter 17: Deciding When to Use a Compression or Revision ... ***17-1***
Deciding When to Revise or Compress a GDP 17-1

Deciding When to Revise or Compress an AFP 17-3
Deciding When to Compress a GAAP 17-5
Chapter 18: Airborne Holding and Blanket Programs 18-1
Using Airborne Holding 18-1
Parameters Tab Modifications 18-1
Airborne Holding Reports 18-2
Using a Blanket Program 18-4
Blanket Coversheet 18-6
Sending a Proposed Blanket and Advisory 18-7
Suspending Airline Substitutions and Slot Credit Substitutions 18-8
Issuing a Blanket Revision 18-9
Chapter 19: Issuing a Ground Stop 19-1
Selecting the Parameters 19-1
Parameters Tab 19-2
Scope Tab 19-3
Modeling Options Tab 19-4
Generating a GS Coversheet 19-7
GS Coversheet 19-8
Reviewing Program Parameters 19-9
Creating an Advisory 19-9
Program Manager 19-10
Resending Coversheet Information 19-11
Example of Issuing an Actual GS 19-11
Viewing GS Controlled Flights 19-12
Query Manager Flight List 19-14
Chapter 20: Other Ground Stop Functions 20-1
Purging a GS 20-1
Viewing Flight Information before Purging a Program 20-1
Reducing the Scope of a Ground Stop 20-4
Extending a Ground Stop 20-4
GS Coversheet 20-5
Moving from a GS to a GDP 20-6
Suspending Airline Substitutions and Slot Credit Substitutions 20-6
Issuing a GDP 20-7
Chapter 21: Understanding and Using FSM Reports 21-1
Counts Reports 21-1
Viewing the Count List 21-1
Count List Menu 21-3
Count List by Demand 21-4
Counts by Centers 21-5
Counts by Aircraft Category 21-6
Counts by Aircraft Class 21-7
Counts by Arrival Fix 21-8
Counts by Departure Fix 21-9
Counts by User 21-10

Counts By Unassigned Slot 21-11
Compliance Flight Lists 21-12
By CTD Compliance Report 21-14
By ETE Compliance Report 21-15
By CTA Compliance Report 21-15
Spurious Flight Compliance Report 21-16
Cancel That Flew Compliance Report 21-16
Program Delay Histogram 21-16
Absolute Delay Histogram 21-18
Surface Delay Report 21-19
Surface Delay Report Menu 21-20
Priority Flight Report 21-20
Priority Report Menu 21-21
Time Out Delay Report 21-22
Time Out Delay Report Menu 21-24
Time Out Cancel Report 21-24
Time Out Cancel Report Menu 21-25
Slot Hold Report 21-26
Slot Hold Report Menu 21-26
Sub Opportunities Report 21-27
Sub Opportunities Report Menu 21-28
Slot List 21-29
Slot List By Carrier 21-29
Slot List By Center 21-30
Slot List Report Menu 21-32
Uncontrolled Drop Out Report 21-33
Uncontrolled Drop Out Report Menu 21-33
Understanding Coversheet Reports 21-34
FADT Report 21-34
Analysis Report 21-35
Carrier Statistics Report 21-36
Chapter 22: Using Query Manager 22-1
Built-in Filters 22-1
User Defined Filters 22-2
Creating a New User Defined Filter 22-2
Using the Create Filter Component 22-10
Create Filter Buttons 22-13
Create Filter Menu Items 22-13
Creating and Saving a Filter 22-13
Renaming a User Defined Filter 22-20
Deleting a Filter 22-21
Query Manager Flight List 22-22
Chapter 23: Flight Status A-1
Chapter 24: FSM Data Elements B-1
Chapter 25: Glossary of Abbreviations C-1

Appendix A: Flight Status A-1
Appendix B: FSM Data Elements B-1
Appendix C: Glossary of Abbreviations C-1

1: FSM Overview

Introduction

The amount of traffic in our National Airspace System (NAS) is expected to experience significant growth for the foreseeable future. The NAS is a static resource and the Federal Aviation Administration (FAA) needs to find a balance between the increase in traffic and available resources in the NAS. The FAA responded to this issue by developing Free Flight. Free Flight is an innovative concept designed to enhance NAS safety and efficiency by transitioning from a centralized command and control system to a distributed planning system.

Collaborative Decision Making (CDM) is one of the five core products in Free Flight Phase I. CDM is a joint government/industry initiative aimed at improving air traffic management through increased information exchange, common situational awareness, equitable resource allocation, and performance analysis.

Flight Schedule Monitor (FSM) was used in CDM's first major thrust, Ground Delay Program Enhancements, and the FAA has continued to use it since it went into Prototype Operations in January 1998. FSM fulfills the CDM goal of giving all users common situational awareness. FSM does this by displaying a current picture of air traffic demand at airport and airspace data sets using real-time data culled from CDM participant data and aggregated by Volpe National Transportation Systems Center. Using this picture, air traffic specialists and airline operations centers alike make better decisions and keep traffic flowing as smoothly as possible.

When adverse conditions affect an Airport or Flow Constrained Area (FCA) data set, they also affect traffic flow. The data set cannot handle a normal amount of arriving aircraft which disturbs operations. One method the FAA uses to compensate for reduced capacity at a data set is to delay flights arriving at that constraint before these flights take off. This is known as a Ground Delay Program (GDP) for an airport or as an Airspace Flow Program (AFP) for an FCA. As part of CDM Prototype Operations, all FAA traffic management personnel use FSM to determine the necessity for a program and other traffic management initiatives (TMIs) and enact them.

FSM has been continuously enhanced since the early prototype capability to include better functionality and support for the ever-expanding user community. FSM was originally designed with C++ programming language. To better serve the CDM community, and to keep up with improving technology, FSM was completely rebuilt on the Java platform in the fall of 2003. The Java FSM architecture can support a large number of concurrent users at a single site. Java FSM can also greatly improve threading options and enhance file handling. Additional features include built-in cross-platform user interface support.

Today, traffic management specialists across the NAS and Canada, as well as over 40 CDM participants use FSM to monitor and manage airport demand and capacity.

The FAA Air Traffic Control System Command Center (ATCSCC) uses FSM to:

- Monitor airports, FEAs, and FCAs - view the existing demand and constraints at these data sets
- Model and run traffic management initiatives, including Airspace Flow Programs (AFPs), airborne holding, GDPs, and Ground Stops (GS)
- Update EDCTs (Estimated Departure Clearance Time) through the use of EDCT Change Request (ECR)

Traffic Management Units use FSM on a daily basis in more than 80 FAA air traffic control (ATC) field facilities to monitor capacity and demand at over 50 airports.

Airline operations centers (AOCs) use FSM to:

- Monitor airports by viewing existing demand and constraints at these airports
- Analyze the impact of proposed TMIs on their operations
- Model flight cancellations
- Send Slot Credit Substitution (SCS) requests to the hub site through the ECR component

Purpose and Scope

FSM has two major purposes:

1. Monitoring airport and airspace Capacity/Demand Data
2. Managing Traffic Flow

FSM monitors flights arriving at and departing from an airport, or entering into and departing from an FEA/FCA, while tracking demand and capacity. When an imbalance exists, traffic management specialists analyze different combinations of GDPs, AFPs, airborne holding, etc. to determine the best way to fix the imbalance. Once the traffic management specialists determine an airport, FEA, or FCA needs a TMI, FSM sends out the parameters to the users and updates its own data accordingly. Airline operations users model the effects of the TMI and decide whether to alter their own operations.

FSM displays both Monitored Live (On-line) and Historical CDM data. Traffic management specialists use Live data to monitor the current situation at any airport. In Monitor Live data mode, FSM updates demand in the flight schedule display approximately every five minutes to keep the picture current. FSM users can examine historical data to replay a day's events and analyze the effects of all traffic management programs.

Limitations and Contacts

This document describes FSM as of 4/05/2009. Because FSM is an evolving product, future enhancements (i.e., - modifications and additional functions) will be introduced into this guide as they become available.

For information and/or technical assistance with FSM software, contact the following:

Government Personnel	Airline Personnel
TPC Hotline (609) 485-9601	FSM Support (703) 234-0769 fsm_support@metronaviation.com

Conventions

Conventions are the same throughout all FSM components unless otherwise specified.

Table 1-1: Keyboard and Mouse Conventions

Command	What It Means
File > Open	Choose the Open option from the File menu.
Click	Click once with the left mouse button.
Ctrl + Click	Press the Ctrl key while clicking with the left mouse button.
Double-Click	Click twice with the left mouse button.
Checkmark	Select the option with the left mouse button to make a checkmark appear in a checkbox.
Ctrl + A	Press the Ctrl key while pressing the A key on your keyboard. Displays arrival data in the active component
Ctrl + C	Press the Ctrl key while pressing the C key on your keyboard. Command used to close a window or component.
Ctrl + D	Press the Ctrl key while pressing the D key on your keyboard. Displays departure data in the active component.
Ctrl + F	Press the Ctrl key while pressing the F key on your keyboard. Finds a particular flight by entering the flight's call sign and origin airport.
Ctrl + L	Press the Ctrl key while pressing the L key on your keyboard. Displays a color legend for the active component.
Ctrl + P	Press the Ctrl key while pressing the P key on your keyboard. Prints the active component on your screen.

Table 1-1: (Continued)Keyboard and Mouse Conventions

Command	What It Means
Ctrl + R	Press the Ctrl key while pressing the R key on your keyboard. Displays the Rename Window dialog box and allows you to change the title bar name of the active component on your screen.
Ctrl + S	Press the Ctrl key while pressing the S key on your keyboard. Command used to save data.
Alt + F4	Press the Alt key while pressing the F4 key on your keyboard. Shuts down the component that you are viewing.
F1	Press the F1 key on your keyboard to access the on-line help for the active component.

Note: All keyboard functions work the same in all components unless stated otherwise. If you use a particular keyboard command on a component where that option is not available, FSM makes no changes to the component. Ensure the component you want to submit is “active” when executing a command.

Common Terms Used in This Document

Component, Window, and Panel – The three terms are used interchangeably throughout this document. They refer to the active window on your screen.

Active – This document uses the term active in two different ways. First, if several windows are open, only one window can accept user input from either the mouse or keyboard - that window is active. Second, within the active window, only one action button, push button, or text entry field is active.

Dialog box - A window that allows the user to enter text and use buttons to make choices.

Checkbox – A picture of a square box (checked or not checked) is displayed on the screen. When you select the Checkbox, a checkmark is displayed in the box and the item associated to that checkbox is selected. You can select several checkboxes at a time.

Data Set – An airport, FEA, or FCA.

Radio button – A picture of an analog push button (a circle with or without a dot) is displayed on the screen. When you select a radio button, a dot fills in the circle. You can select exactly one radio button in a group of radio buttons at any time.

Aggregate Demand List (ADL) – When Volpe National Transportation Systems Center receives updated flight schedules and other NAS information from participating CDM

AOCs, Volpe sends the information back to the users in the form of an ADL. FSM uses the ADLs, which Volpe updates approximately every five minutes, to process data and display the information.

Airport Arrival Rate (AAR) – The number of arriving aircraft that an airport can accommodate during a certain period of time.

Airport Departure Rate (ADR) – The number of departing aircraft that an airport can accommodate during a certain period of time.

Airspace Flow Program (AFP) – A specific Traffic Management Initiative, which assigned delay (control times) to flights that are going through a specified FCA.

CDM (Collaborative Decision Making) – One of five core products in Free Flight Phase I, Collaborative Decision Making is a joint government/industry initiative with the goal of improving air traffic management through increased information sharing, common situational awareness, and equitable resource allocation.

DAS (Delay Assignment) – The default delay assignment mode, formerly known as FA delay.

Delay – Defined as Estimated Time of Arrival (ETA) - (IGTA - taxi). IGTA is the initial gate time of arrival, and taxi (unless otherwise specified by the user in Ground Delay Tools (GDT) mode has a default value of 10 minutes.

GAAP (General Aviation Airport Program) – A delay assignment mode used during a GDP when current demand does not meet capacity but it believed that unknown traffic will meet or near capacity. Unassigned slots are allocated for future pop-up demand.

Ground Delay Operations – Any one of a number of ways to delay flights on the ground. This includes GDPs, GSs, and Airborne holding.

Ground Delay Program (GDP) – A specific Ground Delay Operation, which assigns delay (control times) to flights before departure.

Ground Stop (GS) – A specific Ground Delay Operation, which grounds (holds) flights for a specified amount of time at their departure airports.

EDCT Change Request (ECR) – Use the EDCT Change Request tool to view and update an arriving flight's control times during a GDP.

Integrated Program Modeling (IPM) – IPM mode allows you to model and compare multiple TMIs, and to review their impact on other data sets.

Slot Credit Substitution (SCS) – A situation that commonly occurs during GDPs where an operator has a flight f0 with a slot at time t0, and flight f0 cannot use its slot because it is delayed or cancelled. In these situations, SCS provides a mechanism for an operator to substitute other operator's flights to bridge the slot from an unusable time to a time that the operator can use to his/her advantage. SCS is an enhancement to the simplified substitution process implemented in ETMS 7.2.

2: Understanding FSM Features

Introduction

This section provides a brief overview of the four FSM data modes:

Monitored Live, Historical, Ground Delay Tools (GDT), and Integrated Program Modeling (IPM). Monitored Live mode allows you to monitor and display airport or airspace capacity and demand. Historical mode allows you to review past events through archived data and is an excellent way to conduct post analysis. GDT mode allows you to model and issue Traffic Management Initiatives (TMIs), such as Ground Delay Programs (GDPs), Airspace Flow Programs (AFPs), and Ground Stops (GSs). IPM mode allows you to model and compare multiple TMIs. The data mode (IPM, GDT, HIST or LIVE) is displayed in the title bar of each component (see Figure 2 - 1).

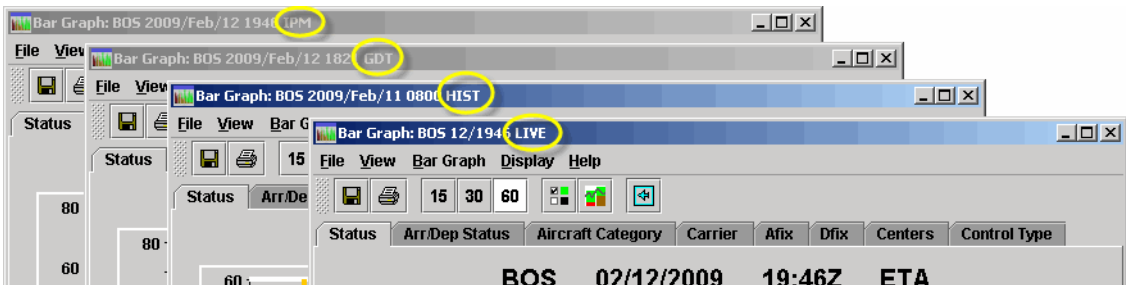


Figure 2 - 1 : Data Mode Displayed in Title Bar

For more detailed information on individual components, see Chapter 3: Understanding Components.

Understanding Monitored Live Mode

In Monitored Live mode, you can monitor airport/airspace capacity and demand information for flights in various FSM components. FSM updates demand data approximately every five minutes in Monitored Live mode, with every new Aggregate Demand List (ADL). FSM provides information that supports detailed flight data and various types of demand count lists.

When opening components from the Open Data Set component, the two default Monitored Live Mode components are:

- Bar Graph – Displays demand versus capacity of a specified data set
- Time Line – Displays how flights are distributed throughout each hour

These two components open by default if you do not change the ***Open With*** options in the Open Data Set component. You also can individually open the Time Line and Bar Graph components from the Map component. You can access the Flight List component using the Open Data Set component as well, but it is not the default selection. See Chapter 4: Opening FSM for more information on how to open FSM components.

Figure 2 - 2 shows a possible Monitored Live mode windows management. In this example, the user selected BOS from the Open Data Set component. The two default components, Time Line and Bar Graph, display automatically when the user does not select any other components in the ***Open With*** selection box of the Open Data Set component.

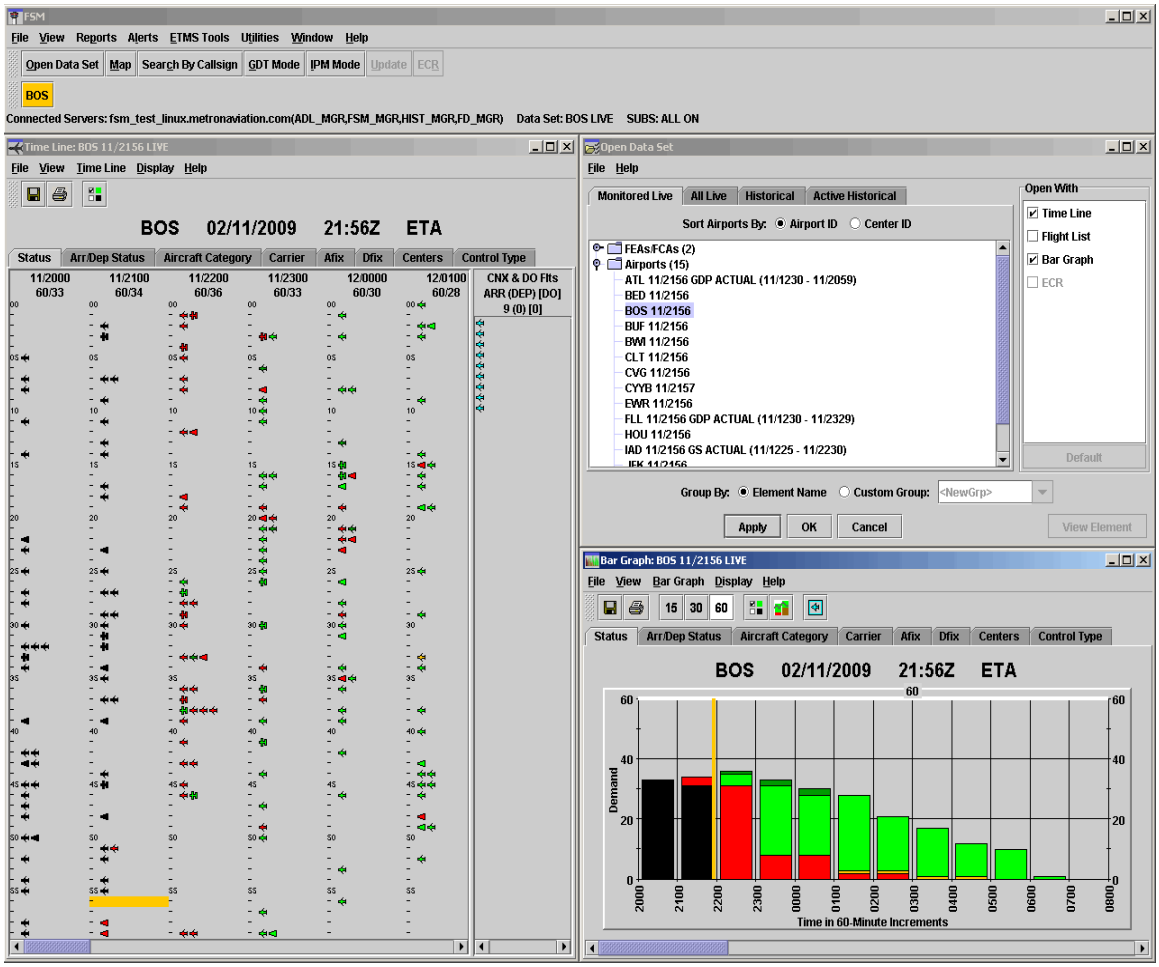


Figure 2 - 2 : Monitor Mode (Live)

Understanding Historical Mode

Historical mode allows you to select any data set stored in a database. You can use this data to analyze scenarios or replay the day's air traffic events. From the Open Data Set component with the Historical tab active, you can drill down to find the year, month, date, and data set of the desired information you want to view. Once you select the date and data set, FSM gives you the option of selecting a data time. See the Open Data Set component in Chapter 3: Understanding Components for more information. FSM displays Historical mode data in much the same way as the Monitored Live mode; however, the word HIST is displayed next to the ADL time stamp in each Historical mode component. In Historical mode, you can view data in the same five-minute ADL increments in which it originally

arrived. Click **Update** on the Control Panel component to update the data to the next historical ADL time (see Figure 2 - 3).

You must open the Historical mode data using the Open Data Set component. The two default Historical mode windows are:

1. Bar Graph component - Displays demand versus capacity of a specified data set
2. Time Line component - Displays flight distribution throughout each hour

These two components open by default if you do not change the ***Open With*** options in the Open Data Set component. You can access the Flight List component using Open Data Set as well, but that is not the default selection.

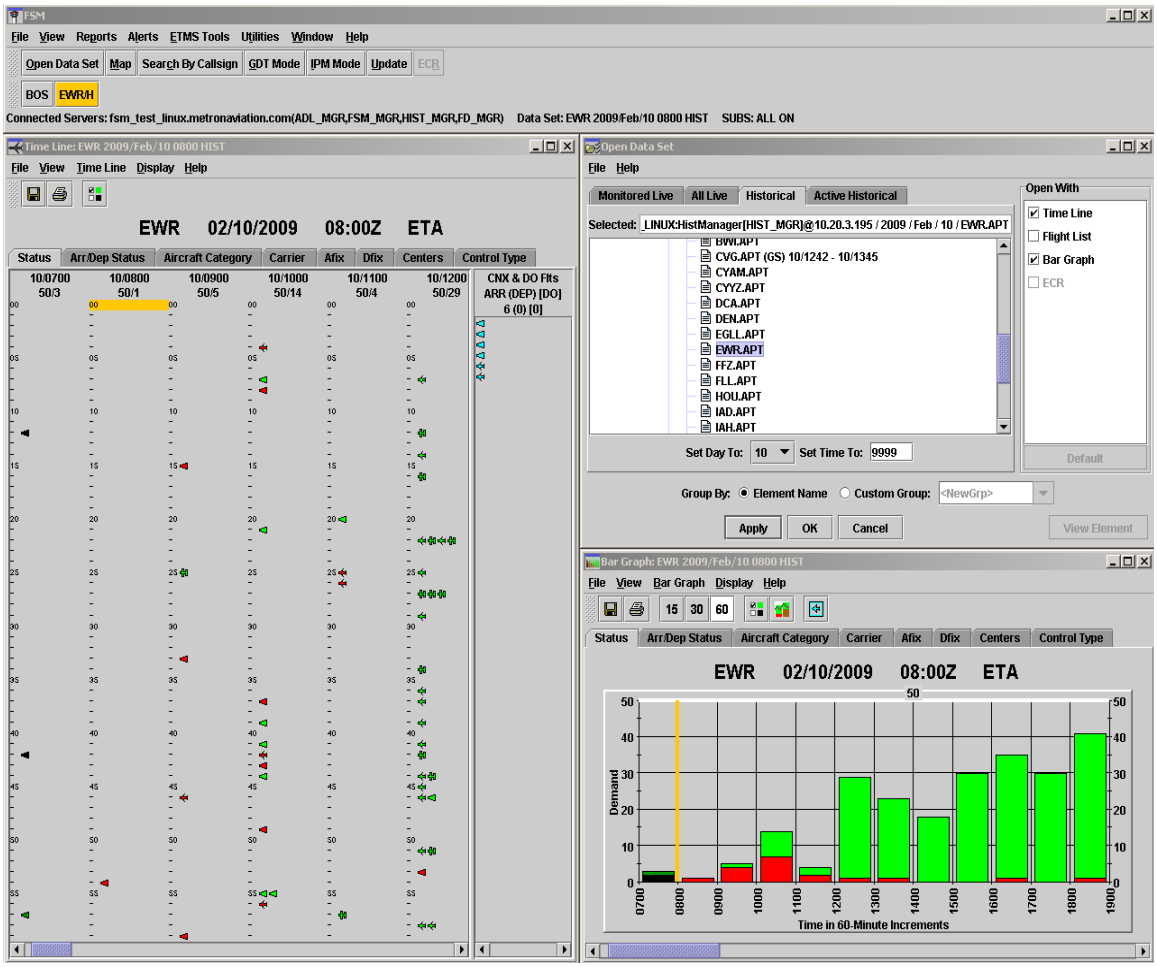


Figure 2 - 3 : Historical Mode

Understanding Ground Delay Tools

Although you primarily use Monitored Live mode to monitor a data set's demand/capacity balance and flight information, you use GDT mode to help make air traffic management decisions and conduct analysis. You must first select a data set, either airport or airspace, in either Monitored Live mode or Historical mode to access GDT mode. Once you select a

data set, click **GDT Mode** on the Control Panel component to open the data set in GDT mode. Four default components initially display when you open GDT mode. For detailed information on the GDT components, see Chapter 3: Understanding Components.

> **Note:** The GDT Bar Graph and Time Line display flight arrival information only.

The GDT components look similar to Monitored Live mode, with the exception of the GDT Setup and GDT Data Graph components (see Figure 2 - 4). The four default components that display when you open GDT mode are:

1. GDT Setup – Displays the main TMI setup panel, where you enter the parameters.
2. Data Graph – Displays Power Run Statistics for modeled TMIs in graphical format.
3. GDT Map – Displays the Scope, including individual centers and airports for a modeled TMI.
4. Bar Graph – Displays demand versus capacity for the data set and any Impact elements you select.

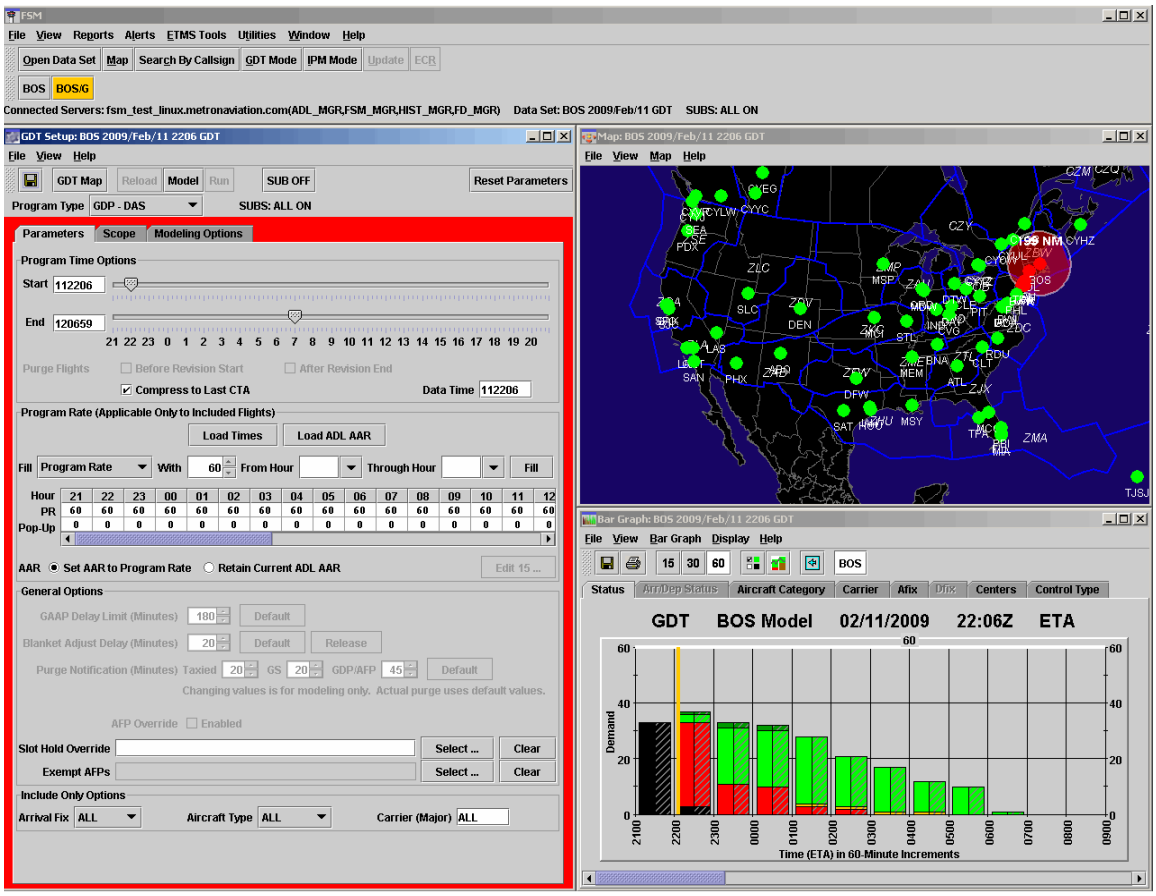


Figure 2 - 4 : GDT Mode

Additional components available in GDT data mode:

- Flight List component – Displays the Flight List of the selected data set.
- GDT Time Line component – Displays flight distribution throughout each hour.
- Demand By Center - Displays the number of Non-Exempt and Exempt flights per Center and Airport for the modeled TMI.

Understanding Integrated Program Modeling Mode

IPM mode allows you to model and compare multiple TMIs, and to review their impact on other data sets. IPM only provides modeling capabilities and does not allow you to send TMIs. Click **IPM Mode** on the Control Panel component to open IPM mode. Two default components, Scenario Manager and Multi Graph, initially display when you open IPM mode (see Figure 2 - 5). A third component, IPM Setup is opened from Scenario Manager. For detailed information on the IPM components, see Chapter 3: Integrated Program Modeling Components.

1. Scenario Manager – Combines FSM-implemented TMIs into one or more system-wide views, referred to as scenarios. The scenarios allow you to compare programs' effects on one another and to compare multiple strategies at one time.
2. Multi Graph – Consists of bar graphs for each data set in all scenarios. Provides consolidated metrics for all scenarios.
3. IPM Setup – Very similar to GDT Setup. The main difference is that you cannot run programs; you only can model programs.

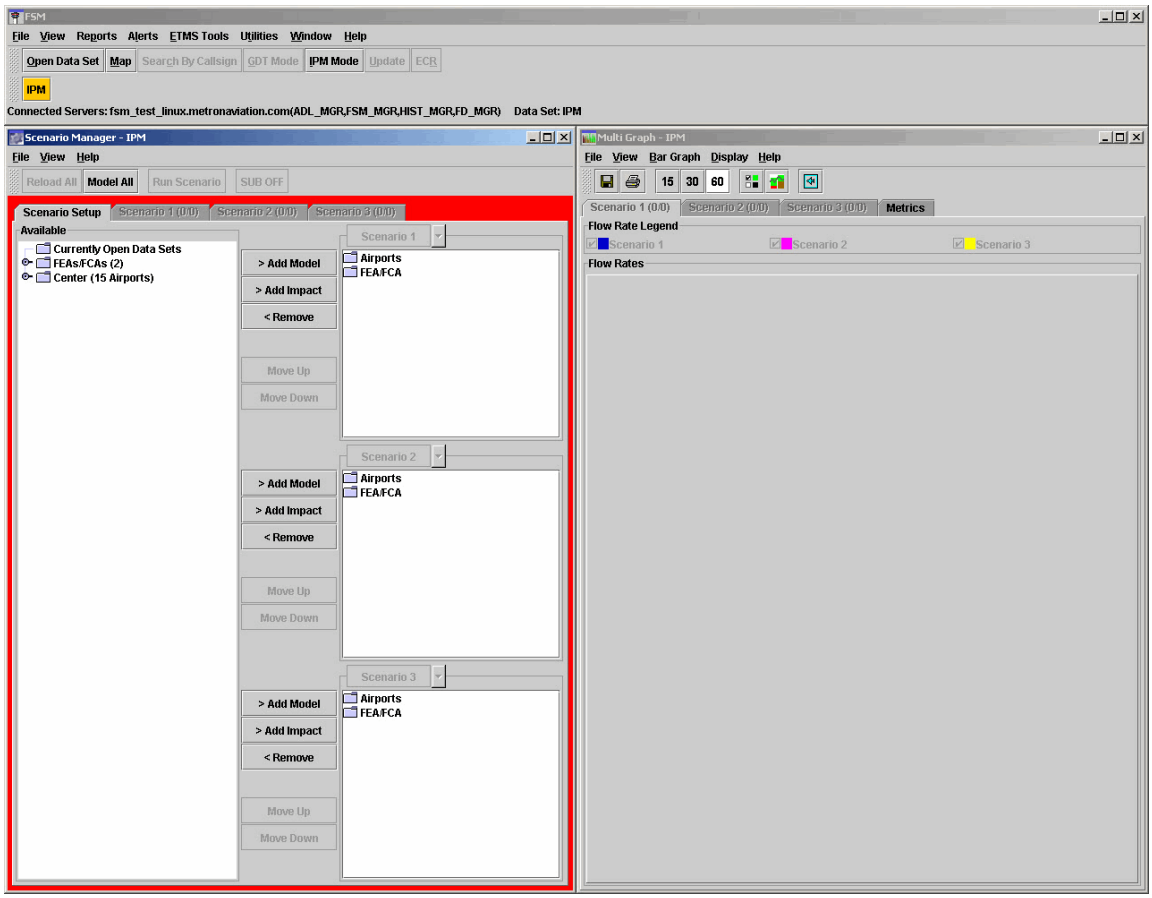


Figure 2 - 5 : IPM Mode

FSM Software Technical and Visual Cues

Java software needs a Java Runtime Environment (JRE) on your computer to execute. FSM 8.90 requires a JRE version 1.5.0_06 or higher. Without an available JRE for a given environment, it is impossible to run Java software.

Windows Conventions

This section provides an overview of the FSM user interface. It describes the windows, the menu bars, tool bars, and other important features. Figure 2 - 6 shows the FSM Control Panel component. This panel is displayed for all FSM modes.

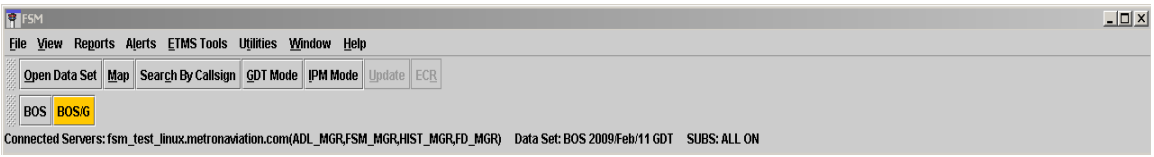


Figure 2 - 6 : Control Panel

Title Bar

The Title bar contains a control icon, window title, and Windows buttons.

Figure 2 - 7 : Title Bar

The control icon is displayed on the left side of the title bar. Click it to open the Control menu, which contains commands for positioning, resizing, minimizing, maximizing and closing the window. Double-clicking the control icon closes the window.

The window title describes the contents of the window. In the Title display you see the window name, airport three-letter identifier, date, ADL time and the data mode. Double-clicking the window title area is the same as clicking the Window Maximize or Restore buttons.

Use the Window buttons located on the right side of the title bar to resize and close the window.

Table 2-1: Window Buttons

Action	Button	Description
Minimize		Reduces the window to its windows icon on the taskbar
Maximize		Enlarges the window to fill the screen
Restore		Returns the window to its last size and position
Close		Closes the window

Menu Bar

The Menu bar, positioned directly below the title bar, displays the menu headings.

Figure 2 - 8 : Menu Bar

The menus that are available depend on the window. Click a menu heading to open the menu and select a command. The arrows next to a command indicate another submenu for that command. Open the submenu by placing the mouse cursor over the menu command (see Figure 2 - 9).

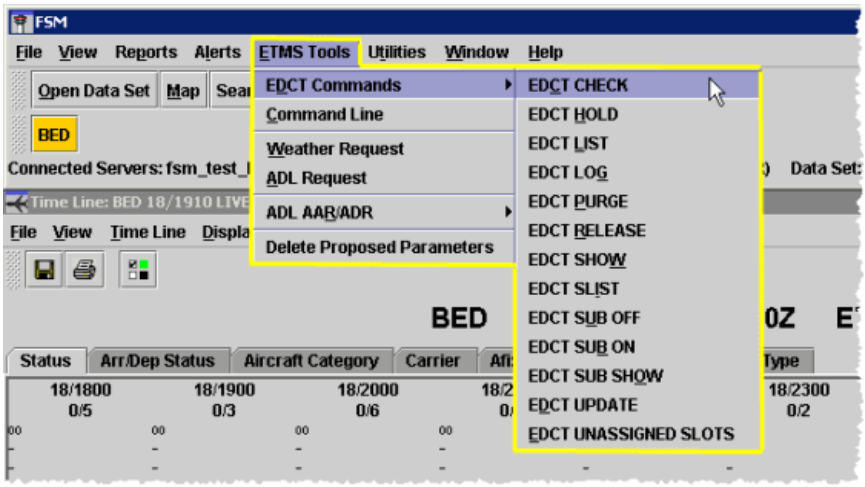


Figure 2 - 9 : Submenu Structure

Toolbar

The docked toolbar is displayed directly under the menu bar (see Figure 2 - 10).

Figure 2 - 10 : Control Panel Toolbar

The toolbar contains shortcut buttons for frequently used commands. The commands that are available depend on the window. By default, the toolbar docks at the top of the window. You can undock it and move it to any location on your screen. Move the toolbar to your desired location by left-clicking the gray dots next to **Open Data Set** and dragging. When you move the toolbar, the window title displays **Core**. Close the undocked window to re-dock the toolbar to its original window.

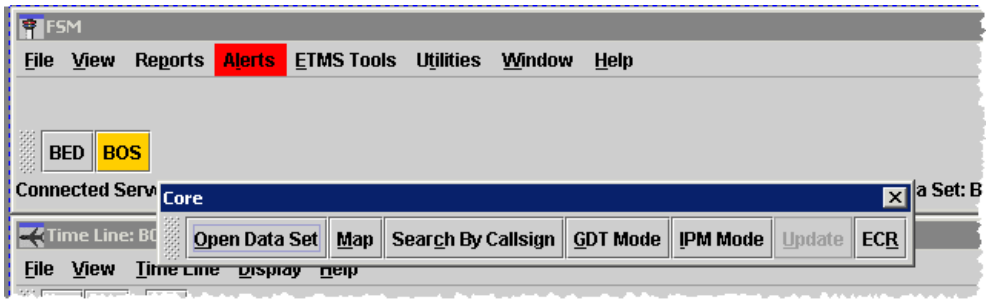


Figure 2 - 11 : Moved Toolbar

Shortcut Buttons

All airports, FEAs, and FCAs, and their respective data modes, and all User Defined Groups currently opened by the FSM client are displayed as shortcut buttons on the Control Panel component.

The airport, FEA, FCA, or User Defined Group that is active, or in focus, on your screen is displayed on the Control Panel component and FSM highlights the active button in orange (see Figure 2 - 12).

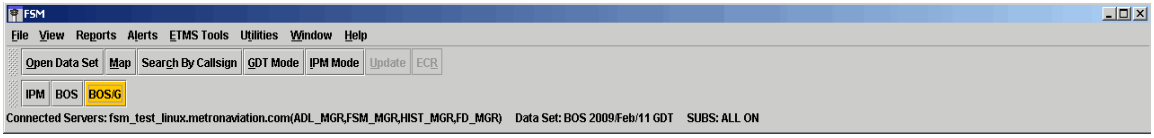


Figure 2 - 12 : Control Panel

Listed below are the various buttons that are available when a data set is opened in various data modes:

- Live Data Mode – Airport's three-letter identifier (e.g., BOS), FEA/FCA name (e.g., FCAA01), or UDG name
- GDT Data Mode – Airport's three-letter identifier/G (e.g., BOS /G), FEA/FCA name/G
- Historical Mode – Airport's three-letter identifier/H (e.g., LGA/H), FEA/FCA name/H, UDG Name/H
- Historical Mode/GDT – Airport's three-letter identifier/GH (e.g., LGA/GH), FEA/FCA name/GH
- IPM Mode – The IPM button always is located to the far left of the shortcut button bar. Only one IPM button is displayed regardless of the number of scenarios or elements within the scenarios.

Hovering the cursor over a shortcut button on the Control Panel displays a tool tip that describes the data set in more detail. GDT tool tips display year/month/day/airport (or FEA/FCA) for the data set button. Historical mode displays the year/month/day/airport or FEA/FCA/ADL time for the data set button.

Tabs

Tabs are displayed on most FSM components. Selecting a tab makes that tab active. The tab that is active is highlighted. Tabs found in the Bar Graph and Time Line are different display options. When you select a tab, the coloring option is displayed in the component.

For example, Figure 2 - 13 shows the Bar Graph with the coloring tab Status selected.

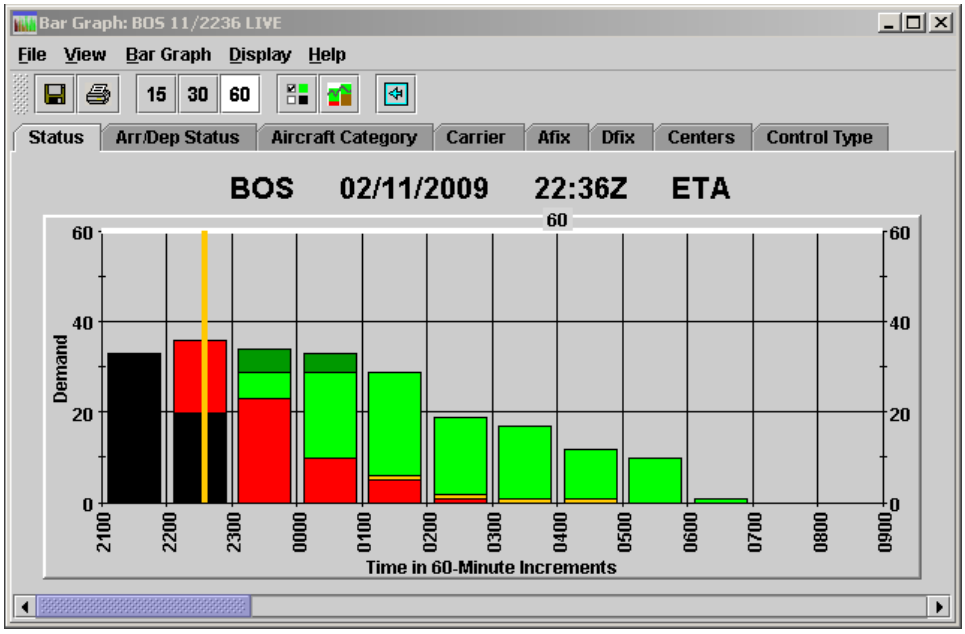


Figure 2 - 13 : Component Tabs

Windows Position and Resizing

When more than one window is open on your screen, a window must be *active* to use it. Activate the window by clicking anywhere on it. The title bar of an active window is blue, while the title bar of an inactive window is gray.

Resizing windows allows you to view more windows on your screen at one time. To resize a window, position the cursor on any of the borders of the window until your cursor changes to a double-sided arrow. When the double-sided arrow is displayed, click and drag in the direction of your choice. When placing your cursor over a corner, the double-sided arrow is diagonal. This allows you to move two sides of the window at the same time.

Moving a Window

You can move around the windows in FSM to suit your needs. Left-click the title bar of the window and drag it to move it to a desired position on the screen.

> **Note:** The cursor remains as the normal cursor and not a double-edged arrow.

3: Understanding Components

Monitored Live Mode Components

Use Monitored Live mode components to monitor airport and airspace capacity, and demand information. Demand data updates approximately every five minutes, with every new ADL, in *live* mode. This section familiarizes you with the main Monitored Live mode components:

- Control Panel
- Open Data Set
- Map
- Query Manager
- Bar Graph
- Time Line
- Element Display

Control Panel Component

The first component you see upon opening FSM is the Control Panel. The Control Panel component allows you to access all other FSM components for displaying, monitoring, and managing traffic flow at any data set. The Control Panel consists of the menu bar and seven buttons, the explanation for each of these buttons is displayed below. The menu items and buttons are enabled or disabled depending on the type of data set (Monitored Live, Historical, GDT) selected. When you open a data set, an associated button displays just above the Connected Servers information (the text beneath the Control Panel buttons that identifies the server to which FSM is connected).

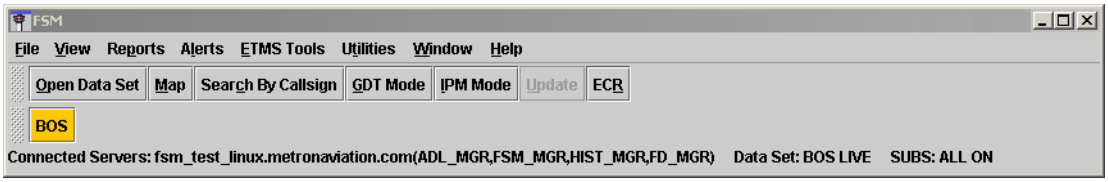


Figure 3 - 1: Control Panel Component

Control Panel Menu Bar

The menu bar in the Control Panel component contains eight options: File, View, Reports, Alerts, ETMS Tools, Utilities, Window, and Help.

1. File Menu
   - **File > Open Data Set** - Opens the Open Data Set component, which allows you to open an airport or airspace data set in both Live and Historical data modes.
   - **File > Load Adaptation** - Loads a previously saved adaptation with your display preferences. For example, if on a regular basis you monitor ATL and CLT airports with the Time Line and Bar Graph components displayed, you can

save this configuration and select Load Adaptation to view the desired data in that format.

- **File > Save Adaptation** - Saves your current windows management for an airport. You can reopen this adaptation later using **File > Load Adaptation**.

Note: You cannot save an FEA or FCA to an Adaptation because they are dynamic datasets.

- **File > Exit** - Closes the Control Panel component and exits the FSM application.

2. View Menu

- **View > Map** - Opens the Map component to view airports and FEAs/FCAs currently being monitored by FSM. The Map component also shows when there is a TMI in place for any particular data set.
- **View > GDT Mode** - Opens the GDT Setup components for a selected data set.
- **View > IPM Mode** - Opens the Integrated Program Modeling (IPM) components.
- **View > Flight List** - Opens the Flight List for a selected data set.

3. Reports Menu

Under the Reports Menu, there are eight Counts Lists:

- **Counts > By Demand** - Displays arrival demand in 15-minute interval flight counts and totals the flight count for each hour. This is a quick way to check the arrival demand for each hour.
- **Counts > By Center** - Provides flight counts according to departure centers. There are 27 centers and “ZZZ,” which includes any center that is not part of the initial 27. Again, in Monitored Live mode, FSM bases these counts on flights’ ETA times, as displayed in the FSM Time Line.
- **Counts > By Aircraft Category** - Displays a count list based on the aircraft category. This Count List incorporates the same classifications for aircraft category as in the FSM Color By Aircraft Category option. ETMS classifies flights according to the aircraft type as specified by the flight plan or CDM message.
- **Counts > By Aircraft Class** - Provides flight counts according to the aircraft weight. This Count List incorporates the same classifications for aircraft weight as FSM’s Color By Aircraft Class menu option.
- **Counts > By Arrival Fix** - Provides flight counts according to the arrival fix at which each flight is arriving for the monitored airport. Arrival fix names for each airport vary. FSM automatically generates the correct Arrival Fix names for the monitored airport and uses them in the Count List headings.

Note: This report is not applicable to FEAs and FCAs.

- **Counts > By Departure Fix** - Provides flight counts according to the departure fix for which each flight is departing from the monitored airport. Departure fix names for each airport vary. FSM automatically generates the top 11 departure fixes for the monitored airport and uses them in the Count List headings. If the departure fix is other than these 11 or is unknown, FSM lists the flight under the "Other" column.

Note: This report is not applicable to FEAs and FCAs.

- **Counts > By User** - Provides a flight count according to the classification of the aircraft. Counts By User classifies flights according to their function in the NAS. There are 7 user types:

- C - Air Carriers
- T - Air Taxi
- F - Freight/Cargo Carriers
- M - Military
- G - General Aviation
- O - Other - This class includes flights that do not belong to one of the five categories listed above.
- U - Unknown-This category is for flights which may fall into a user category, but the classification for them is not known by ETMS.

- **Counts > By Unassigned Slot** - Lists all unassigned slots for each 15, 30, and 60 minute time-bin. This is a quick way to view the distribution of unassigned slots across many hours.

Under the Reports Menu, there are five Compliance reports:

- **Compliance > By CTD** - Flights included in a delay program that violate departure compliance. By default, flights that violate departure compliance are defined as flights departing more than five minutes before or five minutes after their Control Time of Departure (CTD). Any flight that has an Actual Runway Time of Departure (ARTD) of five minutes earlier or five minutes later than their CTD triggers the CTD Compliance Alarm.
- **Compliance > By ETE** - Difference between the Estimated Time En route (ETE) estimated by Enhanced Traffic Management System (ETMS) and actual flight time is greater than a specified value, but the flight status is not "cancelled."
- **Compliance > By CTA** - Flights included in a delay program that violate arrival compliance. By default, flights that violate arrival compliance are flights arriving more than five minutes before or five minutes after their CTA.
- **Compliance > Spurious Flight** - Flights submitted as FX Cancellations with no corresponding entries in the Official Airline Guide (OAG).

- **Compliance > Cancel That Flew** - Flights submitted with a “Cancelled” status that flew at a later time within the program parameters.

When one of FSM's compliance alarms is triggered for a flight, FSM generates a list of flights that have triggered an alarm. Alarms are triggered in accordance with the reasons listed above. These reports update automatically with every ADL for all airports for which FSM collects data.

Note: For airports, flights arriving only at the active monitored airport are in these reports. For FEAs and FCAs, flights controlled only by the element being monitored are in these reports.

There are two Delay Histograms on the Reports menu:

- **Delay Histograms> Program Delay** - Program delay is the amount of delay that non-cancelled, non-active, controlled flights receive due to a TMI. Program delay is calculated using Max (0, [CTA - BETA]).
- **Delay Histograms> Absolute Delay** - Absolute delay is the total amount of delay that non-cancelled flights have received. This includes delays assigned by the National Airspace System (NAS), Air Traffic Control (ATC), and airline delay. Absolute delay is calculated using Max (0, [ETA - (IGTA - Taxi)]).

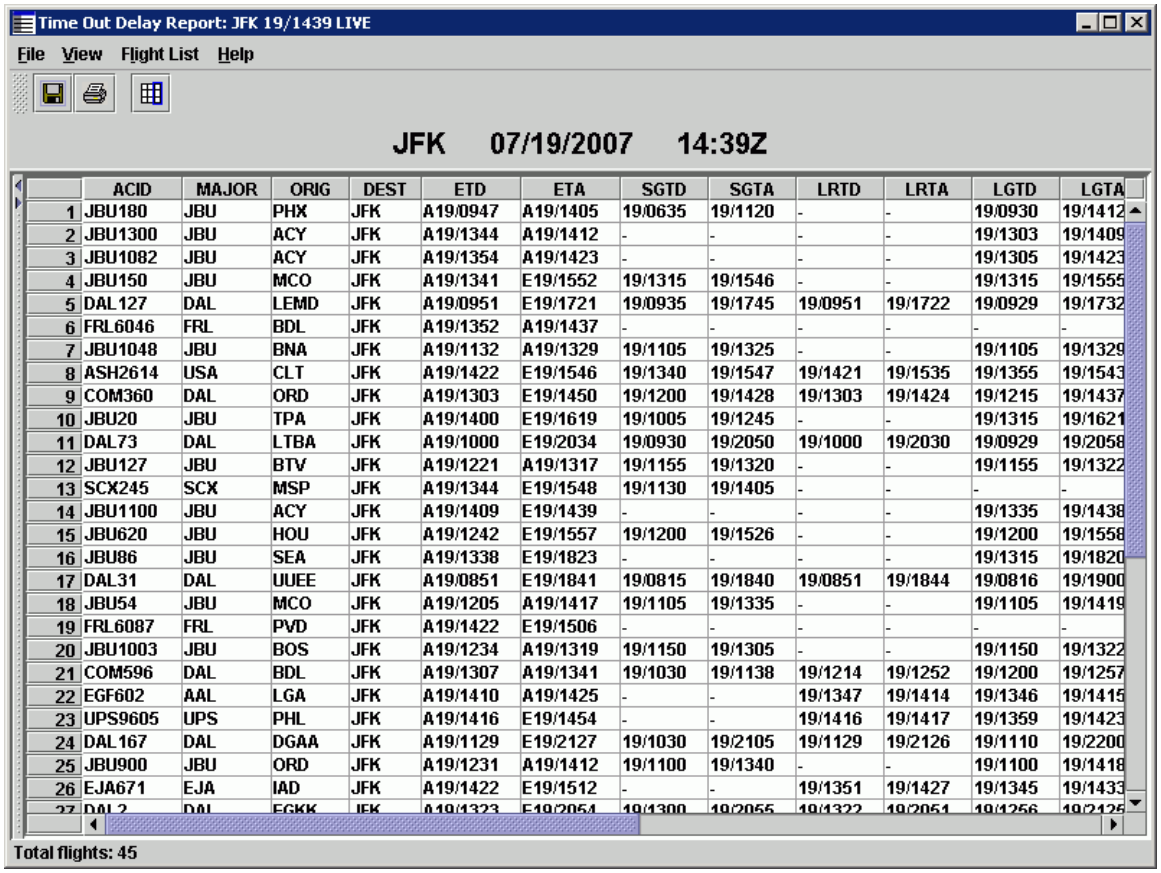
Note: For FEAs and FCAs, only flights controlled by the element being monitored are displayed in the Delay Histograms.

Under the Reports Menu, there are eight additional reports:

Note: For FEAs and FCAs, only flights controlled by the element being monitored are in these reports.

- **Reports > Surface Delay** - This report list can help determine which flights have been in Time Out Delay.
- **Reports > Priority Flights** - This report is similar to an FSM Flight List, but lists flights specifically tagged as Lifeguard (LFG) or Diversion Recovery (DVT) flights.
- **Reports > Time Out Delay** - This report quickly provides a picture for you of which flights from your operation are contributing to the Time Out delay problem. Easier access to this information should help you assess and resolve the problem. The format of this report is the same as the FSM Flight Lists which include all flights with a delay status marked as `TO’ (Time Out). In the Time Out Delayed Flight List, All the TOD column checkboxes are marked, indicating that all flights on the list are Time Out Delayed (see Figure 3 - 2).

Note: When you initially open a Flight List, you may need to reposition the ADL data columns for easier viewing.



	ACID	MAJOR	ORIG	DEST	ETD	ETA	SGTD	SGTA	LRTD	LRTA	LGTD	LGTA
1	JBU180	JBU	PHX	JFK	A19/0947	A19/1405	19/0635	19/1120	-	-	19/0930	19/1412
2	JBU1300	JBU	ACY	JFK	A19/1344	A19/1412	-	-	-	-	19/1303	19/1409
3	JBU1082	JBU	ACY	JFK	A19/1354	A19/1423	-	-	-	-	19/1305	19/1423
4	JBU150	JBU	MCO	JFK	A19/1341	E19/1552	19/1315	19/1546	-	-	19/1315	19/1555
5	DAL127	DAL	LEMD	JFK	A19/0951	E19/1721	19/0935	19/1745	19/0951	19/1722	19/0929	19/1732
6	FRL6046	FRL	BDL	JFK	A19/1352	A19/1437	-	-	-	-	-	-
7	JBU1048	JBU	BNA	JFK	A19/1132	A19/1329	19/1105	19/1325	-	-	19/1105	19/1329
8	ASH2614	USA	CLT	JFK	A19/1422	E19/1546	19/1340	19/1547	19/1421	19/1535	19/1355	19/1543
9	COM360	DAL	ORD	JFK	A19/1303	E19/1450	19/1200	19/1428	19/1303	19/1424	19/1215	19/1437
10	JBU20	JBU	TPA	JFK	A19/1400	E19/1619	19/1005	19/1245	-	-	19/1315	19/1621
11	DAL73	DAL	LTBA	JFK	A19/1000	E19/2034	19/0930	19/2050	19/1000	19/2030	19/0929	19/2058
12	JBU127	JBU	BTV	JFK	A19/1221	A19/1317	19/1155	19/1320	-	-	19/1155	19/1322
13	SCX245	SCX	MSP	JFK	A19/1344	E19/1548	19/1130	19/1405	-	-	-	-
14	JBU1100	JBU	ACY	JFK	A19/1409	E19/1439	-	-	-	-	19/1335	19/1438
15	JBU620	JBU	HOU	JFK	A19/1242	E19/1557	19/1200	19/1526	-	-	19/1200	19/1558
16	JBU86	JBU	SEA	JFK	A19/1338	E19/1823	-	-	-	-	19/1315	19/1820
17	DAL31	DAL	UUEE	JFK	A19/0851	E19/1841	19/0815	19/1840	19/0851	19/1844	19/0816	19/1900
18	JBU54	JBU	MCO	JFK	A19/1205	A19/1417	19/1105	19/1335	-	-	19/1105	19/1419
19	FRL6087	FRL	PVD	JFK	A19/1422	E19/1506	-	-	-	-	-	-
20	JBU1003	JBU	BOS	JFK	A19/1234	A19/1319	19/1150	19/1305	-	-	19/1150	19/1322
21	COM596	DAL	BDL	JFK	A19/1307	A19/1341	19/1030	19/1138	19/1214	19/1252	19/1200	19/1257
22	EGF602	AAL	LGA	JFK	A19/1410	A19/1425	-	-	19/1347	19/1414	19/1346	19/1415
23	UPS9605	UPS	PHL	JFK	A19/1416	E19/1454	-	-	19/1416	19/1417	19/1359	19/1423
24	DAL167	DAL	DGAA	JFK	A19/1129	E19/2127	19/1030	19/2105	19/1129	19/2126	19/1110	19/2200
25	JBU900	JBU	ORD	JFK	A19/1231	A19/1412	19/1100	19/1340	-	-	19/1100	19/1418
26	EJA671	EJA	IAD	JFK	A19/1422	E19/1512	-	-	19/1351	19/1427	19/1345	19/1433
27	DAL2	DAL	EGKK	JFK	A19/1323	E19/2054	19/1300	19/2055	19/1322	19/2051	19/1256	19/2125

Figure 3 - 2: Time Out Delayed Flight List

- **Reports > Time Out Cancel** - This report quickly provides a picture of which flights from the operation are contributing to the Time Out Cancel problem. Easier access to this information should help you review and resolve the problem. This report is in the same format as the FSM Flight Lists and includes all flights with cancellation status of 'TO.'
- **Reports > Slot Hold** - This report is similar to an FSM Flight List, but only lists flights with their slot hold flag set to Y.
- **Reports > Sub Opportunities** - Provides a flight list to assist airlines and general aviation customers in identifying subbing opportunities.

There are two Slot List reports:

- **Reports > Slot List > By Carrier**- Provides a slot list for a specified airport or an airline and its sub-carriers at a specified airport in the exact format that goes to the airlines.
- **Reports > Slot List > By Center**- Opens a Slot List By Center dialog that allows you to select available Centers to generate a slot list for the specified Centers.
- **Reports > Carrier Statistics** - Opens a report displaying delay statistics for all carriers with flights operating at the specified airport. Only flights with arrival

slots are calculated in the report metrics. That is, flights with a CTA are displayed in the carrier statistics. If a carrier operates at the airport, but has no flights with a CTA, the Carrier Statistics report displays “0” or “N/A” in those rows. You can select the type of delay to view in the report by clicking **ABS Delay** (absolute delay) or **Program Delay** (delay imposed only by the FAA) at the top of the report.

- **Reports > Uncontrolled Drop Out** - This report is similar to an FSM Flight List, but only lists flights that have rerouted out of the currently viewed data set. The flights in the Uncontrolled Drop Out report are colored salmon under the Time Line’s CNX/[DO] column.

For more information on *Reports* see Chapter 21: Understanding and Using FSM Reports.

4. Alerts Menu

   FSM uses the **Alerts** option to notify you when new parameters are available for any data set you are currently monitoring. The **Alerts** menu option, data set, and associated parameters are highlighted in red when FSM receives new or unviewed parameters for airports or FCAs currently being monitored. The Alerts menu remains highlighted in red until you view all updated parameters or until you select **Acknowledge All Alerts**. Even if an Alert is no longer highlighted in red, the alert information opens as usual when you select the Alert.

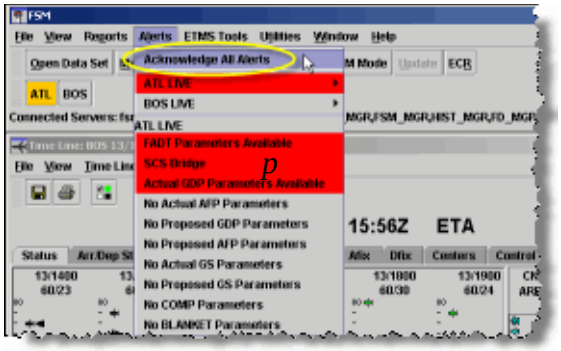


Figure 3 - 3: Acknowledge All Alerts

FEAs cannot have an AFP issued for them, so the Alerts menu options for an FEA are disabled. If you monitor more than one data set, the Alerts information for the current data set is displayed below the menu list of the other data sets being monitored. If no parameters are available for a parameter type, the word NO displays next to the parameter type.

Note: If you select an airport with the letters GDP following the airport name in the Open Data Set window, the Control Panel Alerts menu is highlighted in red for that airport. Likewise, if you select a FCA with the letters AFP following the FCA name, the Control Panel Alerts menu is highlighted in red for that FCA.

- **Alerts>Acknowledge All Alerts** - A confirmation box displays notifying you that the red background coloring will be cleared from all Alerts, but the alerts

information is still available for viewing. Click **OK** to close the confirmation box and remove the red background color from all active alerts. Clicking **Cancel** closes the confirmation box, but performs no action to the Alerts menu coloring.

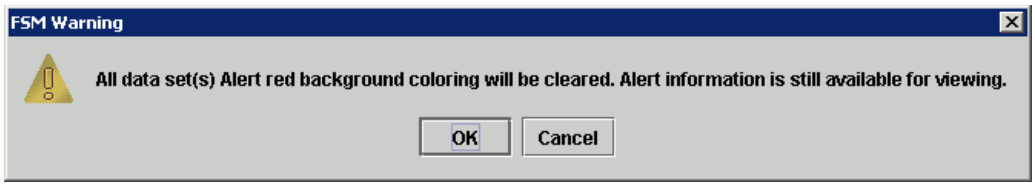


Figure 3 - 4: Acknowledge All Alerts confirmation box

- **Alerts > FADT Parameters Available** - This alert does not actually give you program parameters. However, you can view a listing of all the FADTs generated during each TMI, if available. FADTs are reports generated when you run a GDP, AFP, GS, Blanket or Compression operation. FSM lists FADTs in chronological order.
- **Alerts > SCS Bridge** - This alert indicates when a new substitution status update occurs. Selecting SCS Bridge displays the current subbing status and may contain the following keywords:

- SUBS: Indicates whether all substitutions are enabled (ON) or disabled (OFF).
- SCS: Indicates whether slot credit substitutions for all operators are enabled (ON) or disabled (OFF).
- ADPT: Indicates whether adaptive compression is enabled (ON) or disabled (OFF).
- BRIDGING: Indicates whether bridging subs are disabled (OFF) for a particular operator (airline name, GA, or MILITARY). If bridging is off for an airline, any flight which has a MAJOR field or carrier code (from ACID) that matches the airline name is not used for an SCS bridge. If bridging is enabled (ON) for an operator, no line displays, in other words, the only allowed value for this keyword is OFF.

- **Alerts > Actual GDP Parameters** - This alert occurs when FSM receives actual GDP Parameters through the ADL. First-time GDP Parameters, new GDP Parameters, and deleted GDP Parameters trigger this Alert. Select this to view these parameters in a static window.
- **Alerts > Actual AFP Parameters** - This alert occurs when FSM receives actual AFP Parameters through the ADL. First-time AFP Parameters, new AFP Parameters, and deleted AFP Parameters trigger this Alert. Select this to view these parameters in a static window.
- **Alerts > Proposed GDP Parameters**- This alert turns red when parameters for a Proposed GDP arrive through the ADL. Select this to view these parameters in a static window.

- **Alerts > Proposed AFP Parameters**- This alert occurs when FSM receives proposed AFP parameters through the ADL. Select this to view these parameters in a static window.
- **Alerts > Actual GS Parameters** - This alert turns red when a Ground Stop (GS) is issued and FSM receives its parameters through the ADL. First-time GS Parameters, new GS Parameters and deleted GS parameters, all trigger this Alert. Select this to view the parameters in a static window.
- **Alerts > Proposed GS Parameters-**This alert turns red when FSM receives a proposed GS. Select this to view the parameters in a static window.

Note: GS parameters are not applicable to FCAs.

- **Alerts > COMP Parameters -** This alert turns red when FSM receives parameters for the compression function through the ADL. Select this to view the new parameters in a static window.
- **Alerts > BLANKET Parameters** - This alert turns red when FSM receives parameters for a Blanket function through the ADL. Select this to view the new parameters in a static window.

Note: Blanket parameters are not applicable to FCAs.

5. ETMS Tools

The **ETMS Tools** dropdown menu contains seven core options: EDCT Commands, Command Line, Weather Request, ADL Request, ADL AAR/ADR, and Delete Proposed Parameters.

Note: *Only traffic management specialists at the Air Traffic Control Systems Command Center (ATCSCC) have access to the ETMS Tools menu.*

- **ETMS Tools > EDCT Commands** options:

- **> EDCT CHECK** - Displays the current status of a single flight controlled by an EDCT program. When you issue this command, you get a one-line response showing the controlled departure time and whether the ETMS has issued a Control Time (CT) message to implement the control for this flight.
- **> EDCT HOLD** - Holds all slots in a GDP or AFP for all flights or only the flights belonging to a specified airline and its sub-carriers at a specified Airport or Airspace data set.
- **> EDCT LIST** - Creates a report containing a list of all data sets currently controlled by EDCT programs.
- **> EDCT LOG** - Creates a report of all EDCT files, cancellation messages, Simplified Substitution (SS) processing messages, and EDCT updates processed by the system in the order they were received.

- **> EDCT PURGE** - Purges EDCT flight controls for a specified Airport or Airspace data set or for all data sets.
- **> EDCT RELEASE** - Releases all slots in a GDP or AFP for all flights or only the flights belonging to a specified airline and its sub-carriers at a specified data set.
- **> EDCT SCS OFF** - Suspends slot credit substituting for flights controlled by EDCT programs at a specified data set or at all data sets. To allow slot credit processing after suspending slot credit substituting, you must activate processing with the **EDCT SCS ON** command.
- **> EDCT SCS ON** - Allows slot credit substituting for flights controlled by EDCT programs at a specified data set or at all data sets. To prohibit slot credit substituting, you must suspend processing with the **EDCT SCS OFF** command.
- **> EDCT SHOW** - Creates a report that contains detailed information on all flights controlled by EDCT programs for a specified data set, or for all data sets.
- **> EDCT SLIST** - Provides a slot list (using the same format that goes to the airlines) for a specified airport or an airline and its sub-carriers at a specified data set.
- **> EDCT SUB OFF** - Suspends Substitution processing (SI) messages for flights controlled by EDCT programs at a specified data set or at all data sets.
- **> EDCT SUB ON** - Allows Substitution processing (SI) for any flights controlled by EDCT programs at a specified data set or at all data sets where substitution processing was previously suspended.
- **> EDCT AC OFF** - Allows users to turn Adaptive Compression off by entering the airport or FCA name, or ALL into the dialog box. *Only Computer System Analysts (CSA) at the ATCSCC can use this command.*
- **> EDCT AC ON** - Allows users to turn Adaptive Compression on by entering the airport, FCA name, or ALL into the dialog box. *Only CSA at the ATCSCC can use this command.*
- **> EDCT SUB SHOW** - Generates a report that shows the status of simplified substitution processing (SS) messages for all data sets.
- **> EDCT UPDATE** - Allows you to update a controlled flight with new departure and arrival times. After you issue this command, you get a one-line response stating that the update was successful.
- **> EDCT REMOVE** - Allows you to remove flights from the ETMS database, as if they never existed. Using this command can eliminate a duplicate flight or remove a specific incorrect flight. *Only CSA at the ATCSCC can use this command.*
- **> EDCT RESTORE** - Allows you to “undo” the effects of the Remove command. It allows some or all of the flights that you did not want to remove

from the database to be restored. *Only CSA at the ATCSCC can use this command.*

- **> EDCT UNASSIGNED SLOTS** - Allows you to request, by airport identifier, an updated unassigned slots list generated by the hub site.

- **ETMS Tools > Command Line** - Displays a dialog box which allows the user to enter any EDCT FAA commands.
- **ETMS Tools > Weather Request** - Allows you to request current airport weather (METAR and TAF) for one or more airports (use the three letter airport identifiers separated by commas or spaces).

Note: Weather Request is not applicable to FCAs and FEAs.

- **ETMS Tools > ADL Request** - Allows you to request a new ADL generated from the hub site for a particular data set.
- **ETMS Tools > ADL AAR/ADR > Modify AAR/ADR -** Allows you to modify ADL Arrival Rates/ADL Departure Rates including the ability to assign several different Airport Arrival Rates (AARs)/Airport Departure Rates (ADRs) within the same hour (see Figure 3 - 5).

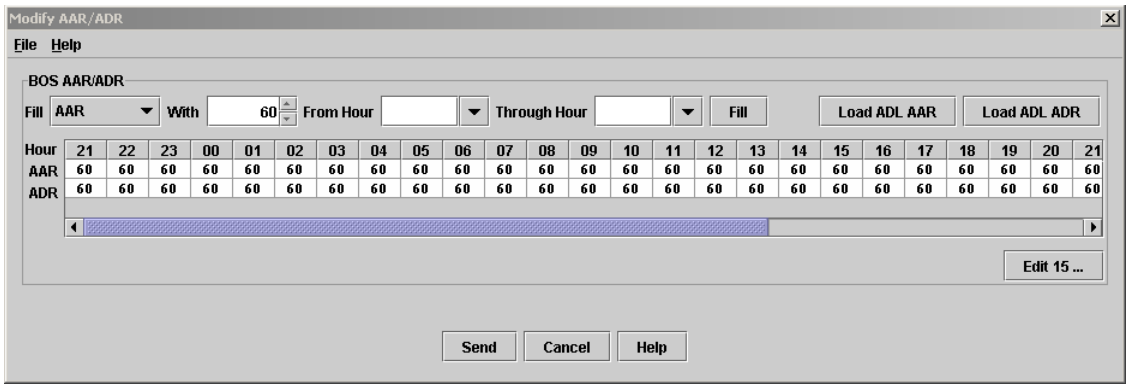


Figure 3 - 5: Modify AAR/ADR Window

In Monitored Live mode:

- Click **Send** to reset AAR/ADR values to the default setting and send the information to ETMS. The reset AAR/ADR is reflected in the next ADL update.
- Click **Cancel** to close the Reset AAR/ADR window without taking any actions.
- Click **Help** to display a pop-up screen with additional information on the **Send** and **Cancel** buttons.

- **ETMS Tools > ADL AAR/ADR > Reset AAR** - Resets the Arrival Rate to the ETMS default arrival rate (see Figure 3 - 6).
- **ETMS Tools > ADL AAR/ADR > Reset ADR** - Resets the Departure Rate to the ETMS default departure rate.

Note: ADL ADR is not applicable to FCAs and FEAs since departure rates do not apply to airspace data sets.

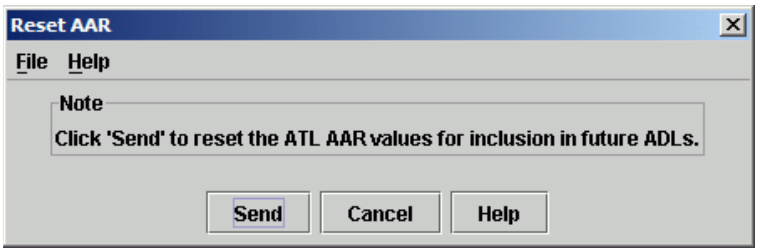


Figure 3 - 6: Reset AAR Window

Note: When in Historical Mode, clicking **Send** resets the historical data to the first ADL update time.

Reset AAR/ADR Window Menu items:

- **File > Print** - Prints the AAR/ADR window data.
- **File > Close** - Closes the Reset AAR/ADR window.
- **Help > Demand Rates** - Opens the on-line help information specific to the modifying demand rates.

- **ETMS Tools > Delete Proposed Parameters** - Opens the Delete Proposed Parameters dialog box (see Figure 3 - 7). Select the airport or FCA for which you want to delete parameters from the For Data Set drop down menu.

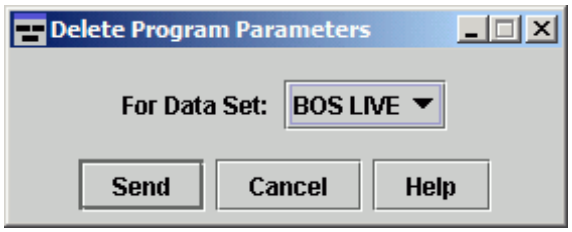


Figure 3 - 7: Delete Proposed Parameters Window

6. Utilities Menu

- **Utilities > Query Manager** - Opens the Query Manager component.
- **Utilities > Search By Callsign -** Opens the Search By Callsign window.
- **Utilities > Model Program Rate > Specify** - Opens the Specify Model Program Rate window allowing you to specify the Model Program Rate and the ability to model several different Program Rates within the same hour. You must select **View > The Model Program Rate** on the Bar Graph to view the modeled rate.
- **Utilities > Model Program Rate > Reset -** Resets the model Arrival Rate to equal the current ADL AAR.

- **Utilities > View File** - This option allows you to view previously saved Analysis Reports, Coversheets, and Flight Data (see Figure 3 - 8).

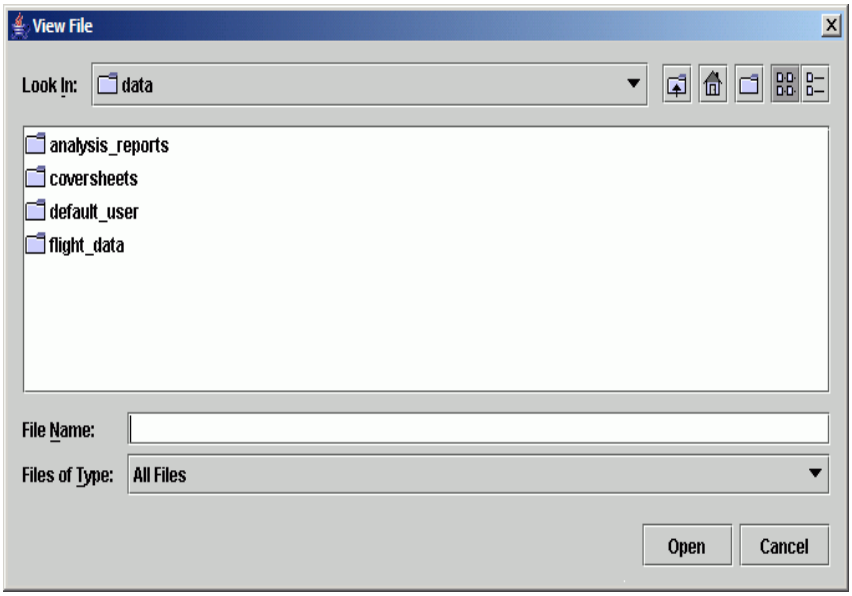


Figure 3 - 8: View File Window

- **Utilities > Set Time** - Allows you to set a specified time for Historical data sets only (see Figure 3 - 9). Disabled for all Monitored Live and GDT data sets.

Figure 3 - 9: Set Time Dialog Box

- **Utilities > Update** - Updates the active historical mode components with the next historical ADL file. Disabled for all Monitored Live and GDT data sets.
- **Utilities > ECR** - Opens the ECR component to update a controlled flight's control times. Disabled for all Historical and GDT data sets.

Note: ECR is only available in Live mode for data sets with active TMIs.

7. Window Menu
   - **Window > Hide All Windows** - Hides all open FSM components.
   - **Window > Hide All Iconified Windows** - Hides all FSM iconified bars displayed in the Task bar.
   - **Window > (airport, FCA, FEA, or User Defined Group (UDG) abbreviation) LIVE, (airport, FCA, FEA or UDG abbreviation) yyyy/mm/dd GDT, or (airport,**

FCA, FEA, or UDG abbreviation) yyyy/mm/dd HIST - Click the data mode and airport, FEA, FCA, or UDG selection to open the active components for that airport, FEA, FCA, or UDG. Each component displays under the Window menu. Select a checkbox to display and bring to the front of your monitor the subsequent airport component. Selections are consecutively numbered in the order they were opened.

8. Help Menu

- **Help > FSM** - Opens the FSM on-line help.
- **Help > ADL Data Elements** - Opens the ADL Data Elements page from the FSM on-line help.
- **Help > Show Configuration** - Displays current FSM configuration in use (see Figure 3 - 10).

Figure 3 - 10: Configuration Setting Window

- **Help > About FSM** - Displays information about the FSM version running including the FSM Version and Copyright Information - The version of FSM currently running (e.g., FSM 8.90), Metron Aviation, Inc. copyright notice, the software build date, and Product License information.

Control Panel Buttons

You can use the buttons from the Control Panel component to open other FSM components.

- **Open Data Set** opens the Open Data Set component in which the user may select various operating modes and Available Airports or FEAs/FCAs. See Open Data Set component overview for more detail.
- **Map** opens the Map Component, which displays airports and regions currently being monitored and their status in their respective geographical locations. See Map Component for more detail.
- **Search By Callsign** opens the Search By Callsign component, which allows you to find a particular flight by entering the flight's call sign and origin airport.
- **GDT Mode** opens four GDT components: GDT Setup, GDT Map, GDT Bar Graph, and GDT Data Graph components. An airport, FEA, or FCA must already be opened to enable the GDT Mode button. If there is no data set selected, clicking **GDT Mode** causes an error message to display by default. See Chapter 4: Opening FSM for detailed information on Ground Delay Tool Components.
- **IPM Mode** opens two IPM components: Scenario Manager and Multi Graph. See Chapter 3: Scenario Manager Component and Chapter 3: Multi Graph Component for detailed information.
- **Update** allows you to update the Time Line and Bar Graph with the next ADL update only in Historical Mode. You must open an airport, FEA, or FCA in Historical Mode to enable the **Update** button.
- **ECR** opens the ECR components. Use ECR to update EDCTs for flights arriving into a controlled airport or at a controlled FCA. The **ECR** button is enabled only if *actual* GS, GDP, or AFP parameters are in place for the active data set. See Chapter 14: EDCT Change Request (ECR)for detailed information on the ECR component functionality.

  Note: The ECR option is enabled for Airports or FCAs only when an active TMI is in place.

Open Data Set Component

Clicking **Open Data Set** on the Control Panel opens the Open Data Set component. This component allows you to choose an FSM data mode and data set for monitoring and managing air traffic flow. A *data mode* is the type of data you want to use: historical or live. Live data is fed from ETMS to the FSM client on a real-time basis, while historical data is archived data that FSM can pull to allow you to review air traffic events in the past. A *data set* is the airport, FEA, or FCA and the components you would like to use to display.

- Monitored Live - Monitored Live mode provides a list of airports, FEAs, and FCAs currently monitored by the FSM server and readily available for viewing by the user. This data mode runs real-time data and receives ADL updates every five minutes while running FSM.
- Historical - This data mode uses historical data that has been stored by your FSM server database. Historical data is available for recall to analyze scenarios or replay a day's air traffic events.

- All Live - All Live provides a list of airports, FEAs, and FCAs that you can view (not currently being monitored by the server, but available).
- Active Historical - The Active Historical tab provides a list of historical data currently opened and monitored by the user.

Note: All times displayed in and used by FSM are Zulu times unless otherwise specified.

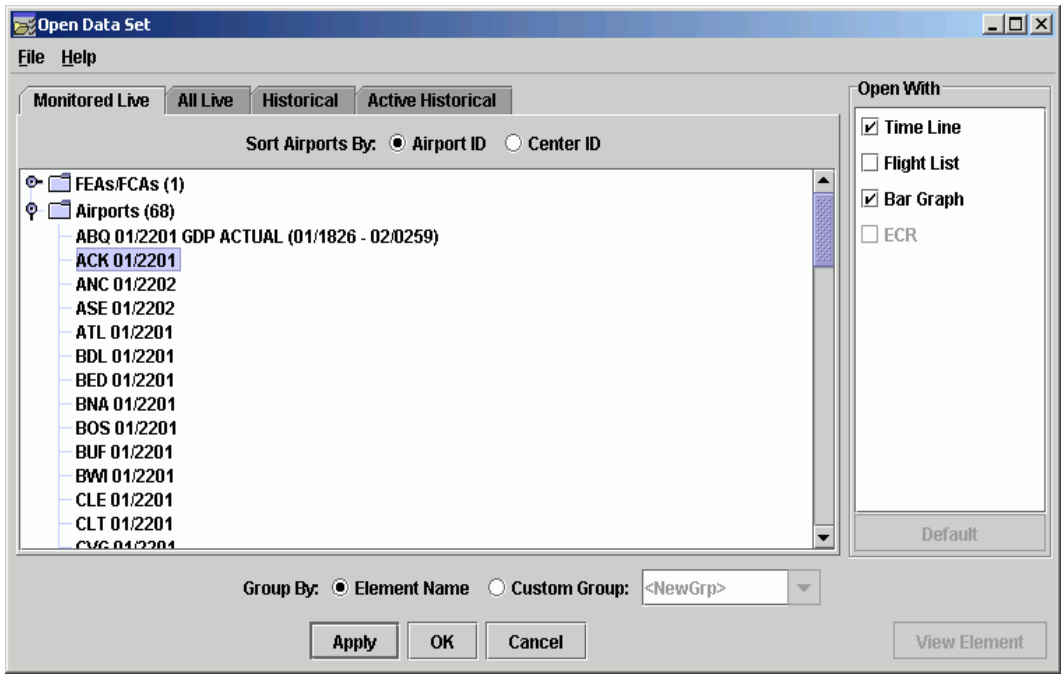


Figure 3 - 11: Open Data Set Component

Open Data Set Menu Bar

The Menu Bar in the Open Data Set component contains two options: File and Help.

- **File > Close** - Closes the Open Data Set component.
- **Help > Open Data Set** - Opens the on-line help for the Open Data Set component.

Sort Airports By Options

The Monitor Live and All Live tabs of the Open Data Set component allow selectable sorting of available airports by the following methods:

- ***Airport ID***
- ***Controlling Center ID***

The sorting options are displayed at the top of the Monitored Live and All Live tabs in the Sort Airports By: section.

When you select the ***Airport ID*** radio button, the Open Data Set component lists the Airport IDs sorted according to the alphabet. This means numbers are listed on top before the “A” airports. Sorting by Airport ID is the default when you first start FSM.

When you select the ***Center ID*** radio button, the Open Data Set component lists the Center IDs in a tree structure with each node representing a specific Center ID. If an airport or airports within a Center ID has a program, the count and type (either Actual or Proposed) of program displays next to the Center ID. The Open Data Set component lists the Center IDs alphabetically in the following order:

1. US, Mexican, and European Centers (Centers starting with letter Z)
2. Canadian Centers (Centers starting with letter C)

By default, the Center ID trees are collapsed. The Airport ID displays alphabetically within its controlling Center ID when you expand a Center ID. Center IDs without any applicable airports are hidden.

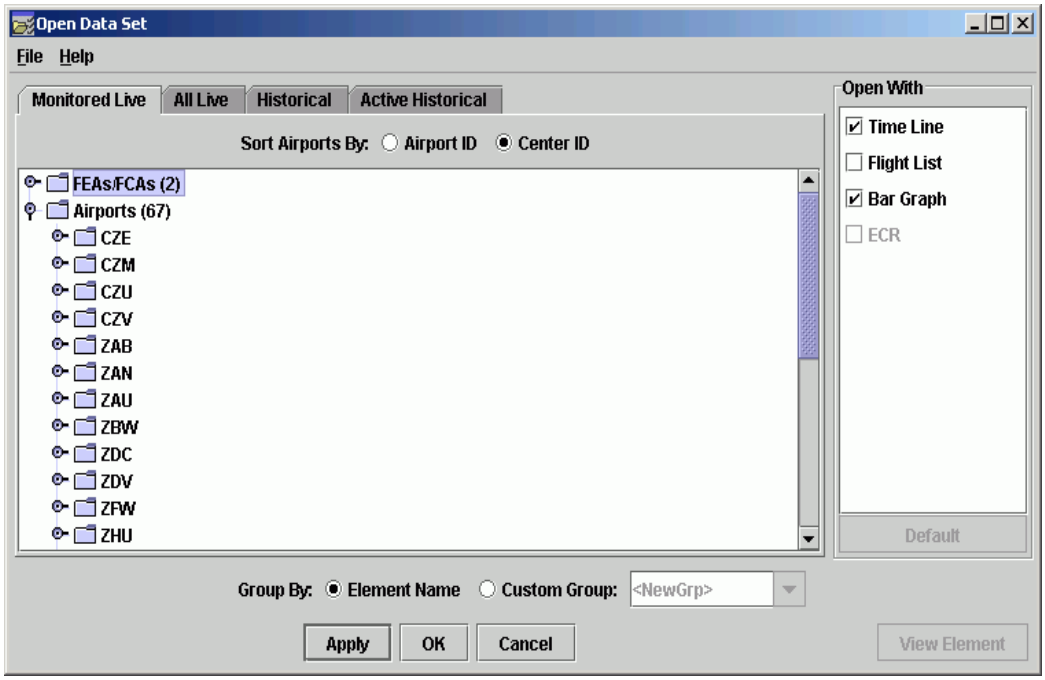


Figure 3 - 12: Open Data Set Component Sorted By Center

Group By Options

The Group By section allows you to create User Defined Groups (UDGs). The default selection is ***Element Name*** which causes data sets to open by element (airport, FCA, FEA). If you select ***Custom Group***, you can create your own UDG with components from various airports, FEAs, FCAs, and data modes. For more information, see Chapter 4: Opening FSM.

Open With Options

The *Open With* portion of the Open Data Set component contains four component options with which to open and view an airport, FEA, or FCA:

- Time Line - opens the Time Line component of the selected data set, displaying regular Time Line options for each data set.
- Flight List - opens the Flight List component of the selected data set.

- Bar Graph - opens the Bar Graph component of the selected data set.
- ECR - opens the ECR component of the selected Monitored Live data set if a program is in place.

  Note: ECR cannot be opened for an uncontrolled data set.

Select the components you want to open for a selected airport, FEA, or FCA by placing a checkmark in the associated checkbox of the Open With section (see Figure 3 - 13). If you do not make any changes in the Open With section, the Time Line and Bar Graph components for the selected airport, FEA, or FCA open by default. If you do make changes, you can return to the default settings by clicking **Default**.

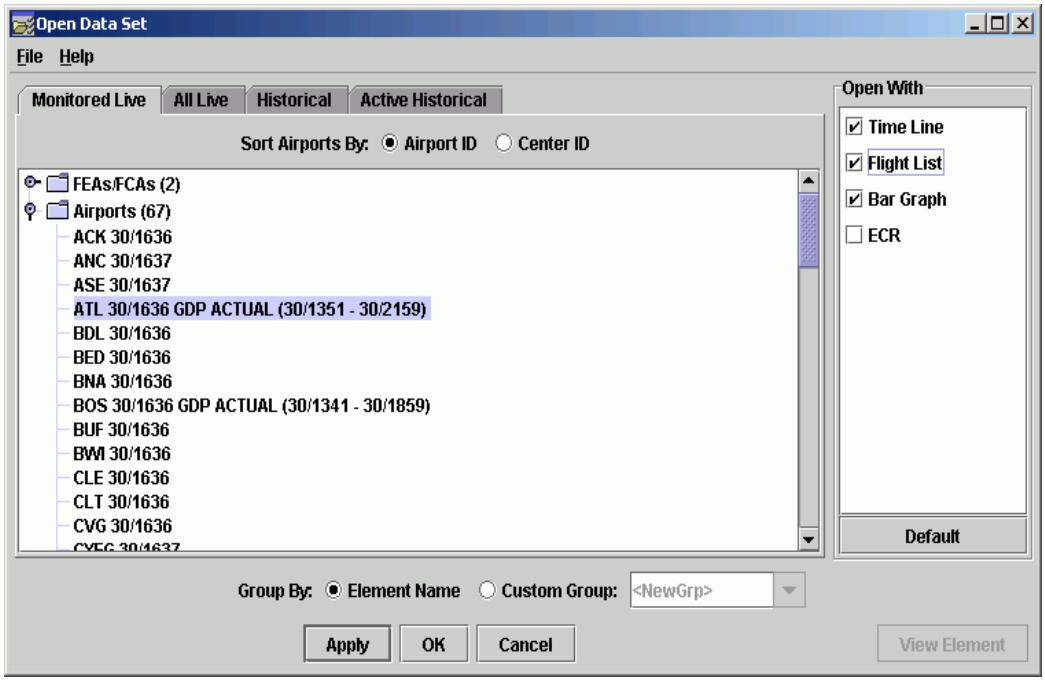


Figure 3 - 13: Open With Component Selection

Open Data Set Tab Options

The Tab Options in the Open Data Set window consist of four tab selections, Monitored Live, All Live, Historical, and Active Historical.

1. Monitored Live Tab

   The Monitored Live tab provides a list of airports, FEAs, and FCAs currently monitored by the FSM server and readily available for you to view. GDP Proposed, GDP Actual, GS Proposed, or GS Actual along with the program times are displayed next to airports with a TMI in place. AFP Actual or AFP Proposed along with the program times displays next to FCAs with an AFP in place. Select the desired data set by clicking the information in the scrolling area of the window. See Chapter 4: Opening FSM, for more information on using the Open Data Set component. In the following example, PHX airport, has a GDP in place, with the

Time Line and Bar Graph selected; this opens the Time Line and Bar Graph components for PHX in Monitored Live mode (see Figure 3 - 14).

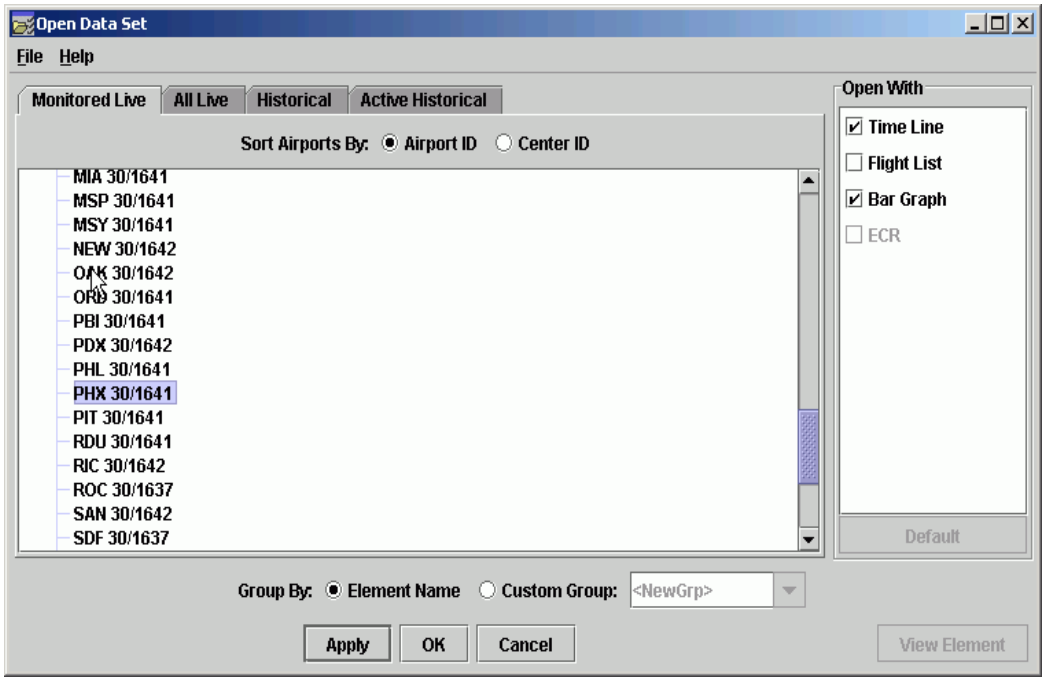


Figure 3 - 14: Open Data Set - Monitored Live Tab

2. All Live Tab

   The All Live tab provides a list of airports, FEAs, and FCAs that you can view. When you select an airport, FEA, or FCA data set from the All Live tab, it initially takes slightly longer to open than from the Monitored Live tab. When selected, the 3-letter code for the airport, FEA, or FCA is highlighted in light purple.

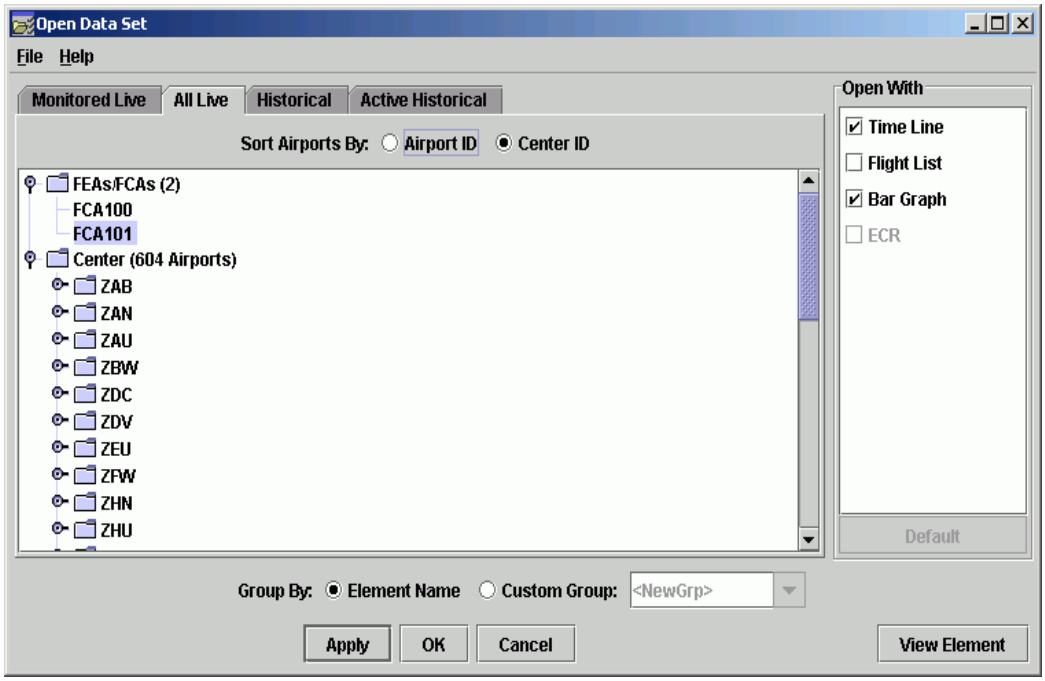


Figure 3 - 15: Open Data Set - All Live Tab

3. Historical Tab

   This Historical Tab display provides you with the available historical data archived in FSM. You can select your historical data by drilling down from the server from which you want to pull data. FSM arranges the drill down order by Server>Year>Month>Day>Airport or FEA/FCA (see Figure 3 - 16).

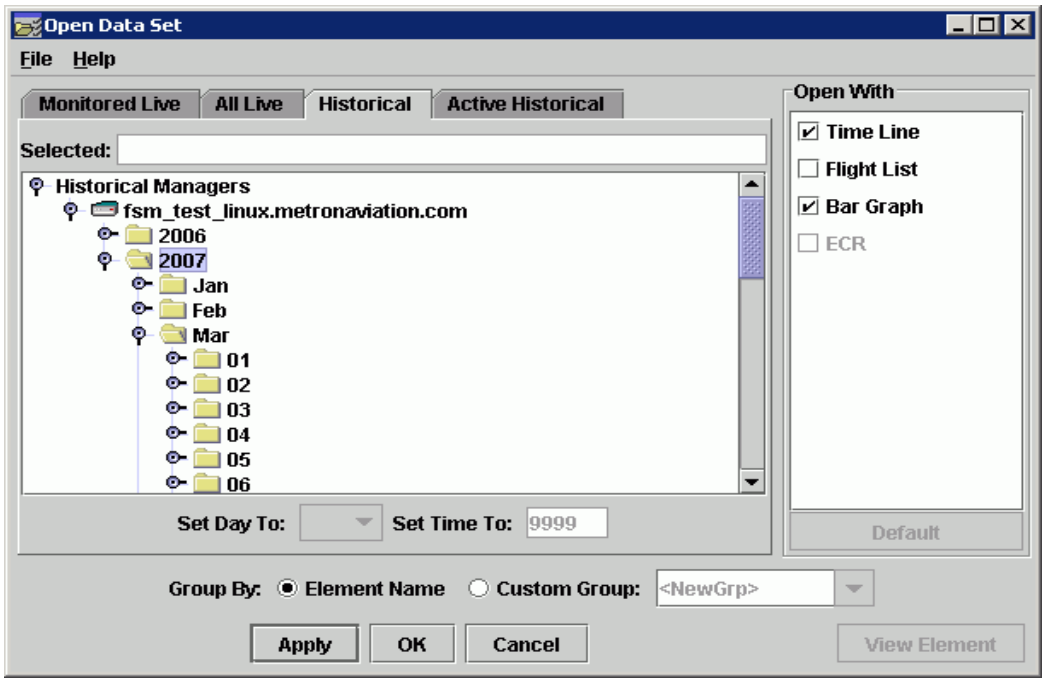


Figure 3 - 16: Open Data Set - Historical Tab

Note: If the FSM Client is connected to two servers, both servers are displayed.

4. Active Historical Tab

   The Active Historical tab provides a list of airports, FEAs, and FCAs currently open in Historical Mode. You can open additional components or toggle from one historical data set to another from this tab.

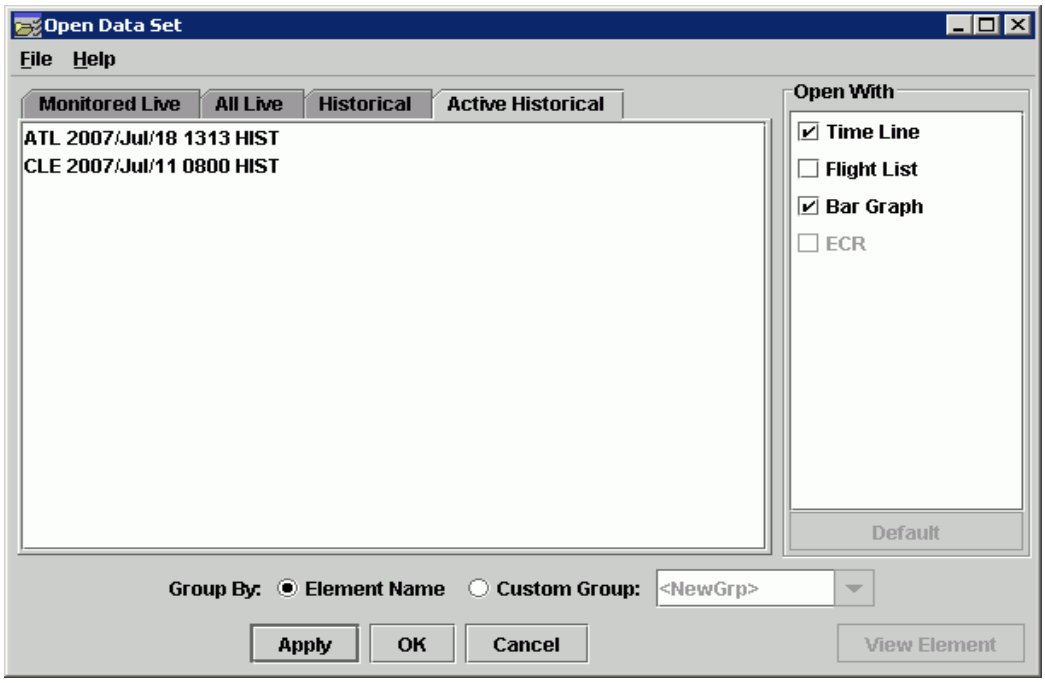


Figure 3 - 17: Open Data Set - Active Historical Tab

Note: All times displayed in and used by FSM are Zulu times unless otherwise specified.

Open Data Set Buttons

The Open Data Set component has three action buttons that are active by default (Apply, OK, and Cancel). Two others button become active depending on what type of data set you are viewing (View Element) or whether you change the default settings in the Open With section (Default).

1. **Apply** keeps the Open Data Set component active in addition to opening the selected airport components.
2. **OK** closes the Open Data Set component when opening the selected airport components.
3. **Cancel** closes the Open Data Set component without making any selections.

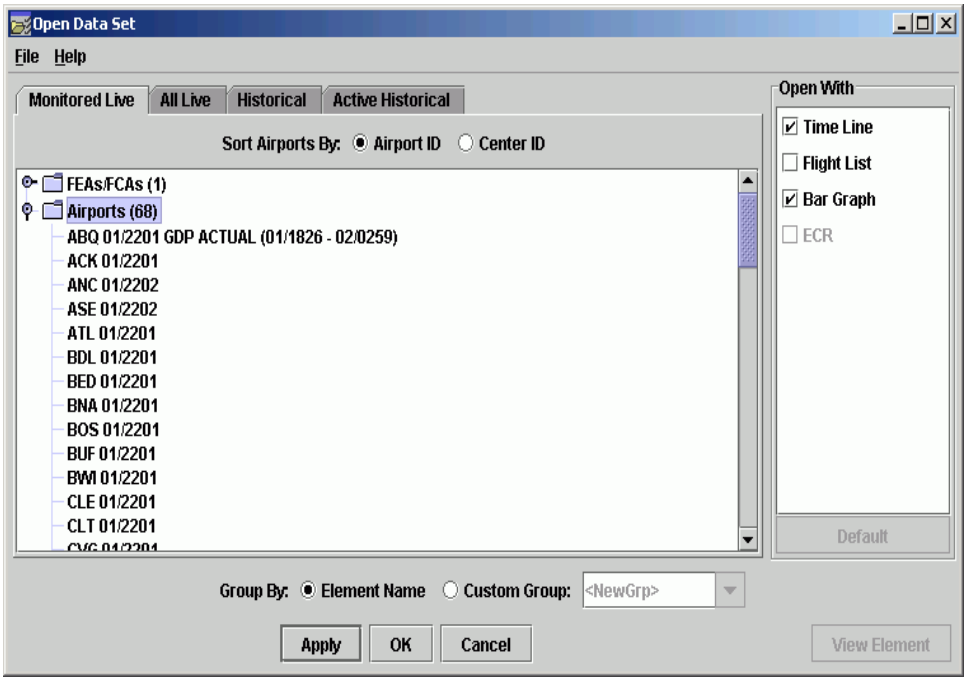


Figure 3 - 18: Open Data Set Button Option

4. **Default** returns the Open With selections to the default checked items- the ***Time Line*** and ***Bar Graph***.
5. **View Element** allows you to see the data pertaining to an FEA or FCA that FSM receives from the broadcast message or ADL for that FEA or FCA.

Map Component

You can view the Map component by clicking **Map** on the Control Panel component. The Map displays North America with an overlay of all US and Canadian centers and an outline of the 48 contiguous states, Mexican states, and Canadian Provinces. Airports, FEAs, and FCAs currently being monitored by the server are displayed on the map. The map title bar shows the total number of monitored airports, FCAs, and FEAs.

For airports, the airport three-letter identifier (US) or four-letter identifier (Canada) and a colored dot indicating the status of each airport are displayed on the map. The number of airports, FEAs, and FCAs listed on the map are displayed in the title bar-**monitored data sets: XX** where XX is the number of airports currently monitored are displayed on the map (see Figure 3 - 19). The color of the airport dots tell you the current status of that airport. For more information on airport status (see Table 3-1).

Table 3-1: Airport Status

Color	Status
Green	No Traffic Management Initiatives (TMIs) are in effect for the airport.
Red	An actual Ground Delay Program (GDP), and/or Ground Stop (GS) is in effect.

Table 3-1: (Continued)Airport Status

Color	Status
Yellow	There is either a proposed GDP or GS, or there is a proposed GDP and an actual GS.

For FEAs and FCAs, the map displays colored lateral bounds. The colors parallel the airport colors (see Table 3-2). If you left-click the bounds, the bounds turn white and the map displays the element name, and ADL time (if applicable). Left-clicking the bounds of a monitored FCA with an AFP causes the map to display the scope of the AFP.

Table 3-2: FEA/FCA Status

Color	Status
Green	No Traffic Management Initiatives (TMIs) are in effect for the airport.
Red	An actual program is in effect.
Yellow	There is either a proposed program.

You can view different projections of the map to see London, Canada, CONUS, Alaska or the Atlantic. Select **View > Projections > [projection type]** and the map redraws to show the projection you selected.

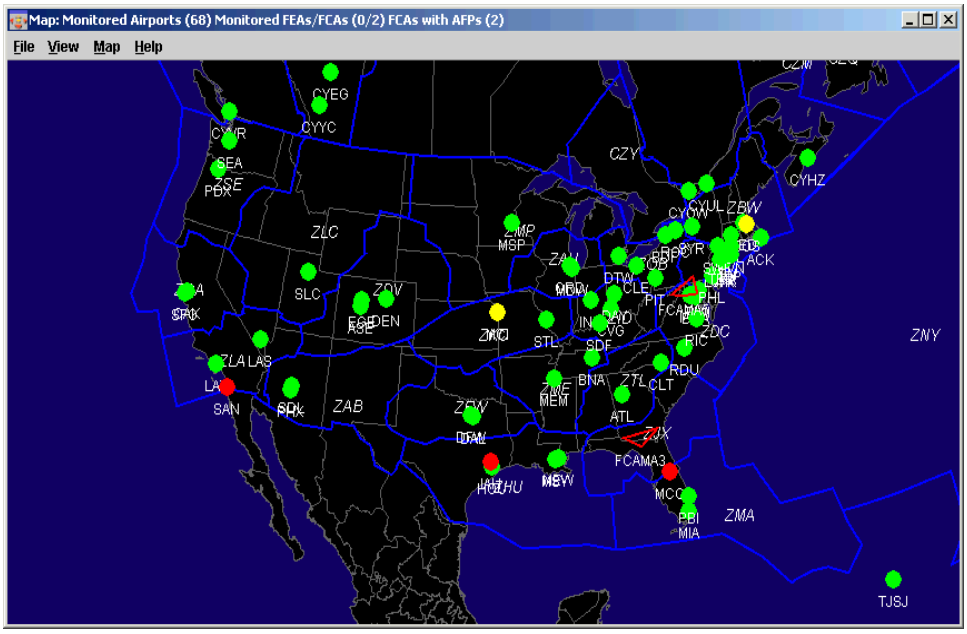


Figure 3 - 19: Map component

Map Zoom Capabilities

There are several different ways to zoom in or zoom out on the Map or GDT Map components.

1. Quick Key Method - Pressing **Z** on your keyboard incrementally *zooms in* to the center of your screen. Pressing **U** on your keyboard incrementally *zooms out* from the center of your screen. To move the center focus of your screen to another focal

point or to zoom in on a particular airport, move the cursor to the desired location and press **M** on the keyboard. Quick key **M** moves the central focus of the map to the cursor location. To zoom in or out from that point, continue to use **Z** or **U** quick keys. In addition, pressing **X** on the keyboard undoes the last command (up to 25 commands).

Table 3-3: Quick Key Commands

Quick Key	Description
M	Move
Z	Zoom In
U	Zoom Out
X	Undo Move/Zoom

2. Drag and Drop Method - To zoom out, hold down the left mouse button and drag the cursor up and left. To zoom in, hold down the left mouse button and drag any direction, besides up and left, around the area you want to zoom in on.
3. Right Click Method - After using either method listed above, right-clicking the cursor anywhere within the Map component gives you two options: Default zoom and undo zoom. Default zoom returns the Map zoom to the initial zoom setting. Undo zoom, undoes the last zoom command - same as using the **X** quick key.

   Note: The Drag and Drop Method is not precise, it is recommended that you use the Quick Key Method.

Viewing Parameters

From the Map, you can view the scope of an airport's or FCA's TMI parameters. Left-click an airport or the boundary of an FCA that has either proposed or active parameters in place and FSM displays the parameters (see Figure 3 - 20). The maroon overlay and red airports indicate the area and airports included in the data set's TMI. A colored boundary (red for actual programs, yellow for proposed programs) and red airports either partially or wholly within the boundary indicate an FCA with a TMI in place.

In addition to the graphical parameters display, a white data block with black text shows the airport ID, FEA name, or FCA name, date, ADL time, the type of program, the program time range, and for GS programs, non-exempt centers and/or airports. To return to the normal Map display, click the white airport circle or the FEA or FCA boundary.

If multiple TMIs are in place at an airport or for an FCA, you can select the TMI for which you would like to see parameters. Left-clicking an airport or an FCA boundary causes a menu to open with the TMIs (Actual GDP, Actual GS, Proposed GDP, Actual AFP, Proposed AFP) listed by start time. Select the appropriate TMI from the list.

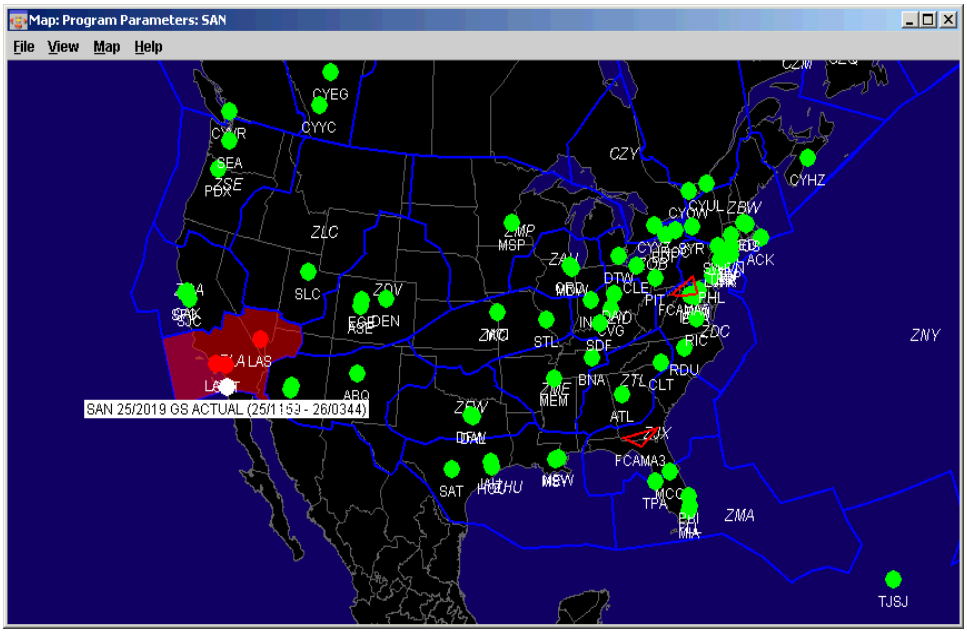


Figure 3 - 20: View Airport Parameters

Opening Components from the Map

You can access an airport's Time Line, Bar Graph, Flight List, and ECR components directly from the Map. Left-click the airport; this turns the airport white in color and if the airport is running a TMI, the parameters are displayed on the Map, similar to the GDT Map display. Once you select an airport, right-click the airport to display the pop-up selection menu, which includes the zoom options described above. The pop-up menu also allows you to view the Time Line, Bar Graph, Flight List, or ECR component for the selected airport in Monitored Live mode only. For example, selecting **Open Time Line** opens up the Time Line live component for the airport. For more information see Chapter 4: Opening FSM.

Additionally, you can access an FEA or FCA's Time Line, Bar Graph, Flight List, ECR, and Element Display components directly from the Map. Left-click the FEA or FCA boundary; this turns the boundary white in color and if the FCA is running a TMI, the parameters are displayed on the Map, similar to the GDT Map display. Once you select an FEA or FCA, right-click the boundary to display the pop-up selection menu, which includes the zoom options described above (see Figure 3 - 21). The pop-up menu also allows you to view the Time Line, Bar Graph, Flight List, ECR, or Element Display component for the selected FEA or FCA in Monitored Live mode only.

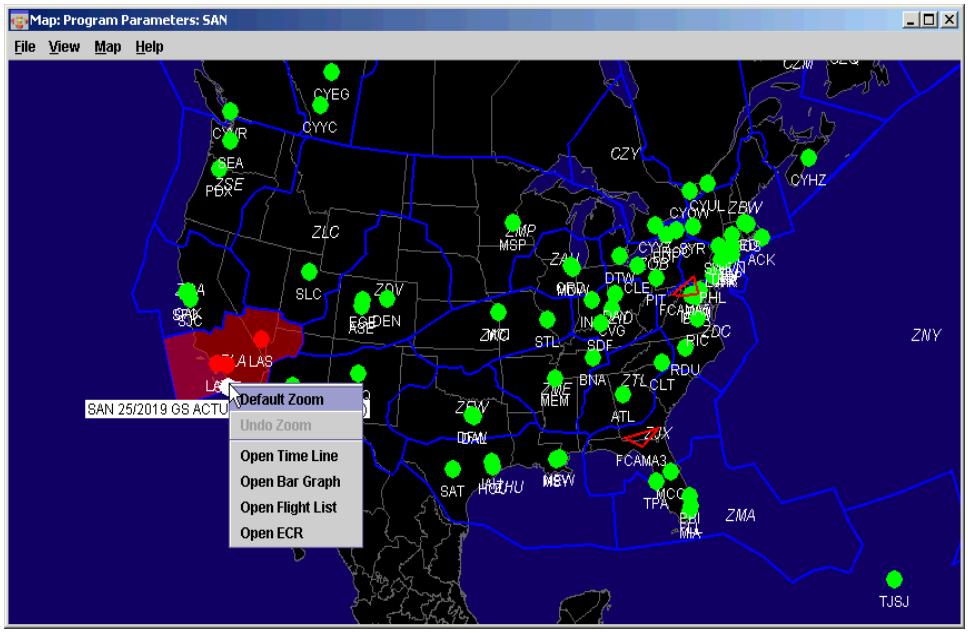


Figure 3 - 21: Component Selection

Map Menu Bar

The Map menu bar contains four options: File, View, Map and Help.

Figure 3 - 22: : Map Menu Bar

1. File Menu
   - **<u>File > Save as</u>** - Saves the Map as a .jpg image in a directory that you specify.
   - **<u>File > Print</u>** - Prints the active Map on the monitor.
   - **<u>File > Close</u>** - Closes the Map component.
2. View Menu
   - **<u>View > Rename Window</u>** - Displays the Rename Window dialog box and allows you to change the title bar name. Type in the desired name then click **OK** to change the title bar heading. Click **Cancel** to close the Rename Window dialog box without making any changes (see Figure 3 - 23).

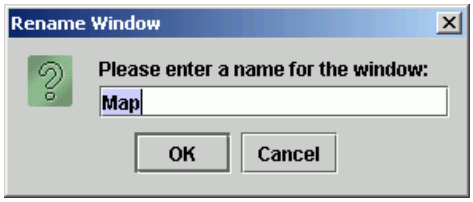


Figure 3 - 23: Rename Window Dialog Box

- **View > Projection** - You can use this to select from the following set of projection center points: Alaskan, Atlantic, Canada, CONUS, London. The default is CONUS. When you select a projection center point, the map redraws to center on that point.

3. Map Menu
   - **Map > Auto-Show** - You can use this to select whether to see Monitored Airports, Monitored FEAs/FCAs, Unmonitored FEAs/FCAs, or FCAs with AFP on the map. The default is Monitored Airports, Monitored FEAs/FCAs and FCAs with AFP.
   - **Map > Zoom In** - Allows you to enlarge the Map.
   - **Map > Zoom Out** - Allows you to reduce the Map size.
   - **Map > Default Zoom** - Returns the Map to the original default zoom.
4. Help Menu
   - **Help > Map**- Opens the on-line help for the Map component.

Query Manager Component

You can view the Query Manager component by selecting **Utilities > Query Manager** from the Control Panel component. The Query Manager component enables you to query and filter flights to create a Flight List that contains flights that meet only your selected criteria.

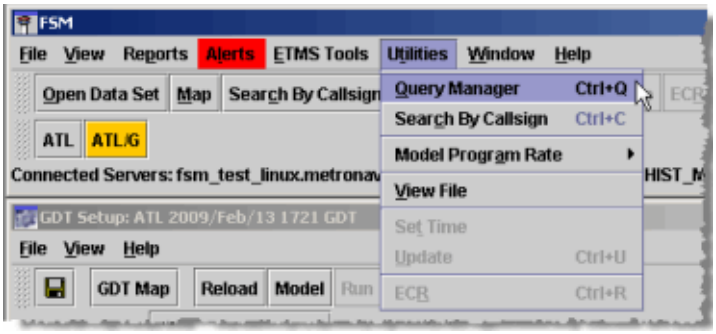


Figure 3 - 24: Opening Query Manager Component

The Query Manager component gives you the option of selecting between Built-in Filters or User Defined Filters (see Figure 3 - 25).

Built-in Filters are pre-defined, *read-only* filters designed from criteria that are frequently used for viewing flight information. Double-click the BUILT_IN *Built-in Filters* folder or click the Expand/Collapse icon to view/hide all contents in the folder. When you expand the *Built-in Filters* folder, you see a number of filters from which to choose. You may continue to drill down to view more detail by double-clicking the folders or by clicking their respective Expand/Collapse icons.

The ***AND*** filters list consists of filters that FSM compares to find a match in the data set. An ***OR*** filter consists of a list of filters that FSM compares to find matching flights in the

data set. A ***CONSTRAINT*** is an attribute, operator, or value. For more information on filters see Chapter 22: Using Query Manager.

User Defined Filters are *active* filters you create and customize based on your Flight List needs. There are two methods of creating user-defined filters:

- Creating a New Filter
- Editing a Built-in filter

For more information on filters see Chapter 22: Using Query Manager.

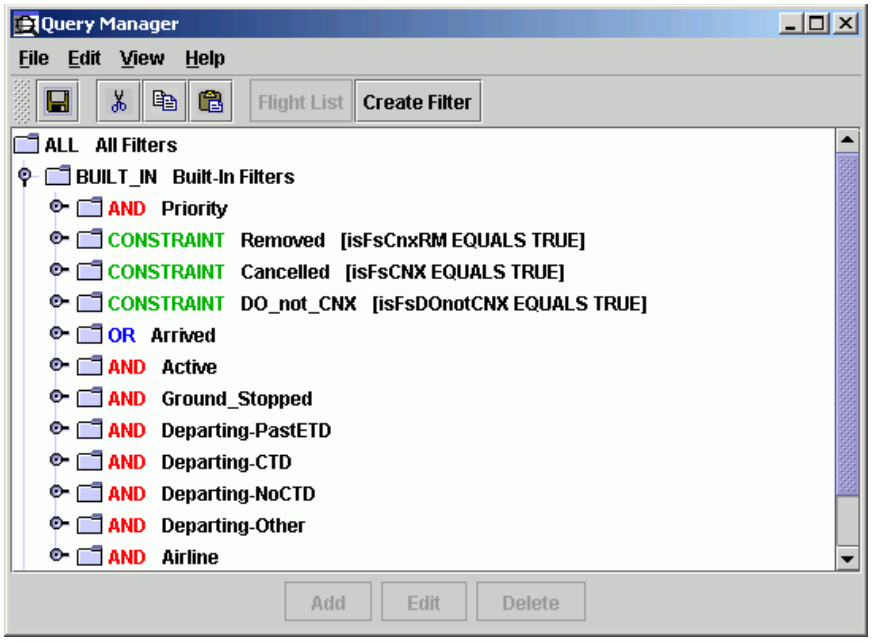


Figure 3 - 25: Query Manager Component

To Open a Flight List

1. Select **Utilities > Query Manager** to open the Query Manager Component.

   The Query Manager window displays.

2. Select any one of the Built-in or User Defined Filters.
3. Click **Flight List**.
   - If you are only monitoring one data set, the Flight List opens, in table format, with the information generated from the selected filter criteria.
   - "No Active Data Sets" error messages pop-up if the FSM Client is not monitoring any airports.
   - If you are monitoring more than one data set, the Set Data Set window displays (see Figure 3 - 26).
4. Select the desired data set for which you want to view the queried flight list.
5. Click **OK** to open the Flight List. See Chapter 6: Viewing Flight Information for detailed information on Flight Lists.

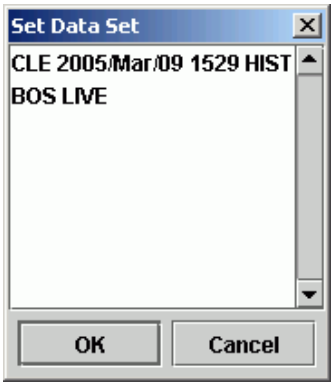


Figure 3 - 26: Set Data Set Window

Query Manager Menu Bar

The menu bar of the FSM Query Manager component contains four options: File, Edit, View, and Help.

1. File Menu
   - **File > Save** - Saves the User Defined Filters into the user_filter.ini file. In the FSM Client ini file, you can specify the name and location of where the user_filter.ini file is stored. The saved filters are available every time you open a Query Manager.
   - **File > Close** - Closes the Query Manager window - taking no action.
2. Edit Menu
   - **Edit > Cut** - Deletes selected User Defined Filters from the Query Manager.
   - **Edit > Copy** - Copies selected filters to the clipboard.
   - **Edit > Paste** - Pastes selected filters from the clipboard to the User Defined Filters folder.
   - **Edit > Create Filter** - Opens the Create Filter component.
   - **Edit > Rename Filter** - Allows you to edit the filter name.
3. View Menu
   - **View > Rename Window** - Displays the Rename Window dialog box and allows you to change the component name in the title bar. Enter the desired component name then click **OK** to change the title bar heading. Click **Cancel** to close the Rename Window dialog box without making any changes (see Figure 3 - 27).

Figure 3 - 27: Rename Window Dialog Box

- **View > Flight List** - Displays the Flight list if the FSM client is monitoring only one airport, or the Set Data Set window when the FSM client is monitoring multiple airports.

4. Help Menu

- **Help > Query Manager** - Opens the on-line help for the *Query Manager Component*.

Bar Graph Component

The Bar Graph component allows you to view the overall demand of the airport, FEA, or FCA you are monitoring. Airport demand consists of the total flights using the airport for arrivals and departures, by default only arrival demand is displayed. For FEAs and FCAs, FSM displays arrival demand on the Bar Graph by flight ENTRY time. Airspace data sets do not have departure data. Also, for FEAs and FCAs the following tabs do not apply and are disabled: Arr/Dep Status, Afix, and Dfix.

The FSM Bar Graph displays demand information as it is received through ADLs. There are 16 different color options to view this demand. The Status tab is the default view when you first open the Bar Graph component. The airport name, FEA name, or FCA name, date, last ADL update time, data mode and UDG name (if applicable) also are displayed in the Bar Graph title bar.

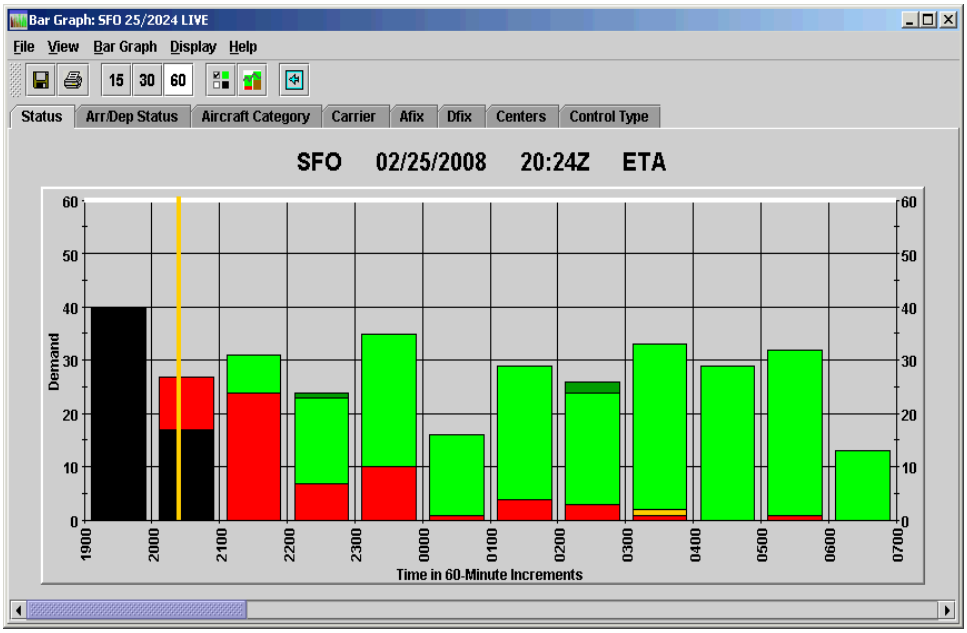


Figure 3 - 28: Bar Graph Component

The Bar Graph component displays data according to which “Color” tab option you select. For example, the default color tab is Status, which displays the bars in the graph colored according to the percentage of flights that represent each respective arrival status. If half of the flights for one time period are scheduled to depart, while the other half are airborne (flight active), the bar for that hour is half red (flight active) and half lime green (departing [No EDCT]). If every flight for the hour has arrived, the bar for that hour is black.

The graph is dynamic and changes according to the information from each ADL update. Likewise, the graph automatically updates itself when you select a different “Color” tab. To view a flight count for any hour, place the cursor over any bar within the Bar Graph, the respective number/count displays for the bar the cursor is hovering over. If you place the cursor near the top of a bar, the total number of flights for that hour displays. You can use the same method to find out the Airport Arrival Rate (AAR). Place the cursor over the AAR and the rate displays. Double-clicking any bar displays a Flight List for flights contained in that hour bar. See Chapter 6: Viewing Flight Information for more detailed information on flight lists.

The Bar Graph also allows you to Generate a Flight List for specific color blocks displayed within a time bin. Right-click a selected time bin and select **Open Flight List For** and then select the desired color. For example, to view all the Active flights in a specific hour for SFO, right-click the desired time bin and select **Open Flight List > Flight Active** (see Figure 3 - 29). This opens a flight list for Active flights (colored red) in the specified hour.

> **Note:** Selecting a color that has no flights associated with it opens an empty Flight List. If a color is deselected from the Bar Graph Legend, the color option is not displayed in the **Open Flight List For** selection criteria.

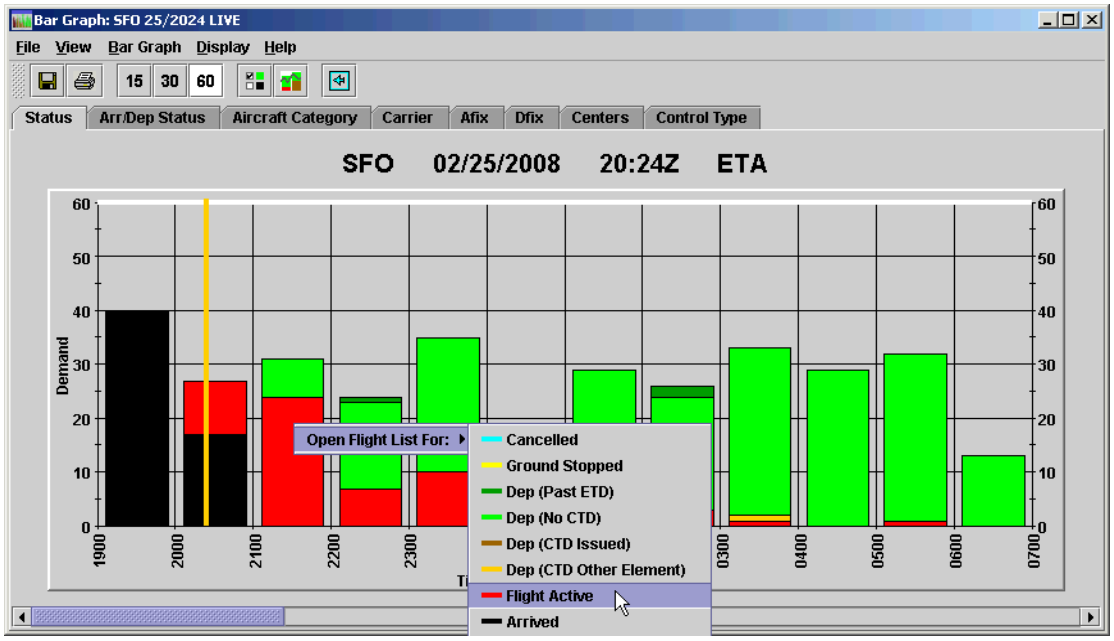


Figure 3 - 29: Open Flight List For

Bar Graph Legend

To view the color legend you can click the legend button (located next to the time bin buttons) or select the **View > Show Legend** checkbox from the Bar Graph's menu. The Legend displays the color scheme for the color tab currently displayed and allows you to toggle the coloring options on and off by using the checkbox next to each color.

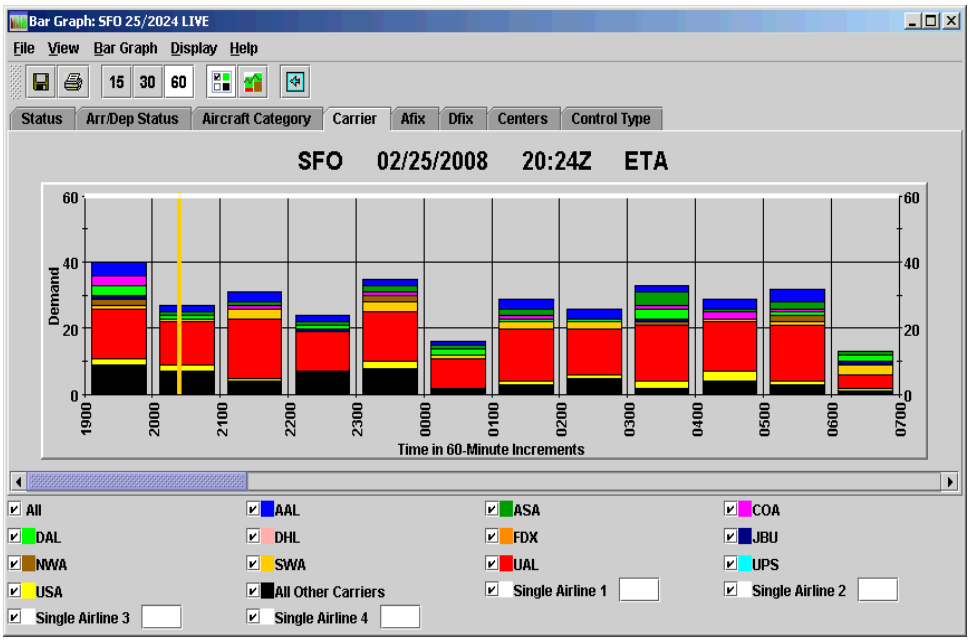


Figure 3 - 30: Carrier Tab with Color Legend open

Bar Graph Menu Bar

The menu bar of the FSM Bar Graph component contains five options: File, View, Bar Graph, Display, and Help**.**

1. File Menu
   - **File > Save As** - Saves the Bar Graph as a .jpg image to a directory you specify.
   - **File > Print** - Prints the Bar Graph currently viewed on your screen.
   - **File > Close Group** - Closes all the components associated with the open component. This function removes the airport, FEA, or FCA button from the Control Panel for the selected airport, FEA, or FCA and data mode.
   - **File > Close** - Closes the Bar Graph component for that particular airport, FEA, or FCA.
2. View Menu - consists of 16 checkboxes and three additional menu items. Check the box to view the information and uncheck the box to hide the information.
   - **View > Rename Window** - Displays the Rename Window dialog box that allows you to change the component name of the title bar. Enter the desired component name then click **OK** to change the title bar heading. Click **Cancel** to close the Rename Window dialog box without making any changes.
   - **View > Set Tabs Displayed** - You can dynamically show and hide specific coloring schemes for the Bar Graph component.
   - **View > Arrival Data** - Displays all arrival data for the monitored airport, FEA, or FCA. The bars of the graph are solid only when you are viewing arrival data in FSM.
   - **View > Departure Data** - Displays all departure data for the monitored airport. The bars of the graph appear hashed only when you view departure data in FSM (see Figure 3 - 31). When you view both arrival and departure data in FSM, you see two bars for each time increment. Bars that represent arrival data are solid, whereas bars that represent departure data are hashed.

   Note: FEAs and FCAs contain no departure information.

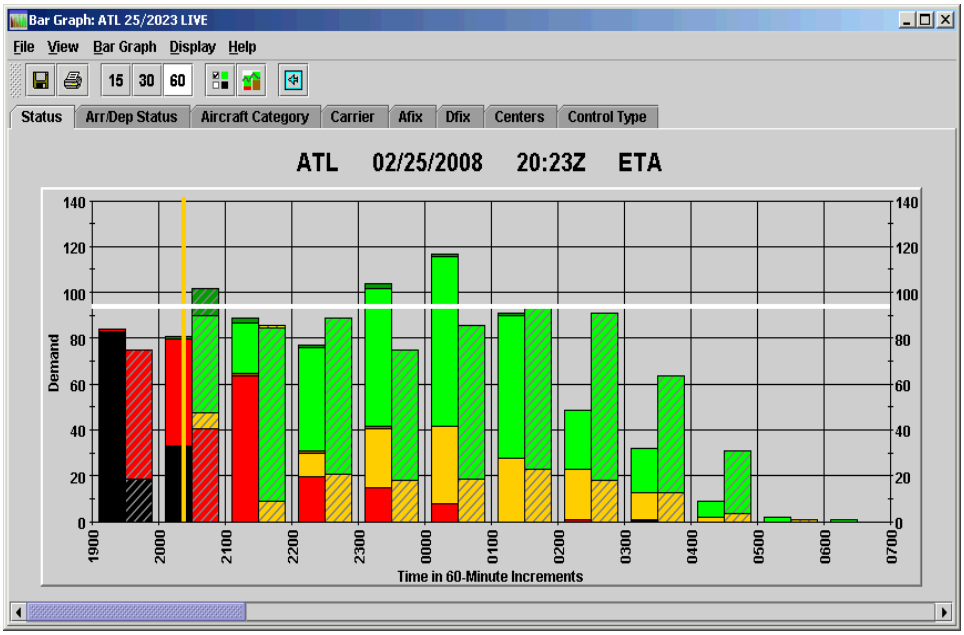


Figure 3 - 31: Normal View with Arrival and Departure Data Displayed

- **<u>View > Stack Departures</u>** - Displays departing flights in the same bars as arriving flights, (see Figure 3 - 32). The bars on the graph become solid, with both arriving and departing flights included in the bar for their departure or arrival time. To differentiate between departing and arriving flights, use the Arrival/Departure tab to color your flights. Using Arrival/Departure displays (by default) arriving flights in green and departing flights in blue.

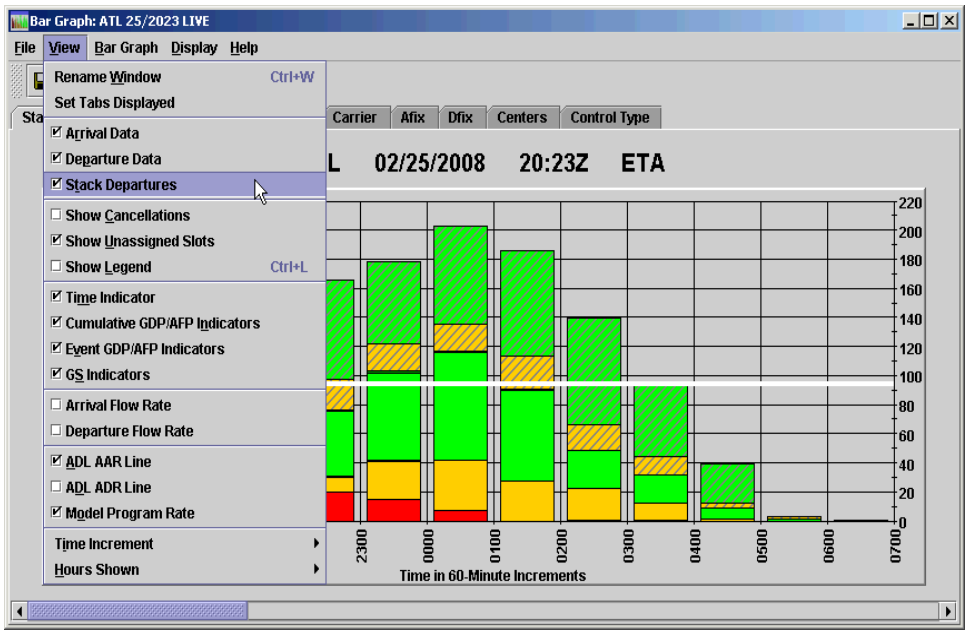


Figure 3 - 32: Arrival and Departure Data displayed in stacked format

- **View > Show Cancellations** - Displays cancelled flights in the color cyan. Cancelled flights do not automatically display in the graph. Showing cancelled flights is useful to compare the original demand with the demand after the cancellations. To differentiate between cancelled and regular flights, use the Arrival Status tab to color your flights.
- **View > Show Unassigned Slots** - Displays all unassigned slots in the color white for a GAAP GDP or AFP.
- **View > Show Legend** - Displays the appropriate color legend associated with the tab option you are viewing. If you click the legend button on the Bar Graph, FSM dynamically selects the checkbox for Show Legend.
- **View > Time Indicator** - Displays an orange vertical line that remains fixed at the current time. Like the FSM Time Line, the Bar Graph Component also tracks time.
- **View > Cumulative GDP/AFP Indicators** -Displays a brown solid vertical line representing the cumulative start and end time for a GDP or AFP.
- **View > Event GDP/AFP Indicators** - Displays brown vertical dashed lines to indicate the start time and end time of a current GDP or AFP. The program time indicators are displayed when a program goes into effect at the monitored data set.

Note: If the cumulative time and the event time are the same, the solid brown line (cumulative time) will take precedence over the dashed brown line (event time).

- **View > GS Indicators** - Displays yellow vertical lines to indicate the start time and end time of a current GS. The GS time indicators are displayed when a GS goes into effect at the monitored airport.
- **View > Arrival Flow Rate** - Displays a thin, dark gray line that represents the arrival flow rate independently of the time-bin convention, enabling you to visualize arrivals as a dynamic flow rate.
- **View > Departure Flow Rate** - Displays a thin, cyan line that represents the departure flow rate independently of the time-bin convention, enabling you to visualize departures as a dynamic flow rate.

Note: FEA and FCAs have no departure information, therefore, the Departure Flow Rate is zero.

- **View > ADL AAR Line** - Displays a white horizontal line that runs through the graph representing the current Airport Arrival Rate (AAR) for the monitored airport or airspace data set. The ADL AAR (shown by default) is a fixed AAR sent by the FAA Air Traffic Control System Command Center (ATCSCC) to advise of the number of arriving aircraft a data set can accommodate at any given interval of time. The AAR changes according to the interval of time

being displayed. For example, an AAR of 60 per hour = AAR of 15 per quarter hour. *Only ATCSCC users can change the ADL AAR.*

- **View > ADL ADR Line** - Displays a cyan horizontal line that runs through the graph. The line represents the Airport Departure Rate (ADR) for the monitored airport. The ADL ADR, (shown by default when ***Departures*** is checked), is a fixed value sent by the FAA ATCSCC to specify the number of departing aircraft an airport can accommodate at any given interval of time. The ADR also changes according to the time increment used in the graph display. For example, an ADR of 60 per hour is equal to an ADR of 15 every quarter hour.

Note: Not applicable for FEAs and FCAs.

- **View > Model Program Rate** - Displays a user-specified Program Rate as a dashed white line. You use the Model Program Rate for modeling and analysis; you can change this according to program needs.
- **View > Time Increment > 15 Minutes, 30Minutes, 60 Minutes** - Displays bar graph capacity and demand information based on the time-bin value selected. The default time increment is 60-minutes. If you click one of the time bin buttons on the Bar Graph, the same increment displays selected on the associated menu item.
- **View > Hours Shown > 2/3/4/5/6/8/10/12/14/16/18/20/22/24/36 Hours** - The default data display is 10 hours. You can specify the number of hours displayed in the Bar Graph to see more or less flight data. For example, you may want to view the AAR in 15-minute increments, which is difficult to see on a graph with 10 hours' worth of data. To change the number of hours in the graph, select **View > Hours Shown > X Hours** (X = number of hours). The graph automatically updates to show the number of hours specified.

3. Bar Graph Menu

- **Bar Graph > Track Time** - Makes the graph move as the time changes. When you track time in this way, the second bar on the graph is always the current time. When you uncheck the box, the bars do not move, but you can still use the Time Indicator to determine the current time on the graph.
- **Bar Graph > Set Time** - This option is enabled only while in Historical mode. Selecting this causes the Set Time dialog box to open. You can select the day and time for which you would like to view the historical data.
- **Bar Graph > Model Program Rate > Specify** - You must select **View > Model Program Rate** to see the Model Program Rate line (a dashed white line) on the Bar Graph. If the ADL AAR displays on the graph, the dashed line (for modeling) is hidden behind the solid white ADL line. You can adjust the Model Program Rate by:

- Selecting **Bar Graph > Model Program Rate > Specify**. This option displays the Specify Model Program Rate window. Fill in the necessary information and the

new Program Rate displays on the graph. See Chapter 7: Evaluating Airport and Airspace Conditions for more information on changing the Program Rate.

- Dragging the white line in the graph to the desired Program Rate. The dashed line moves to the Program Rate specified. Only the portion of the line to the right of the cursor moves. Any portion of the line to the left of your cursor should remain in the same position as you drag the line to a new Program Rate.

- **Bar Graph > Model Program Rate > Reset** - Restores the Model Program Rate to its original value. The Model Program Rate no longer is displayed.

4. Display Menu - changes the data shown in the Bar Graph to show demand based on the following:

   - **Display > ETA** - Estimated Time of Arrival (airport only)
   - **Display > BETA** - Base Estimated Time of Arrival (airport only)
   - **Display > IGTA - Taxi** - Initial Gate Time of Arrival (airport only)
   - **Display > OCTA** - Original Controlled Time of Arrival
   - **Display > EAFT** - Estimated Arrival Fix Time (airport only)
   - **Display > CTA** - Controlled Time of Arrival
   - **Display > ENTRY** - Estimated Element Entry Time (airspace only)
   - **Display > BENTRY** - Based Element Entry Time (airspace only)
   - **Display > OENTRY** - Original Element Entry Time (airspace only)

To send a new AAR/ADR to ETMS, without issuing a TMI, use **ETMS Tools > ADL AAR/ADR > Modify AAR/ADR** from the Control Panel and click **Send**.

5. Help Menu

   - **Help > Bar Graph** - Opens the on-line help for the Bar Graph component.

Bar Graph Buttons

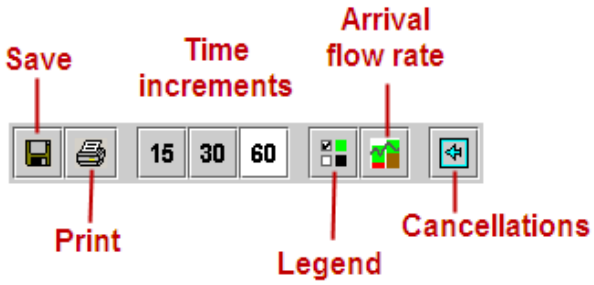


Figure 3 - 33: Bar Graph Buttons

There are eight buttons on the Bar Graph window:

- Save As - Saves the Bar Graph as a .jpg image in a directory that you specify.

- Print - Prints the Bar Graph that is currently on the screen.
- **15, 30,** and **60 -** Clicking the **15**, **30**, or **60** time-bin buttons displays bar graph capacity and demand information based on the time-bin value selected. The default time increment is 60-minutes
- Legend - Displays the color legend for the Bar Graph.
- Arrival Flow Rate - Displays the Arrival Flow Rate line on the Bar Graph.
- Cancellations - Displays cancelled flights on the Bar Graph.

Bar Graph Tab Options

The screen resolution determines the arrangement of the 8 default tabs in the Bar Graph. You have the option to color flights according to several variables available in FSM. The default tab setting colors flights according to their arrival Status; however FSM offers the flexibility to view flights according to different criteria. This allows for effective analysis of which flights make up the demand at a data set. Each of the 16 pre-defined color tabs of the Bar Graph window displays different information with a corresponding color scheme and legend. The following table lists the default color settings for all 16 tabs (see Table 3-4).

Table 3-4: Bar Graph Coloring Tabs

Tab Option	Bar Color	Description
Status (Default View)	Light Green	Departing (No CTD)
	Red	Flight Active
	Black	Arrived
	Brown	Departing (EDCT Issued)
	Dark Green	Departing (Past EDT)
	Yellow	Ground Stopped
	Cyan (optional)	Cancelled
	Blue (optional)	Removed
	Pink (optional)	Priority
	White (optional)	Unassigned Slot
	Orange	Departing (CTD other Element)
Arrival/Departures	Light Green	Arriving
	Blue	Departing
Aircraft Category	Light Green	Turbo
	Red	Jet
	Black	Propeller
	Yellow	Unknown

Table 3-4: (Continued)Bar Graph Coloring Tabs

Tab Option	Bar Color	Description
Aircraft Class	Black	Small
	Light Green	Large
	Red	Heavy
	Yellow	Super
	White	Unknown
Carrier	Light Green	Large
	Red	Heavy
	Black	Small
	Yellow	Unknown
	Various Colors	All Majors
	Dark Gray	Dynamic Top Carrier 1
	Maroon	Dynamic Top Carrier 2
	Light Blue	Dynamic Top Carrier 3
	Sand	Dynamic Top Carrier 4
	White	Single Airline (User input)
AFIX	Various Colors	The Arrival Fixes associated with the monitored airport
DFIX	Various Colors	The Departure Fixes associated with the monitored airport
Exemption	Black	Flights excluded
	Green	Flights exempted
	Red	Flights not exempted
Users	Blue	Air Cargo
	Magenta	Carrier
	Light Green	General Aviation
	Brown	Military
	Orange	Air Taxi
	Cyan	Other
	Red	Unknown
Alarm Status	Black	Other flights (no alarm set)
	Red	Flight with alarm set
Centers	Red	All Centers

Table 3-4: (Continued)Bar Graph Coloring Tabs

Tab Option	Bar Color	Description
Distance	Red	Flights within the selected distance
Substitution Status	Green	Subbing flights
	Red	Non-subbing flights
CDM Participation	Green	Participant
	Red	Non-participant
Program Delay	White	Non controlled
	Orange	Controlled Other Element
	Green	0-29 minutes
	Blue	30-59 minutes
	Cyan	60-89 minutes
	Gray	90-119 minutes
	Pink	120-149 minutes
	Yellow	150-179 minutes
	Maroon	180-209 minutes
	Magenta	210-239 minutes
	Red	More than 240 minutes
Control Type	Orange	Controlled by another Element
	Purple	Bridge
	Pink	GAAP
	Green	Not Controlled
	Dark Green	FAA
	Red	Flight Active
	Yellow	Ground Stop (GS)
	Brown	Program (GDP, AFP, etc.)
	Light Blue	NAS User (SUB)
	Black	Arrived
	Cyan	Cancelled

Color Schemes Selection Component

You can control which tabs are displayed in the Bar Graph by using the new Color Schemes Selection component accessible from the Bar Graph's View menu. Select **View > Set Tabs Displayed**. You can dynamically show and hide specific coloring schemes for a single component. The Color Schemes Selection component displays currently selected color schemes when initially opened.

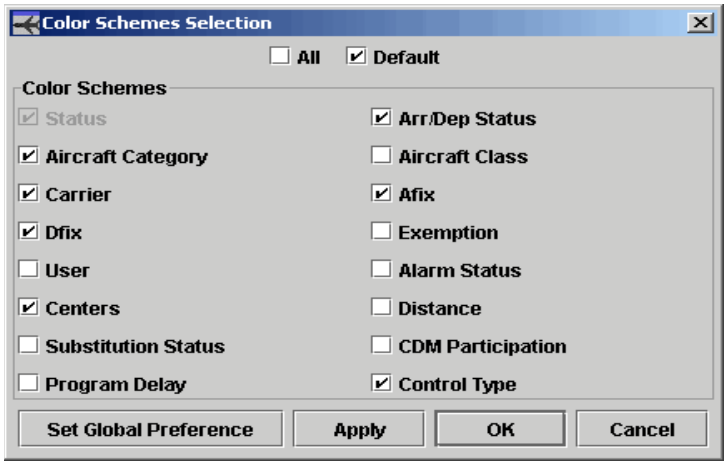


Figure 3 - 34: Color Schemes Selection Component

If the current tab is hidden, the default tab is the Status tab since it cannot be hidden. You can also set a group of coloring schemes as a user preference.

The Color Schemes Selection component has both an ***All*** and ***Default*** checkbox. Selecting ***All*** selects all color scheme checkboxes, with the exception of the ***Status*** and ***Default*** checkboxes. You can deselect all coloring schemes by removing the check from the ***All*** checkbox. This is similar to how the ***All*** checkbox works on the Status legend.

When the color schemes displayed are the same as the FSM configuration default, the ***Default*** checkbox is selected. Selecting ***Default*** resets the selections to the FSM configuration default display. This is similar to how the ***Default*** checkbox works on the Status legend.

> **Note:** You cannot deselect the ***Status*** checkbox.

The Color Scheme Selection component has the following buttons:

- **Set Global Preference**
- **OK**
- **Cancel**

Clicking **Set Global Preference** displays an FSM information dialog that says, “Global preference set to [<List of coloring schemes separated by commas>]. These changes will not take effect until **OK** is clicked in the Color Scheme Selection window.” and has a **Continue** button. Clicking **Continue** closes the dialog and returns you to the Color Scheme Selection component. If you set a Global Preference, FSM updates all Bar Graph, and GDT Bar Graph components opened in the future with the selected coloring schemes. FSM retains Global color scheme preferences when you save an adaptation.

> **Note:** Airspace data sets cannot be saved to adaptation files at this time.

Clicking **OK** closes the Color Schemes Selection component and changes the associated coloring scheme display. If you make a local change (you did not make a Global Change), FSM updates the current Bar Graph window.

Clicking **Cancel** closes the Color Schemes Selection component and cancels any actions performed in this dialog.

All changes to Bar Graph are displayed in the following modes:

- Live
- GDT
- Historical
- GDT Historical

AFIX and DFIX Coloring and Order

The Afix and Dfix tabs for the Bar Graph now include a way for you to configure the order and color of fixes. You can now change the order of fixes and select a color for each Afix and Dfix from the Afix and Dfix Legends.

The Fix Order component gives you the ability to change the order of how the fixes are displayed. Clicking **Fix Configuration** on the Legend for the Afix or Dfix tab causes the Fix Order component to open. The fix order defaults to the ordering of the fixes as specified in the ADL.

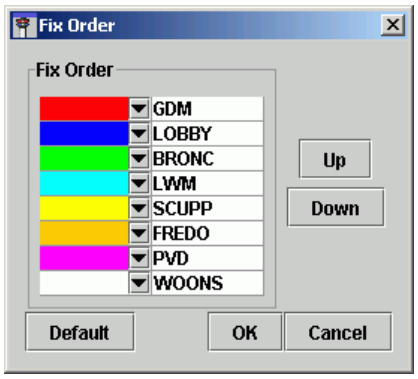


Figure 3 - 35: Fix Order Component

The Fix Order component has a list box displaying the order of the fixes from top to bottom. The fixes are listed by name and color. Each fix has a down arrow. You use the down arrow to select a color. Clicking the down arrow next to a fix name causes a dropdown box with 20 colors listed to open. Select the color you want for the fix from the list. If you want to reorder the fixes, select the fix name from the list in the Fix Order box and click **Up** to move it toward the top of the list and **Down** to move it toward the bottom of the list.

Clicking **Cancel** closes the Fix Order component and cancels any actions performed in this dialog.

Clicking **Default** resets the fix values to their ADL order and default color.

Clicking **OK** closes the Fix Order component and applies all changes made in the dialog box.

Note: The color and ordering you selected apply only to the selected element (Bar Graph you are currently working with).

Additionally, right-clicking a fix in the legend opens a pop-up box with 20 colors listed. Selecting a color from the pop-up box allocates the selected color for that fix.

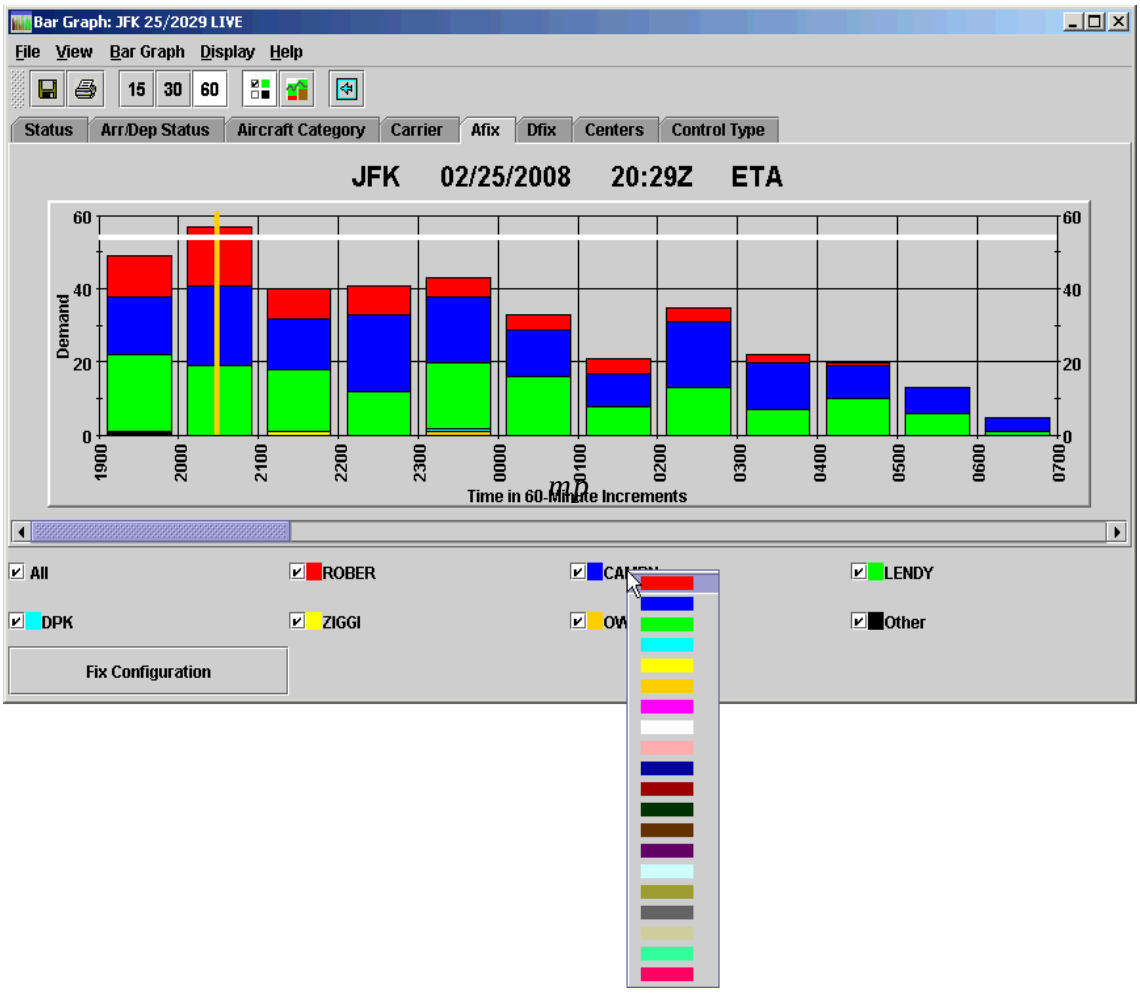


Figure 3 - 36: Bar Graph with Right-click Color Menu

You can assign the same color to multiple Afixes or Dfixes.

You can save and recall the configurations for Afixes and Dfixes through user adaptations. At times, FSM cannot recall an adaptation because a fix might have changed its name, new fixes were added, or old fixes were removed. If that is the case, FSM reverts to automatically assigning the coloring.

You can configure Afixes and Dfixes on the following Bar Graph components:

- Live Bar Graph
- GDT Bar Graph
- Historical Bar Graph
- GDT Historical Bar Graph

Time Line Component

The Time Line component is a timetable that displays airport, FEA, or FCA demand in one-minute hash marked increments in the hour columns (see Figure 3 - 37). The number of hours displayed is based on the size of your Time Line component. You can change the number of hours viewed on the screen at one time by dragging the edge of the window in or out to increase/decrease the window size. You can also use the scroll bar to scroll forward or backwards in time. You can resize the CNX & DO Flts (cancelled and drop out flights) column as well.

For Airport data sets, flights are displayed on the Time Line based on their ETA. For Airspace data sets, flights are displayed on the Time Line based on their ENTRY time into the FEA or FCA.

The large numbers at the top of each column represent the date/hour (e.g., 27/1600 indicates that this display is for the 1600 hour for the 27th day of the month). Directly below the date/hour information is the AAR and/or ADR versus the demand (the number of flights projected to arrive) at the airport, FEA or FCA for the hour shown. For example, 70/65 at the top of a column indicates that the AAR is 70 for that hour and 65 flights are expected to arrive within that hour. The ADR versus demand displays in parentheses when FSM displays departure data. For example, (60/40) indicates that 60 flights can depart the airport in that hour, but only 40 are projected to depart. The last data update time is highlighted in orange.

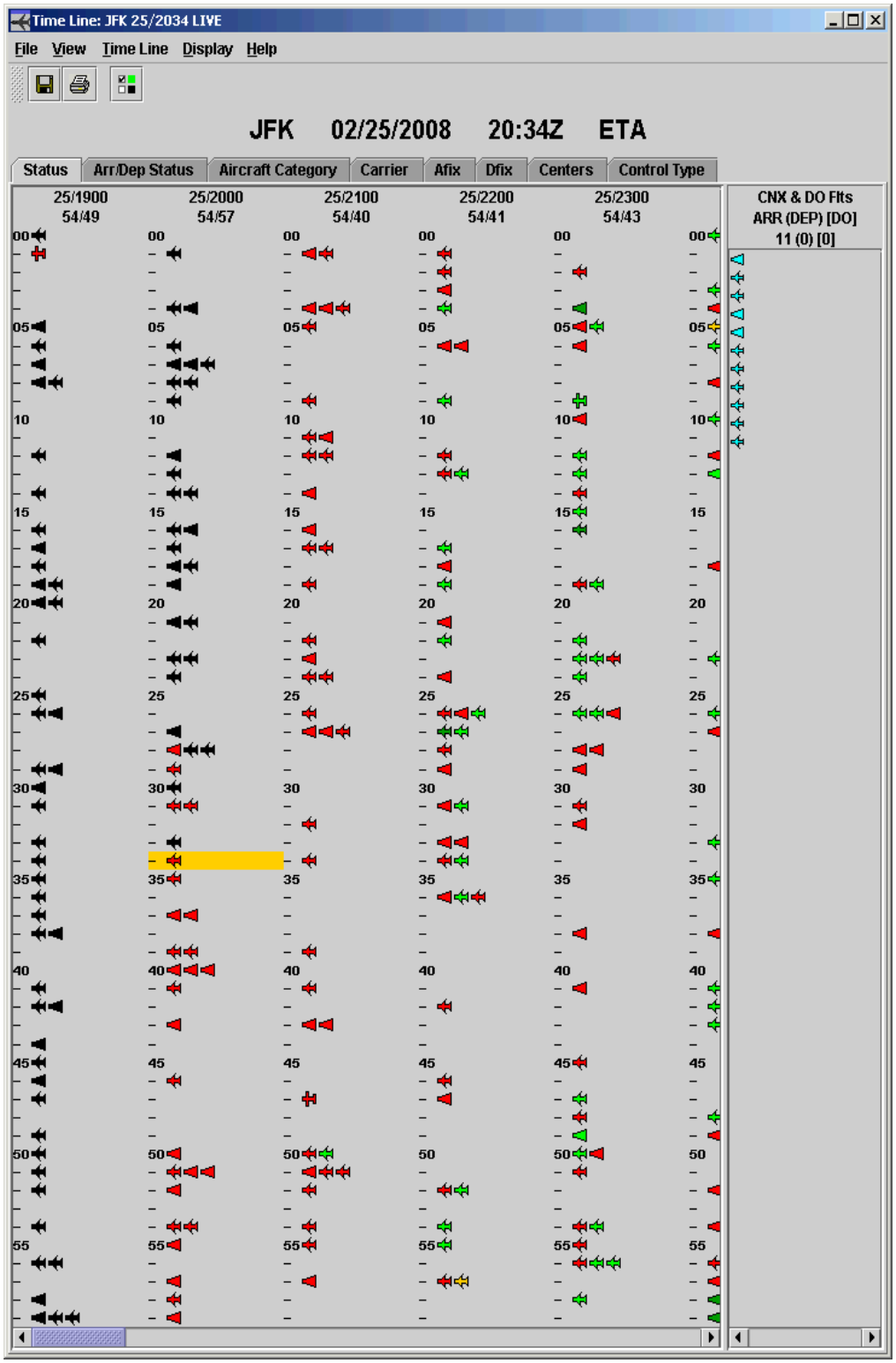


Figure 3 - 37: Time Line Component

In Monitor Live mode only, if there is an 11-minute gap between the ADL update time and your local machine time, the ADL Date and Time will turn red until the next update is received. Note that the components will remain active even though the data has expired.

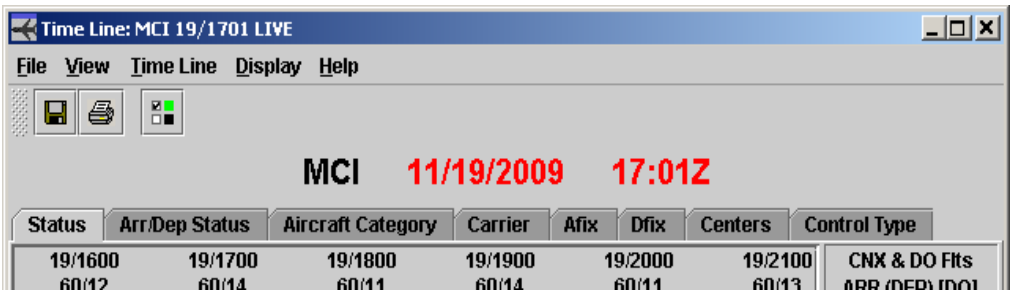


Figure 3 - 38: Red Text Warns that ADL Update Time is Behind

From the Time Line, you can view flights arriving and departing from a monitored airport. For Airspace data sets, only arrival data is available. In addition, open arrival slots, Unassigned Slots, cancellations, and drop outs can be viewed on the Time Line. The airport, FEA, or FCA, date, last ADL time, data mode, and UDG name (if applicable) are displayed in the Time Line title bar. The Time Line displays the Airport, FEA, or FCA being monitored, the date, the time, and the data display indicator directly above the color tabs.

Each flight arriving at the monitored airport or entering into the FEA, or FCA displays to the right of the minute hash marks, which correspond to the ETA or ENTRY of the flight, which ever is applicable. When you place your cursor over a flight, a pop-up window displays the flight's ACID, Departure airport, arrival airport, ETD, and ETA (for airports) or ENTRY (for FEAs and FCAs) (see Figure 3 - 39).

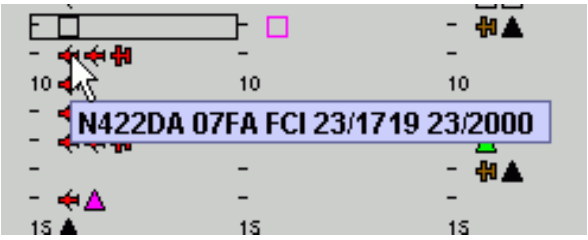


Figure 3 - 39: Pop-up Flight information

Viewing Time Line Flight Information

Right-clicking a flight icon gives you five additional options for that flight: **Flight Info**, **Flight Detail**, **EDCT Check**, **EDCT Update**, and **ECR**.

- Selecting **Flight Info** displays the Flight Info component, which contains general ADL information for a flight including ACID, status, origin airport, destination airport, ETD, ENTRY, EXIT, ETA, ETE, Control Element, CTD, CTA, Delay Flags, Cancel Flags, and Drop Out information when applicable.

- Selecting **Flight Detail** displays more detailed flight information. The Flight Detail window contains all the ADL information for that flight.
- Selecting **EDCT Check** opens the EDCT Check dialog box giving ATCSCC specialists the ability to send a message to the Hubsite requesting the flight's EDCT time.
- Selecting **EDCT Update** opens the EDCT Command Line dialog box, which allows ATCSCC specialists to send an EDCT update request to the Hubsite.
- Selecting the **ECR** option opens the ECR component for the selected flight. Opening ECR in this manner automatically fills the ACID, ORIG, and flight information into the ECR component for the flight.

  Note: EDCT Check and EDCT Update are ATCSCC only options.

FSM displays cancelled flights and drop out flights under the CNX & DO Flts column. These flights have the same hover and right-click capabilities as all other flights. FSM keeps and displays flight data compiled by Volpe National Transportation Systems Center, which includes data for up to 34 hours after the current time.

You can also access flight lists and flight counts (see Figure 3 - 40) from the Time Line component. For more information on viewing flight information in the Time Line, see Chapter 6: Viewing Flight Information.

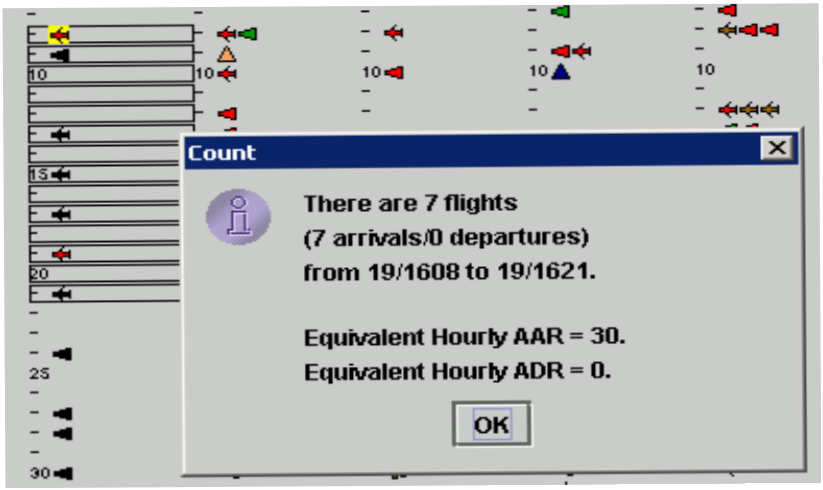


Figure 3 - 40: Flight Count

Icons in the Time Line

- Airplane Icons represent flights arriving at or departing from the monitored airport, FEA, or FCA. Arriving flights face left while departing flights face right. Clicking an arrival flight icon highlights the flight by putting a yellow square around the icon. If the flight is delayed, the open arrival slot that resulted from its delay is also highlighted.
- A filled square icon displays only when a Program is in effect. The filled square represents an arrival slot left open by a cancelled flight. The arrival slot is open and available for use by other flights. Cancelled flights are displayed on the Time Line

under the CNX heading, colored cyan, and are highlighted when you select their associated slot.

- An empty square icon also corresponds to a cancelled flight. However, this arrival slot is not associated with a Program. Clicking this icon highlights its associated cancelled flight, displayed under CNX in the Time Line.
- A filled triangle icon displays only when a Program is in effect. The filled triangle indicates an open arrival slot due to a delayed flight. Clicking this icon also highlights the delayed flight associated with the open slot.
- An empty triangle icon also corresponds to a delayed flight. However, this arrival slot is not included within the Program. Clicking this icon also highlights the associated delayed flight.
- A white diamond represents an Unassigned Slot. No right- or left-click capabilities exist for this icon. It is simply a place holder during a GDP or AFP with GAAP until filled by a pop-up flight.

Note: You can find an explanation for any of the Time Line icons by selecting **Help > Legend** in the FSM Control Panel component.

Table 3-5: Time Line Icons

Time Line Icon	Description
	Indicates the latest or current ADL file data update time in the Time Line component.
	A flight arriving at the monitored airport by ETA (airport) or ENTRY (airspace) in the Time Line component and colored by the current color scheme.
	A flight departed from the monitored airport by ETD in the Time Line component and colored by the current color scheme.
	An open slot due to a cancelled flight, which is included in a GDP or AFP. It is positioned at its arrival slot time and colored by carrier.
	An open slot due to a cancelled flight, which is not included in a GDP or AFP. It is positioned at its (IGTA-taxi) and colored by carrier.
	An open slot due to a delayed flight that is included in the GDP or AFP. It is positioned at its arrival slot time and colored by carrier. The corresponding flight is positioned at a later time matching the ETA.

Table 3-5: (Continued)Time Line Icons

Time Line Icon	Description
△	An open slot due to a delayed flight that is not included in the GDP or AFP. It is positioned at its (IGTA - taxi) and colored by carrier. The corresponding flight is positioned at a later time matching the ETA
◇	An unassigned slot. These are displayed in the Monitored Live mode, Historical mode, and GDT mode time lines for GAAP GDPs.

Time Line Buttons

There are three buttons on the Time Line window:

- Save - Saves the Time Line as a .jpg image in a directory that you specify.
- Print - Prints the Time Line that is currently on the screen.
- Legend - Displays the color legend for the Time Line.

Figure 3 - 41: Time Line Buttons

Time Line Menu Bar

The menu bar in the FSM Time Line component contains four options: File, View, Time Line, and Help.

1. File Menu
   - **File > Save As** - Saves the Time Line as a .jpg image in a directory that you specify.
   - **File > Print** - Prints the Time Line that is currently on the screen.
   - **File > Close Group** - Closes all the components associated with the open component. This function removes the data set button from the Control Panel for the selected data set.
   - **File > Close** - Closes the Time Line component for that particular airport, FEA, or FCA.
2. View Menu
   - **View > Rename Window** - Displays the Rename Window dialog box and allows you to change the component name in the title bar. Enter the desired name then click **OK** to change the title bar heading. Click **Cancel** to close the Rename Window dialog box without making any changes.

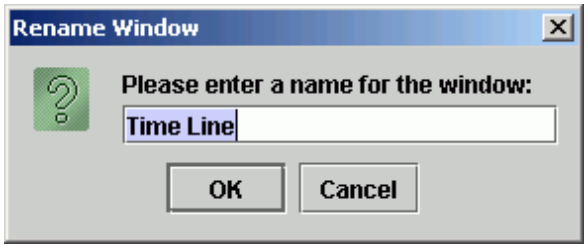


Figure 3 - 42: Rename Window

There are ten additional display options under the View menu. For items with checkboxes, select the checkbox to view the information.

- **View > Set Tabs Displayed** - You can dynamically show and hide specific coloring schemes for the Time Line component.
- **View > Arrival Data** - Displays all arrival data for that data set.
- **View > Departure Data** - Displays all departure data for that airport.
- **View > Show CNX/DO** - Displays all cancelled and drop out flights under the column marked CNX, to the right of the active flight information.
- **View > Show Legend** - Displays the appropriate color legend associated with the current view. If you click the legend button on the Time Line, FSM dynamically selects the checkbox for Show Legend.
- **View > Open Slots in Carrier Color** - Displays all open slots due to cancelled or delayed flights in the associated carriers color.
- **View > Show Unassigned Slots** - Displays all unassigned slots during a GAAP GDP or AFP.
- **View > Auto Icons** - Displays flights in the TSD icon format. This is the default Time Line view. The TSD format displays different icons based on the flight aircraft weight. When you select Auto Icons, the classic FSM Time Line icons, which display the same icon for all aircraft weights, are displayed.

Table 3-6: Auto Icons

Classic View	New (TSD) Icon	Description
		Jumbo
		Jet
		Heavy
		Prop (Includes Turbo and Piston)

- **View > Flight Info** - Displays the Flight Info window for a quick reference on the flight.

- **View > Flight Detail** - Displays the Flight Detail window for more in-depth information on the flight.
- **View > Flight List** - Displays the FSM Flight List.

Note: **View > Arrival Data**, **Show CNX/DO**, **Open Slots in Carrier Color**, **Show Unassigned Slots**, and **Auto Icons** checkboxes are selected by default.

3. Time Line Menu
   - **Time Line > Track Time** - Allows you to turn Track Time on and off. To force the Time Line component to update when the current hour changes, select Track Time. When the hour changes, the Time Line moves forward one hour. If you uncheck the Track Time box, you can scroll forward or back in time and at the next update time the Time Line does not return to the current time.
   - **Time Line > Set Time** - This option is enabled only under Historical Data Mode and allows you to choose the time to view within a set of historical data.
   - **Time Line > Search By Callsign** - Allows you to find a particular flight by entering the flight's callsign and origin airport. The flight icon in the Time Line is highlighted with a white box.

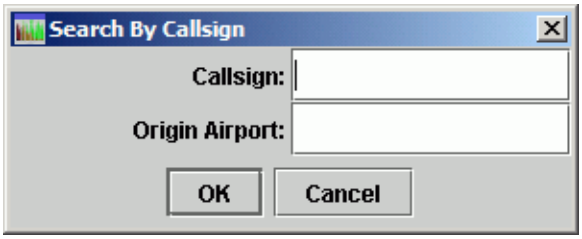


Figure 3 - 43: Search By Call Sign

4. Display Menu
   - **Display > ETA** - Display flights based on their Estimated Time of Arrival (ETA).
   - **Display > BETA** - Displays flights based on their Base Estimated Time of Arrival (BETA). The BETA matches the ETA and is frozen when the flight becomes active or when the flight becomes controlled.
   - **Display > IGTA - taxi** - Displays flights based on their Initial Gate Time of Arrival (IGTA) minus taxi time (IGTA Wheel Time). The IGTA is based on the OAG times or flight plan times and never changes. Taxi time default is 10 minutes, but you can change it in the GDT Control window.
   - **Display > OCTA** - Displays flights based on their Original Controlled Times of Arrival (OCTA), Original ETA, OGTA Wheel Time, or ETA position, depending on the available information. For example, if the Original CTA is not available, FSM uses Original ETA and so on. This time never changes.

- **Display > EAFT** - Displays flights based on their Estimated Arrival Fix Time (EAFT), which is the time at which the flight crosses its designated arrival fix.
- **Display > CTA** - Displays flights based on their current Controlled Time of Arrival (CTA).
- **Display > ENTRY** - Displays flights based on their current Estimated Element Entry Time (Airspace data set only)
- **Display > BENTRY** - Displays flights based on their current Based Element Entry Time (Airspace data set only)
- **Display > OENTRY** - Displays flights based on their current Original Element Entry Time (Airspace data set only)

5. Help Menu
   - **Help > Time Line** - Opens the on-line help for the Time Line component.
   - **Help > Legend** - Opens the on-line help for the Time Line icon legend.

Time Line Color Tab Options

The eight default tabs are arranged in the Time Line based on the screen resolution. The following picture is based on Windows default settings.

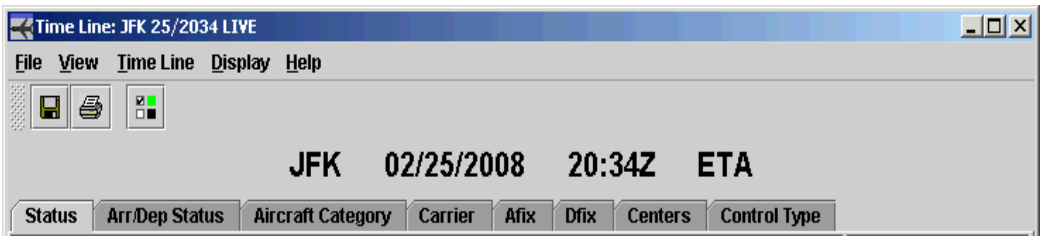


Figure 3 - 44: Time Line Coloring Tabs

The default value colors the flights according to their arrival Status. FSM gives you the flexibility to view flights according to different criteria. This allows for effective analysis to determine which flights make up the demand at an airport, FEA, or FCA. There are 16 pre-defined color tabs in the Time Line component. Each color tab option displays different information with a corresponding color scheme and legend.

Table 3-7: Color Tab Options

Tab Option	Color Display Options
Status (Default View):	Priority, Removed, Ground Stopped, Dep (Past ETD), Dep (No CTD), Dep (CTD Issued), Dep (CTD Other Element), Flight Active, and Arrived
Arr/Dep Status:	Arriving and Departing Flights (Not applicable to FEAs and FCAs)
Aircraft Category	Propeller, Turbo, Jet, and Unknown
Aircraft Class	Small, Large, Heavy, Super, and Unknown

Table 3-7: (Continued)Color Tab Options

Tab Option	Color Display Options
Carrier	Static list of predominant carriers and single carriers as specified by the user.
Afix	Color by arrival fix for that airport (Not applicable to FEAs and FCAs)
Dfix	Color by departure fix for that airport (Not applicable to FEAs and FCAs)
User	Air Cargo, Carrier, G/A, Military, Air Taxi, Other, and Unknown
Exemption	Flights excluded, exempted, and not exempted
User	All, Freight/Cargo Carrier, Carrier, G/A, Military, Air Taxi, Other, and Unknown
Alarm Status	Flights with alarm set, Other flights
Centers	ZAB, ZAU, ZBW, ZDC, ZDV, ZFW, ZHU, ZID, ZJX, ZKC, ZLA, ZLC, ZMA, ZME, ZMP, ZNY, ZOA, ZOB, ZSE, ZTL, ZZZ and manual input. **Note:** Center options may change for Canadian airports.
Distance	<200, <400, <600, <800, <1000, <1200, <1400, <1600, <1800, <2000, <2200, <2400, >=2400
Substitution Status	Subbing Flights, Non-Subbing Flights
CDM Participation	Participant, Non-participant
Program Delay	Not Controlled, Controlled Other Element, 0-29 Minutes, 30-59 Minutes, 60-89 Minutes, 90-119 Minutes, 120-149 Minutes, 150-179 Minutes, 180-209 Minutes, 210-239 Minutes, More than 240 Minutes
Control Types	Program (GDP/GS/AFP), ETMS, GAAP, FAA, NAS User, Bridge, Not Controlled, Flight Active, Arrived

Color Schemes Selection Component

You can control which tabs are displayed in the Time Line by using the new Color Schemes Selection component accessible from the Time Line's View menu. Select **View > Set Tabs Displayed**. You can dynamically show and hide specific coloring schemes for a single component. The Color Schemes Selection component displays currently selected color schemes when initially opened.

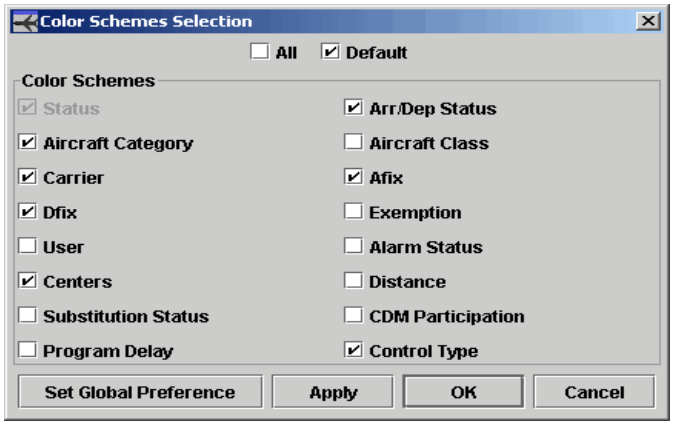


Figure 3 - 45: Color Schemes Selection Component

If the current tab is hidden, the default tab is the Status tab since it cannot be hidden. You can also set a group of coloring schemes as a user preference.

The Color Schemes Selection component has both an ***All*** and ***Default*** checkbox. Selecting ***All*** selects all color scheme checkboxes, with the exception of the ***Status*** and ***Default*** checkboxes. You can deselect all coloring schemes by removing the check from the ***All*** checkbox. This is similar to how the ***All*** checkbox works on the Status legend.

When the color schemes displayed are the same as the FSM configuration default, the ***Default*** checkbox is selected. Selecting ***Default*** resets the selections to the FSM configuration default display. This is similar to how the ***Default*** checkbox works on the Status legend.

> **Note:** You cannot deselect the ***Status*** checkbox.

The Color Scheme Selection component has the following buttons:

- **Set Global Preference**
- **OK**
- **Cancel**

Clicking **Set Global Preference** displays an FSM information dialog that says, “Global preference set to [<List of coloring schemes separated by commas>]. These changes will not take effect until OK is clicked in the Color Scheme Selection window.” and has a **Continue** button. Clicking **Continue** closes the dialog and returns you to the Color Scheme Selection component. If you set a Global Preference, FSM updates all Time Line, and GDT Time Line components opened in the future with the selected coloring schemes. FSM retains Global color scheme preferences when you save an adaptation.

> **Note:** Airspace data sets cannot be saved to adaptation files at this time.

Clicking **OK** closes the Color Schemes Selection component and changes the associated coloring scheme displays. If you make a local change (you did not make a Global Change), FSM updates the current Time Line window.

Clicking **Cancel** closes the Color Schemes Selection component and cancels any actions performed in this dialog.

All changes to Time Line are displayed in the following modes:

- Live
- GDT
- Historical
- GDT Historical

AFIX and DFIX Coloring and Order

The Afix and Dfix tabs for the Time Line now include a way for you to configure the order and color of fixes. You can now change the order of fixes and select a color for each Afix and Dfix from the Afix and Dfix Legends.

The Fix Order component lets you change the order of how the fixes are displayed. Clicking **Fix Configuration** on the Legend for the Afix or Dfix tab causes the Fix Order component to open. The fix order defaults to the ordering of the fixes as specified in the ADL.

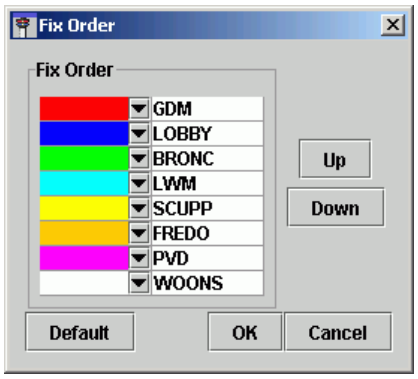


Figure 3 - 46: Fix Order Component

The Fix Order component has a list box displaying the order of the fixes from top to bottom. The fixes are listed by name and color. Each fix has a down arrow. You use the down arrow to select a color. Clicking the down arrow next to a fix name opens a dropdown box listing 20 colors. Select the color you want for the fix from the list. If you want to reorder the fixes, select the fix name from the list in the Fix Order box and click **Up** to move it toward the top of the list and **Down** to move it toward the bottom of the list.

Clicking **Cancel** closes the Fix Order component and cancels any actions performed in this dialog.

Clicking **Default** resets the fix values to their ADL order and default color.

Clicking **OK** closes the Fix Order component and applies all changes made in the dialog box.

> **Note:** The color and ordering you selected apply only to the selected element (Time Line you are currently working with).

Additionally, right-clicking a fix in the legend opens a pop-up box with 20 colors listed. Selecting a color from the pop-up box allocates the selected color for that fix.

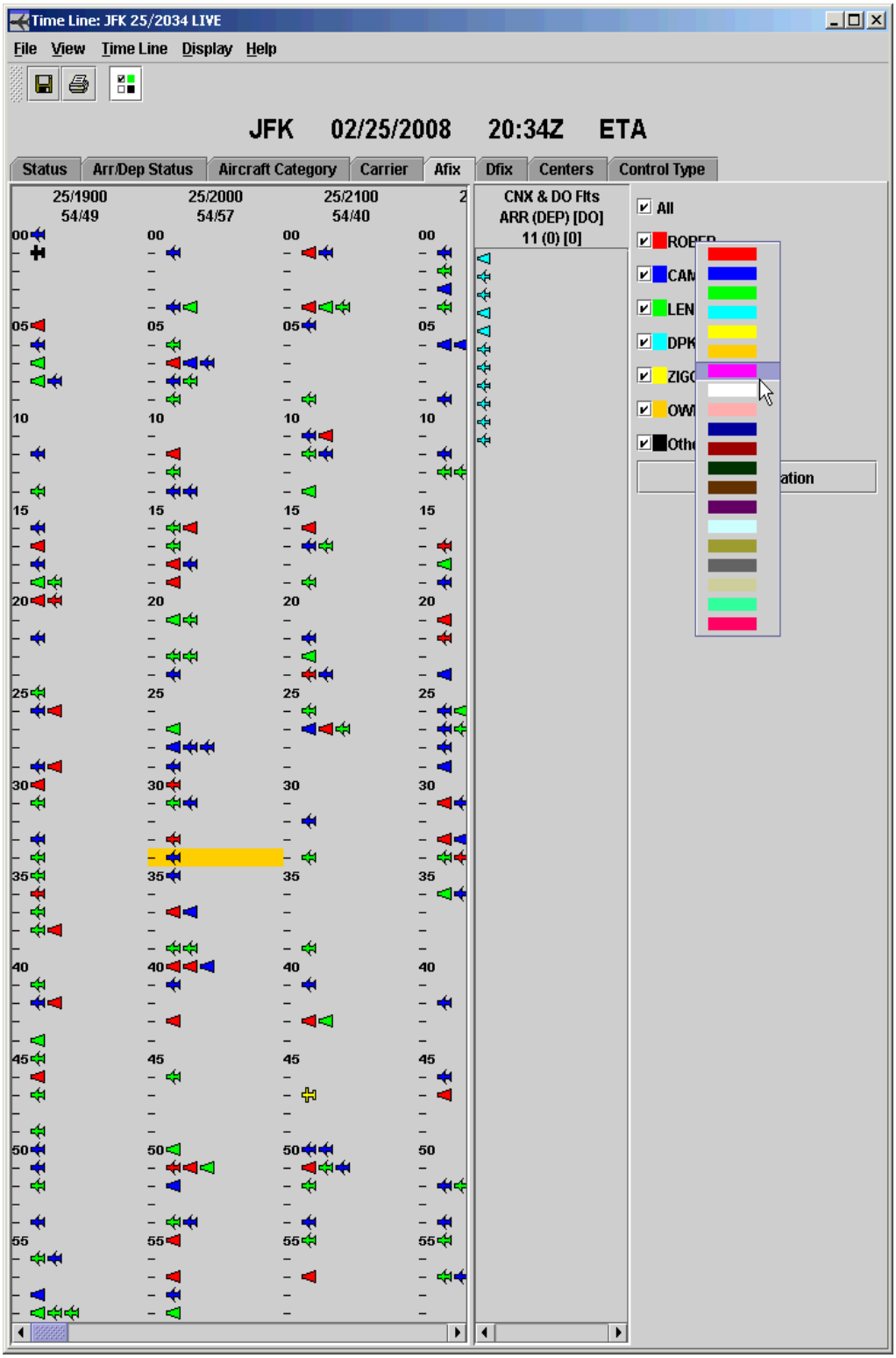


Figure 3 - 47: Time Line with Right-click Color Menu

You can assign the same color to multiple Afixes or Dfixes.

You can save and recall the configurations for Afixes and Dfixes through user adaptations. At times, FSM cannot recall an adaptation because a fix might have changed its name, new fixes were added, or old fixes were removed. If that is the case, FSM reverts to automatically assigning the coloring.

You can configure Afixes and Dfixes on the following Time Line components:

- Live Time Line
- GDT Time Line
- Historical Time Line
- GDT Historical Time Line

Element Display Component

The Element Display component allows users to view the characteristics that make up an FEA or FCA. It is a static display of the FEA or FCA's parameters, that includes general information about the FEA or FCA and the primary filters used to include flights in the element. FSM is limited to displaying FEA or FCA information that ETMS sends through a Broadcast message (see Figure 3 - 48).

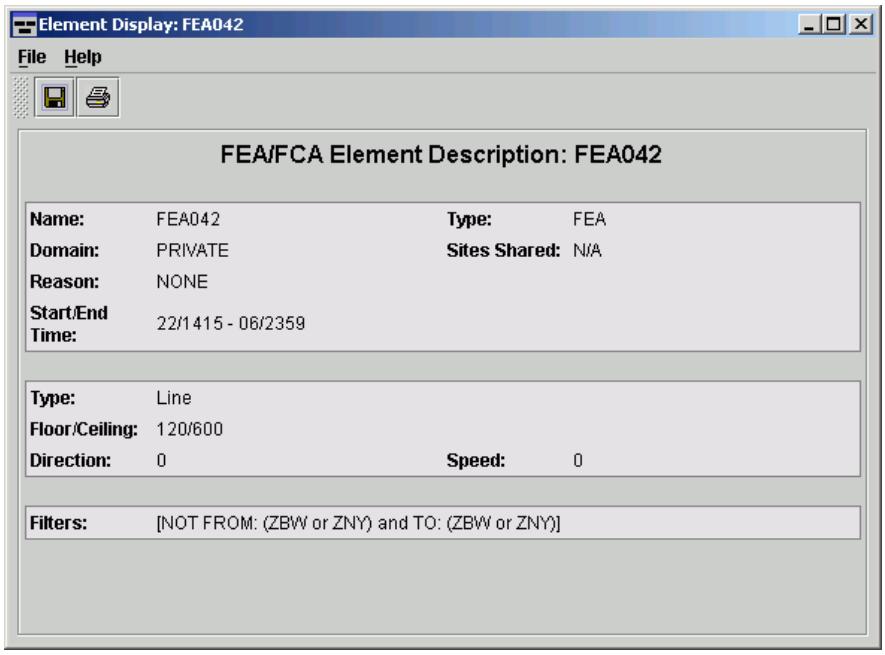


Figure 3 - 48: Element Display Component

Data displayed in the Element Display component

- ***Name*** - Name of Element
- ***Type*** - FEA or FCA
- ***Domain*** - Public, Private, Local, or Shared
- ***Sites Shared*** - Information that was manually entered by the TSD user.

- ***Reason*** - Reason entered for FEA/FCA
- ***Start/End Time*** - the Start and End times of the FEA/FCA [ddhhmm-ddhhmm] format
- ***Type*** - Line, Polygon, Circle, or NAS
- ***Floor/Ceiling*** - The minimum and maximum range for the FEA/FCA
- ***Direction*** - The Heading feature in TSD
- ***Speed*** - Not supported by FSM at this time
- ***Filters*** - Only primary filters are displayed

Note: Floor/Ceiling, Direction, and Speed fields are only applicable for Line, Circle, or Polygon.

Accessing the Element Display component

You can access the Element Display component from three components.

1. Open Data Set
2. Map
3. Control Panel

Open Data Set

To view the definition of any FSM eligible FEA or FCA from the Open Data Set, select the FEA/FCA from the Monitored Live or All Live tab and click **View Element** from the bottom right-hand corner. The element Display component opens for the selected FEA/FCA.

Map

You can access an FEA/FCA's Element Display component directly from the Map component. Left-click the FEA/FCA, this turns the FEA/FCA white in color and if the FEA/FCA is running a TMI, the scope is highlighted. Once you select an FEA/FCA, right-click the FEA/FCA to open the pop-up menu. Selecting Open Element Display opens up the Element Display component for the selected FEA/FCA (see Figure 3 - 49).

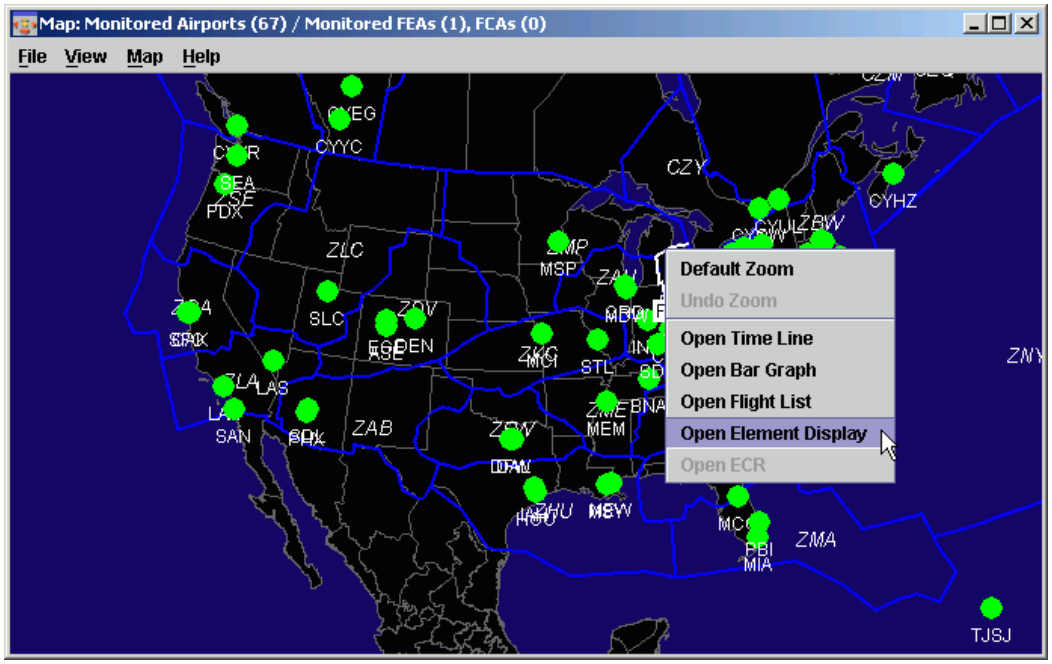


Figure 3 - 49: Open Element Display Component

Control Panel

If you are already monitoring an FEA/FCA, right-click the control element's shortcut button located on the Control Panel. Selecting Open Element Display opens up the Element Display component for the selected FEA/FCA.

> **Note:** FEA/FCA parameters can only be created, edited, or deleted through Traffic Situation Display (TSD).

Element Display Menu Bar

The Menu Bar in the Element Display component contains two options: File and Help.

1. File Menu
   - **File > Save As** - Saves the Element Display as a .jpg image in a directory that you specify.
   - **File > Print** - Prints the Element Display that is currently on the screen.
   - **File > Close** - Closes the Element Display component for that particular airport, FEA, or FCA
2. Help Menu
   - **Help > Time Line** - Opens the on-line help for the Element Display component

Ground Delay Tools Components

Ground Delay Tools (GDT) Components aid users in looking at various operational or traffic scenarios. You can use modeling tools to analyze existing operations and previous

days' events. The actual running and issuing of Traffic Management Initiatives (TMIs) is not covered in this section. This section familiarizes you with all the GDT components:

- GDT Setup
- GDT Map
- GDT Bar Graph
- GDT Data Graph
- GDT Time Line (Optional)
- Demand by Center (Optional)
- GDT Coversheet & Advisory

You can open any monitored airport or FCA in Ground Delay Tools mode by selecting a monitored data set and then clicking **GDT Mode** on the Control Panel component. There are four default GDT components that open for the selected data set (see Figure 3 - 50). The GDT Setup and GDP Map component are interactive; any change in one dynamically reflects in the other component. Other GDT components reflect changes made to the GDT Setup and Map when you model the TMI. Adaptive Compression status displays on the GDT Setup Component in the SUBS indicator section.

> **Note:** All GDT components are labeled GDT in the component title bar.

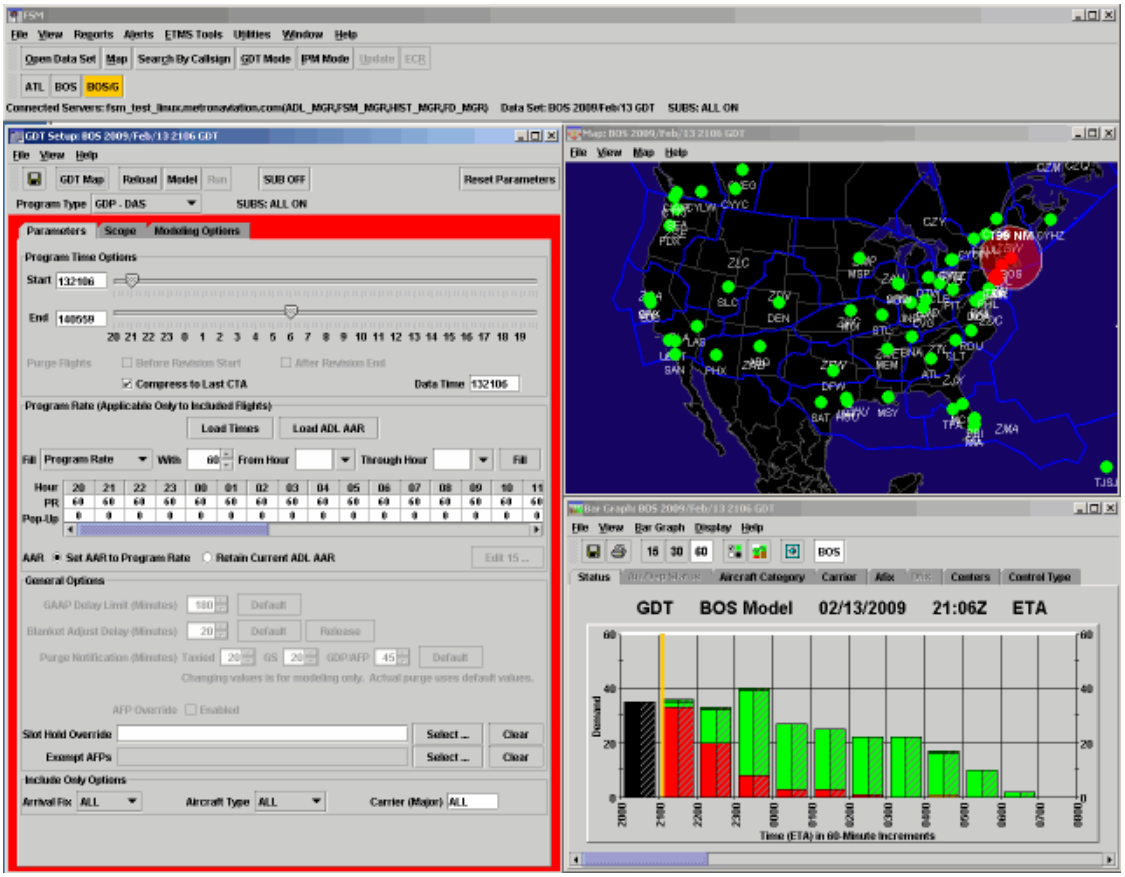


Figure 3 - 50: GDT Default Components

GDT Setup Component

You use the GDT Setup component to issue and send TMIs. The GDT Setup component consists of a menu bar, six action buttons, Program Type selection box, SUBS Indicator, and three tabs that focus on different areas of information (see Figure 3 - 51). You must select the type of TMI you want to issue from the ***Program Type*** selection box:

1. GDP - DAS - The default Program Type for airports. This program runs the Ration By Schedule Algorithm plus Compression. Not available for FCAs.
2. GDP - GAAP - This program type is similar to GDP-DAS except it automatically sets the Delay Assignment Mode to GAAP.
3. Compress Flights - Run this program to decrease delay on flights involved in an existing GDP or AFP. If there are a number of slots for cancelled flights in the stack hours, you can use compression to move these flights to a later slot without needing to extend the GDP or AFP.
4. Compress Slots - This program adjusts the Unassigned Slots in the GAAP program without reallocating EDCTs to flights currently arriving.

5. Ground Stop - Unlike ground delay programs, which delay flights because of a reduced AAR, the Ground Stop function prevents flights from departing until further notice. Not available for FCAs.
6. Blanket - Run this program type to revise any ground delay operation. This option adds or subtracts a fixed number of minutes to or from FAA-imposed delay. You should not use Blanket in conjunction with a GS. Not available for FCAs.
7. Airborne Holding - Used by traffic management specialists to determine the necessity of a GDP. In certain situations, putting delay on flights en route may be a better option than delaying flights on the ground. The airborne holding algorithm in FSM produces the amount of expected airborne holding delay, defined as [ASLOT - ETA] that would result from running a program. Not available for FCAs.
8. Purge - Cancels a GDP or GS, releasing all delay on included flights. This program type requires no entry on any tab option.
9. AFP - DAS - Airspace Flow Program available only for airspace data sets. This program is used to control traffic flow through an FCA.
10. AFP - GAAP - Airspace Flow Program available only for airspace data sets. This program type automatically sets the Delay Assignment Mode to GAAP.

The GDT Setup component tab options and features change based on the Program Type selection. The three GDT Setup tabs are Parameters (default selection), Scope, and Modeling Options.

This section discusses the Setup Panel based on each tab option. Closing the GDT Setup component closes all the GDT components for the data set. The GDT Setup panel displays the substitution status and adaptive compression for the data set: SUBS: ALL ON, ALL OFF, SCS OFF/ADPT ON, SCS ON/ADPT OFF, SCS OFF/ADPT OFF, or ALL OFF.

Note: The ***Program Type*** Purge is not mentioned in any of the tab panels, since Purge requires no parameter modifications.

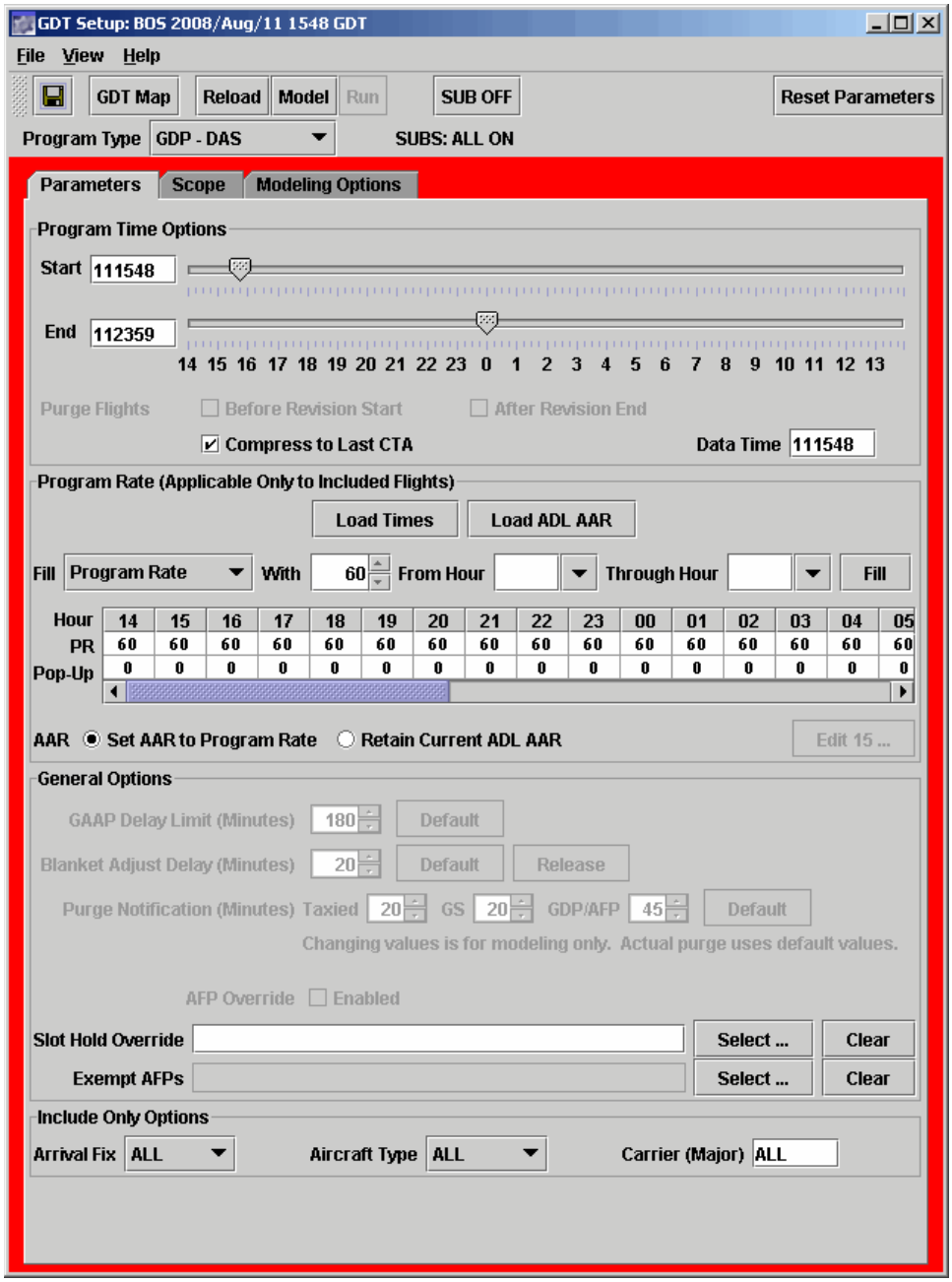


Figure 3 - 51: GDT Setup Component

GDT Setup Panel Menu Bar

The menu bar in the GDT Setup component contains three options: File, View, and Help.

1. File Menu

   - **<u>File > Load Proposed Parameters</u>** - Opens a secondary dropdown menu to select from specific parameter options:

   - **<u>> Airspace Flow Program</u>** - Loads the proposed AFP parameters.

- **> Ground Delay Program** - Loads the proposed GDP parameters.
- **> Ground Stop** - Loads the proposed Ground Stop parameters.
- **> Blanket** - Loads the proposed Blanket parameters.
- **> Compression** - Loads the proposed Compression parameters.

- **File > Load Actual Parameters** - Opens a secondary dropdown menu to select from specific parameter options:

- **> Airspace Flow Program** - Loads the actual AFP parameters.
- **> Ground Delay Program** - Loads the actual GDP parameters.
- **> Ground Stop** - Loads the actual Ground Stop parameters.
- **> Blanket** - Loads the actual Blanket parameters.
- **> Compression** - Loads the actual Compression parameters.

- **File > Open Coversheet** - Opens the Coversheet file explorer that contains all the Coversheet files. Select the coversheet you want to open and click **Open**. All coversheet files are named covr.xxx, where xxx is the airport three-letter identifier. The file names also include the Date and ADL time followed by the type of coversheet (GS, GDP, or CNX).
- **Open IPM Mode Instance** - Opens the Integrated Program Modeling (IPM) Mode with the GDT Setup's element and its parameters copied to Scenario 1 in the Scenario Manager. This option only is enabled for IPM-supported program types.
- **File > Open Parameters File** - Opens the PARAM_DIRECTORY File in file explorer. Select the parameters file and click **Open** to view the Parameters Files.
- **File > Save As** - Saves the GDT Setup component as a .jpg image to a directory of your choice.
- **File > Close** - Closes the *Setup* component and all the complimentary GDT components for that particular airport.

2. View Menu

- **View > Rename Window** - Displays the Rename Window dialog box and allows you to change the component name in the title bar. Enter the desired name then click **OK** to change the title bar heading. Click **Cancel** to close the Rename Window dialog box without making any changes.

Figure 3 - 52: Rename Window Dialog Box

There are six additional display options under the **View** menu. If you close a component and want to reopen it, use the **View** menu options to select and reopen the desired component.

- **View > GDT Data Graph** - Displays the Data Graph component
- **View > GDT Map** - Displays the GDT Map component
- **View > GDT Bar Graph** - Displays the GDT Bar Graph component
- **View > GDT Time Line** - Displays the GDT Time Line component
- **View > GDT Flight List** - Displays the Flight List for the monitored airport, FEA, or FCA. The default Flight List includes ACID, DEST (Airspace data sets only), ETD, ENTRY (Airspace data sets only), ETA (Airport data sets only), CTD,CTA, CTL_ELEM (Airspace data sets only), ORIG, DCENTR, CYTL_TYPE (Airport data sets only), and ACENTR data elements.
- **View > Show Demand** - Displays the Demand by Center component.

3. Help Menu
   - **Help > GDT Setup** - Opens the on-line help for the GDT Setup component.

GDT Setup Panel Buttons

The six action buttons are **Save** (the button with the disk icon), **GDT Map, Reload**, **Model**, **Run**, **SUB OFF**, and **Reset Parameters**. These buttons are active when the feature is available.

- Clicking the Save button saves the GDT Setup component as a .jpg image to a directory of your choice.
- Clicking **GDT Map** opens the GDT Map.
- Clicking **Reload** causes FSM to load the latest ADL data into the GDT mode. You then can model the program using the latest data and make any adjustments you think are necessary.
- Clicking **Model** models and reflects your changes in all GDT components for analysis and review. After you make any modification to any portion of the GDT Setup component, which FSM indicates by highlighting the tab window area with a red border, the **Model** button becomes active. After clicking **Model**, your GDT Setup component also resets and the red border no longer is displayed until you make an additional change.

- Clicking **Run** displays the GDP/GS coversheet, which then gives you the option to send an **Advisory** or **Autosend** this initiative to ETMS.
- Clicking **SUB OFF** turns off subbing for the TMI.
- Clicking **Reset Parameters** loads the most current ADL, clears any Impact elements of the modeled data, and returns the GDT settings to their defaults.

Parameters Tab

The Parameters Tab is active for all program types and is the default tab that opens when you open the GDT Setup component. Within this tab you can specify parameters including the program time, program rate, and general options for GAAP delay, Blanket delay, and Purge notifications. Options which are not features for certain program types are disabled.

You can edit ***Start*** and ***End*** time parameters in the Program Time Options section for all program types.

- ***Start*** **-** Enter the date and time when the TMI should begin.
- ***End*** **-** Enter the date and time when the TMI should end.

The default End time for Ground Stops will adjust to 15 minute increments on the hour (00, 15, 30, and 45). All other programs will have a default end time on the 14, 29, 44, or 59th minutes. The End time for Ground Stops will be a time increment that results in at least a one hour GS. For example, if the Ground Stop Start time is 1902, the default End time will be 2015.

If you are using the slider to select the End time for a Ground Stop, the slider will adjust to 15 minute increments on the hour. Using the slider to adjust the End time for all other programs will result in an End time on the 14th, 29th, 44th, and 59th minutes.You can populate the times in the text box to the right of the time field or use the slide bars, which automatically fill the time into the text box.

The Purge Flights section of the GDT Setup component contains two checkboxes that allow you to purge flights before a revision start time and after a revision end time as appropriate for AFP/GDP revisions.

- ***Before Revision Start*** **-** This checkbox allows you to specify if control times should be purged off of flights between the revision start time and the cumulative start time. ***Before Revision Start*** is disabled if a GDP or AFP does not exist for a current data set, whether Blanket, Compression, and or GS on top of the GDP. The purge ***Before Revision Start*** is enabled only when the selected GDP/AFP start time is later than the existing program's Cumulative Start Time. This option is dynamically enabled and disabled with the mouse release action on the slider bar.

  Note: FSM will reset the Cumulative Start Time to the new (later) start time and determine which flights are no longer controlled due to the change.

- ***After Revision End*** **-** This checkbox allows you to specify if control times should be purged off of the flights between the revision end time and the cumulative end time. ***After Revision End*** is disabled if a GDP or an AFP does not exist for the current data

set, including Blanket, Compression, and or GS on top of the GDP. The purge ***After Revision End*** is enabled when the selected GDP/AFP end time is earlier than the existing program's Cumulative End Time. This option is dynamically enabled and disabled with the mouse release action on the slider bar.

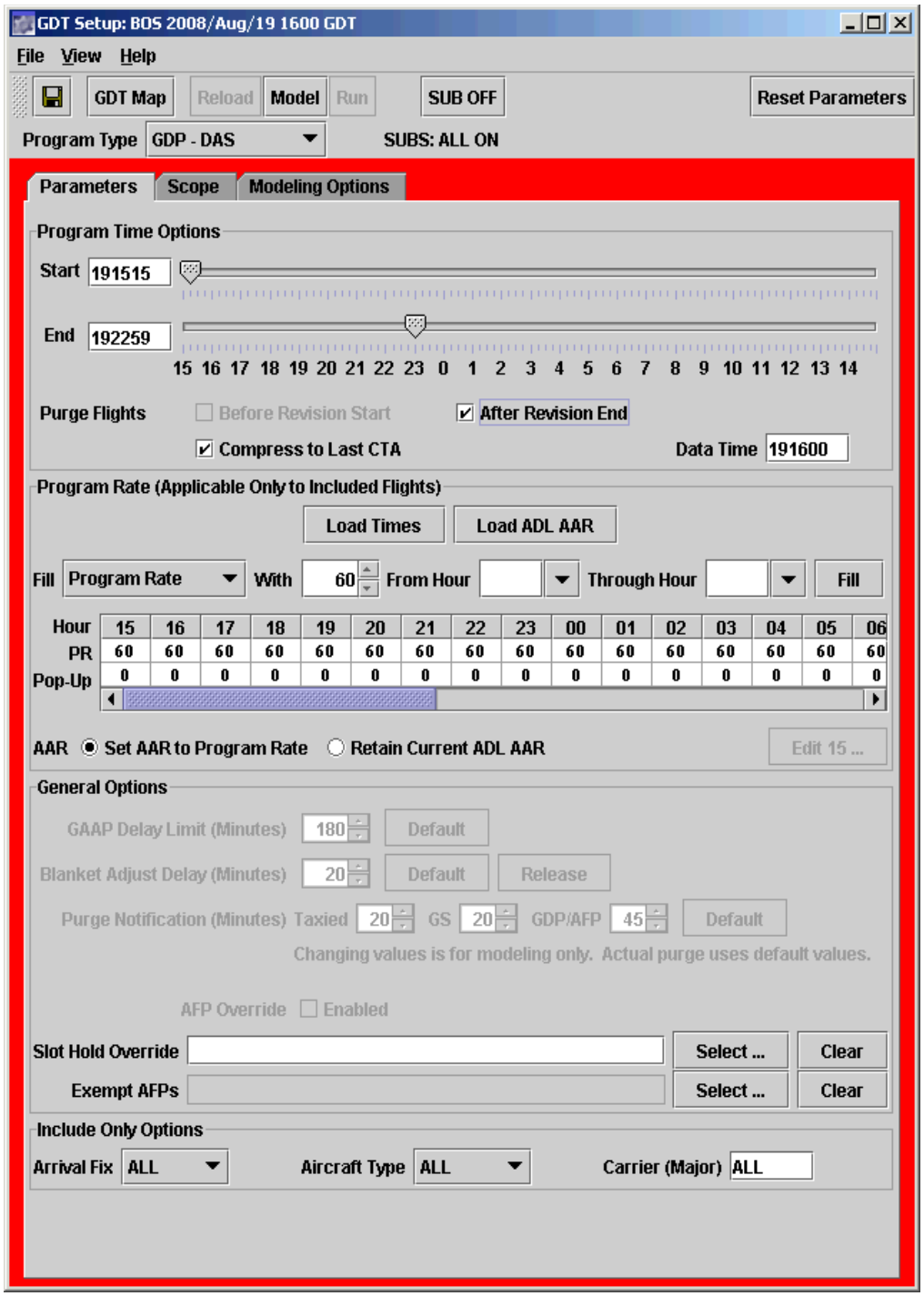


Figure 3 - 53: Purge Flights GDT Setup

Note: FSM will reset the Cumulative End Time to the new (earlier) end time and determine which flights are no longer controlled due to the change.

- ***Compress to Last CTA*** - This functionality is available during an AFP (initial and revision), GDP (initial and revision), and Compression. When checked, all flights that have control times are eligible for compression. When unchecked, only flights with CTAs through the End time of the program are compressed.
- ***Data Time*** - This functionality is the ADL time on which you are modeling and analyzing your TMI. Set the time you want to use as the current time. You can set this time forward or back without changing the data. If you change the ***Data Time***, a warning box displays letting you know the "Data Time changed from default," and the time is highlighted in red. Changing the Data Time back to the default ADL time puts the Data text field back to normal. You cannot edit ***Data Time*** for an Airborne Holding program.

  Note: The default ADL time always displays in the GDT Setup Title bar.

The Program Rate section is active for all Program Types except Compression, Ground Stop, Blanket, and Purge. The Program Rate table is oriented horizontally so that the hours are displayed across the top of the table. The hours shown in the program rate table range from one hour prior to the current time to 35 hours ahead of the current time. To view the hours across the table, use the horizontal scroll bar directly below the table.

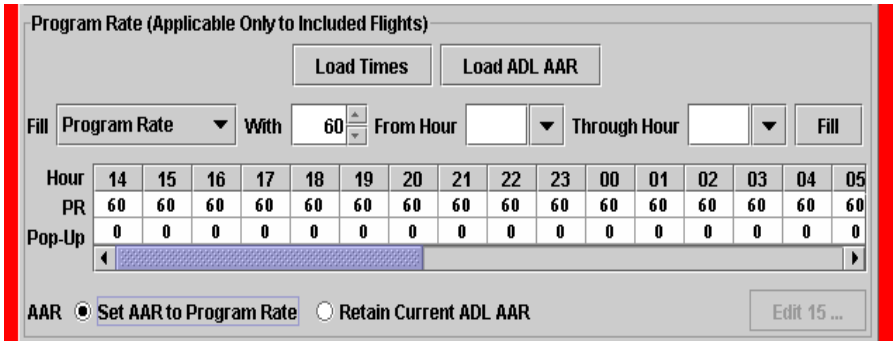


Figure 3 - 54: GDT Setup - Program Rate Section

Fill in the program rates by entering a rate in the ***With*** box, and using the ***From Hour*** and ***Through Hour*** to select the time frame, and clicking **Fill**. There are two additional features to the Program Rate section of the Parameters tab which are *not* included in Modify Program Rate; the **Load Times** button and the ***Pop-up Factor*** column. You can click **Load Times** to fill the ***From Hour*** and ***Through Hour*** fields to match the Program Time Options section. If you click **Fill** after entering the Program Rate and hours, FSM automatically fills in the appropriate hour columns. The ***Pop-up Factor*** is not available in the Ground Stop Program Type. The ***Pop-up Factor*** accounts for potential "pop-up" flights. For example, if you change the Program Rate for a certain number of hours to 40 with a Pop-up Factor of 5, the Program Rate that FSM uses to run the GDP or AFP is 35.

This leaves room for any unknown flights that show up in that hour because the actual capacity of the airport is 40.

To set the Pop-Up Factor for a program from the GDT Setup component.

1. Select the Parameters tab on the GDT Setup component.
2. Select **Pop-Up Factor** from the ***Fill*** dropdown.

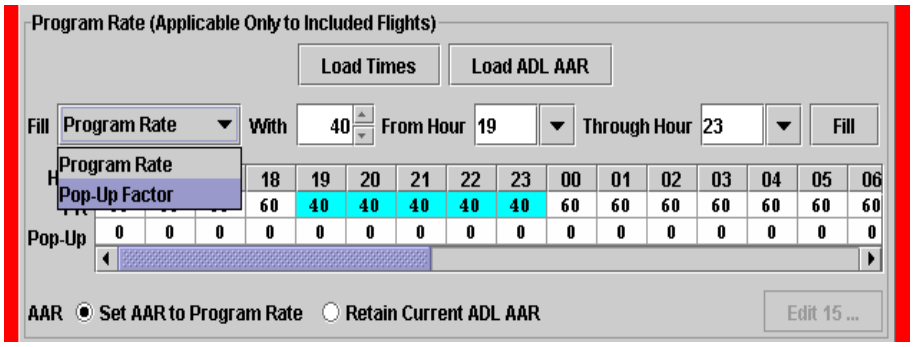


Figure 3 - 55: Program Rate Pop-Up Factor

3. Enter the number of Pop-Up slots you want FSM to create in ***With***.
4. Enter the hours for this Pop-Up Factor in ***From Hour*** and ***Through Hour***.
5. Click ***Fill***. FSM enters the Pop-Up Factor specified into the appropriate hours.

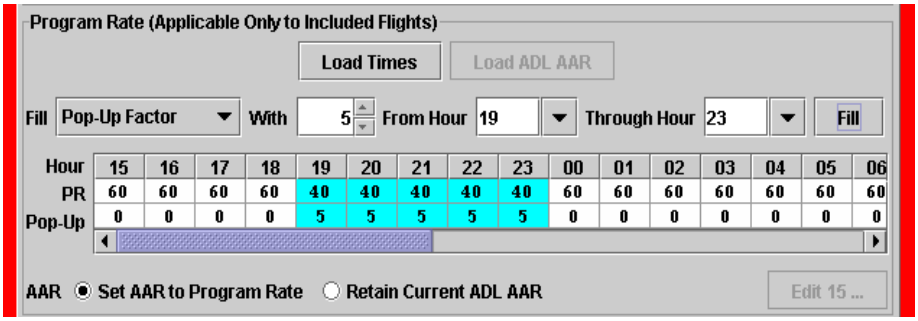


Figure 3 - 56: Pop-Up Factor Filled

6. Select the number in the Pop-Up Factor column. FSM enables the **Edit 15** button.
7. Click **Edit 15**.

   The 15 Minute Pop-Up Factor window displays.

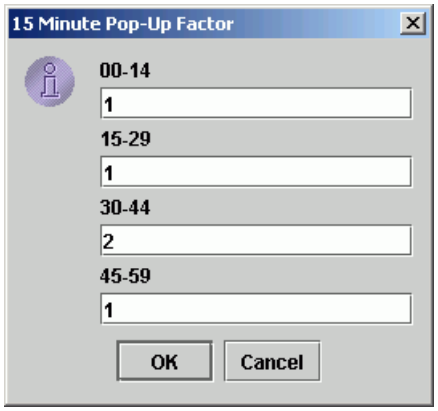


Figure 3 - 57: 15 Minute Pop-Up Factor

8. Enter the Pop-Up Factor you want for each 15 minute increment of the selected hour.
9. Click **OK**. The edited Pop-Up Factor is highlighted green.

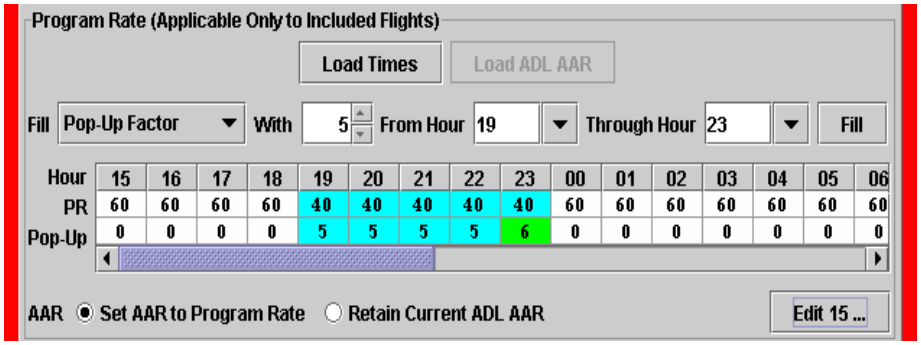


Figure 3 - 58: Pop-Up Factor Edited in 15 Minute Increments

10. Once you have entered all of the parameters for the new TMI, modeled the program and clicked **Run**, the Pop-Up Factor displays under the Program Rate on the coversheet.

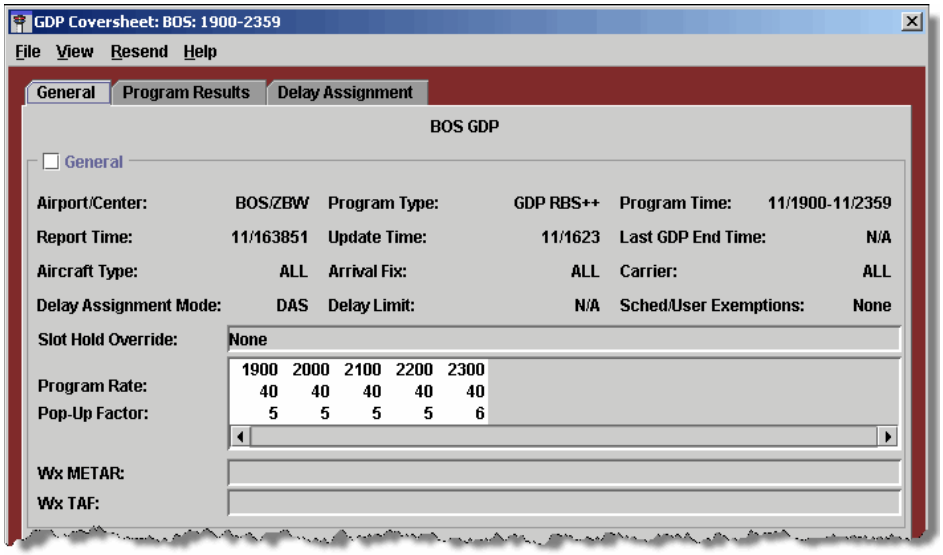


Figure 3 - 59: Pop-Up Factor Displays Under Program Rate

You may set the following parameters within the General Options section of the Parameters tab:

- ***GAAP Delay Limit (Minutes)*** - Allows you to set the amount of delay (in minutes) for flights controlled by a GDP - GAAP. The default ***Delay Limit*** is 180 minutes. If an ADL contains GDP parameters that include a Delay Limit, that limit displays when you use the Load Parameters feature.
- ***Blanket Adjust Delay (Minutes)*** - This parameter is available only when using the Blanket Program Type. You can use ***Blanket Adjust Delay*** to add or release a specified amount of time from selected criteria. You should only use Blanket during a GDP. For example, if you had a hole in the traffic flow, you could select centers, distance, fixes, or aircraft types and enter in a negative number to release some delay or release all delay by clicking **Release**. **Release** fills in the Adjust Delay text field with –999, which is equivalent to releasing all delay. Alternatively, you can add delay to the selected criteria by entering the amount of extra delay in minutes.
- ***Purge Notification (Minutes)*** - These options are only available when a Purge program type is selected. Although these values will be used for the purge, you may change the values for modeling purposes. To model the purge using different values, you may either enter the number of minutes in the fields, or use the spinner controls to change the values in five-minute increments. These values may not be negative. If you change the default values and click Run, a warning message displays to indicate that the Purge must use the default notification values. Click **Default** to reset the values to the default times.
- ***AFP Override*** - Gives priority to the current AFP over previously issued AFPs. FSM assigns control times based on the current modeled AFP and overrides any other control times that flights received due to previous AFPs. These control times do NOT override control times assigned due to airport based TMIs.

- ***Slot Hold Override*** **-** You can change parameters only for RBS++ and Compression. The Slot Hold Override field allows you to override an airline's slot holding status by either typing an airline's three-letter identifier directly in the text field next to ***Slot Hold Override*** or click **Select** to open the Select Slot Holding window (see Figure 3 - 60). The Select Slot Holding window lists the airlines currently holding slots at the data set constraint and allows you to select which airline(s) to override. Select the box next to each airline to override its slot holding status and include the slot in compression. When you check a box, that airline's slot hold status is ignored.

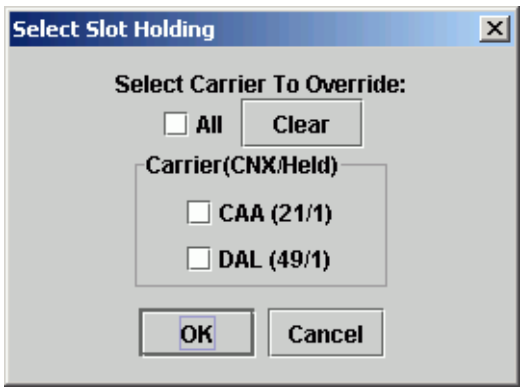


Figure 3 - 60: Slot Holding Override Window

- ***Exempt AFPs*** **-** To minimize the number of changes to control time for flights that are controlled by a GDP and to minimize the change in the demand at the AFP, you may exempt AFP flights from GDP. Selected flights will be treated as previously controlled regardless of their AFP exemption status and given the first available airport arrival slot after their estimated arrival time, which is based on their current AFP EDCT and any airline submitted flight delays. FSM will make an effort not too change the assigned departure time (CTD) for the flight, subject to capacity constraints at the airport and any known flight delays.

You can select parameters for ***Arrival Fix***, ***Aircraft Type***, and ***Carrier*** for all program types except AFP - DAS, Compress Flights, and Airborne Holding in the Include Only Options section.

- ***Arrival Fix*** **-** Use the dropdown menu to determine which Arrival Fixes to include in the operation. You can select ALL (default value) or one individual fix.
- ***Aircraft Type*** **-** Select ALL (default value), Jet Only, or Prop Only from the Aircraft Types dropdown menu to specify the aircraft types included in the operation.
- ***Carrier (Major)*** **-** Select ALL (default value) to include all carriers at that airport. If you want to include only a single airline, type the carrier's 3-letter code into the text box. The application does not allow you to include only one carrier without including its sub-carriers. Likewise, you cannot include one sub-carrier. Typing a carrier code into this field always includes the major and its sub-carriers.

Scope Tab

The Scope tab is active for all Program Types except Airborne holding and Purge. The Scope tab has two types of exemption criteria for airports, Tier-based and Distance-based.

In the Select By dropdown box, select either a Tier or Distance based initiative. FCAs can only issue tier-based AFPs, therefore, distance is not an option.

Scope Tab for Data Sets with Select By Tier Selected

When you select ***Select By*** Tier, the following panel is displayed. The panel contains four sections where you can modify parameters: Centers - Origin, Airports - Origin, Airports - Destination, and Flights.

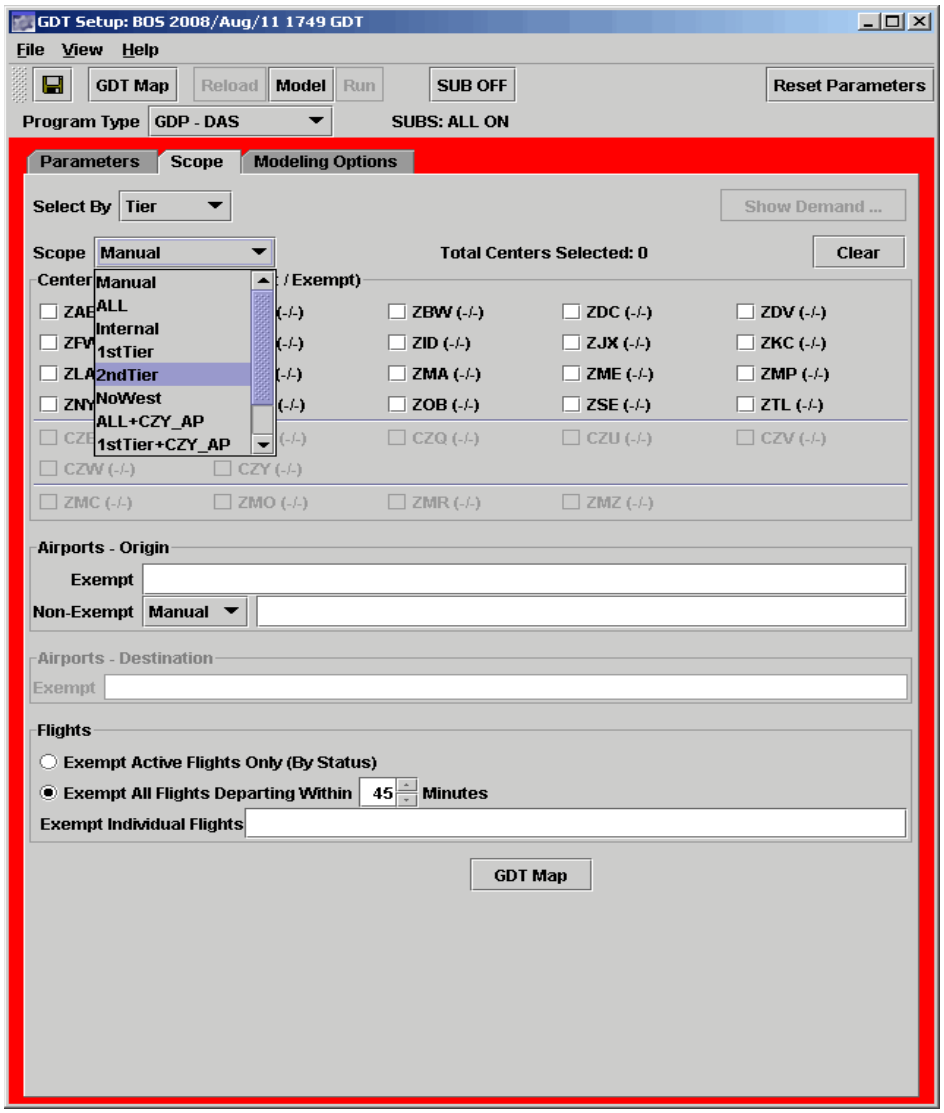


Figure 3 - 61: GDT Setup - Scope Tab

Centers - Origin: You can select the centers you want to include in the program or select a Tier level from the ***Scope*** dropdown menu:

- ***Scope***: Select a tier option from the dropdown menu. Selecting a Tier, automatically selects the associated centers. The total number of centers selected displays to the right of the Tier selection. Click **Clear** to erase all centers with checkmarks and return the included tier selection back to Manual.

- Manual Center Selection**:** Click the checkbox to select or deselect individual centers to include in the program.

  Note: The recommended scope for AFP programs is ALL + Canada

Airports - Origin: This section of the panel allows you to exempt and non-exempt airports:

- ***Exempt***: You can exempt certain departure airports from a TMI. Enter the three or four-letter airport code to exempt that airport. Separate airports with a space or a comma. The maximum number of exempt airports you can enter is 24.
- ***Non-Exempt***: You can include certain departure airports for a TMI that were not originally included based on the Center section criteria. Select Manual from the dropdown, then enter the three or four-letter airport code to include that airport. Separate airports with a space or a comma. The maximum number of non-exempt airports you can enter is 16.

Airports - Destination: This section of the panel is only for airspace datasets and is disabled for airport data sets.

- ***Exempt -*** You can exempt certain arrival airports from an AFP. Enter the three or four-letter airport identifier to exempt flights that are arriving from that airport from departure delay. Separate airports with a space, comma, semi-colon, or colon.

Flights: This section of the panel allows you to exempt, i.e., give no departure delay, to priority flights as well as select ***Exempt by Departure Status*** or time.

- ***Exempt Active Flights Only (By Status)*****:** Selecting this option gives exemption status only to active flights, therefore, all flights within the scope of the program that are not active are considered Non-Exempt. This option is selected by default when there is a Ground Stop in place.
- ***Exempt All Flights Departing Within*** **'XX' Minutes:** When exempting flights based on departure time, you may adjust the time either manually by clicking in the field and typing in a value enter a value, or by using the spinner controls (the up/down arrows to the right of the field) to change the value in five-minute increments. This value must be greater than or equal to 0. Selecting this option will exempt all flights with ETDs within XX minutes of the Data Time. This option is selected by default when there is no Ground Stop in place.
- ***Exempt Individual Flights*****:** Enter a flight's ACID to exempt priority flights.

Scope Tab for Airport Data Sets with Select By Distance Selected

When you select ***Select By*** Distance, the Distance panel is displayed (see Figure 3 - 62). The Distance panel contains four sections in which you can modify the parameters: Distance, Centers - Origin, Airports - Origin, and Flights.

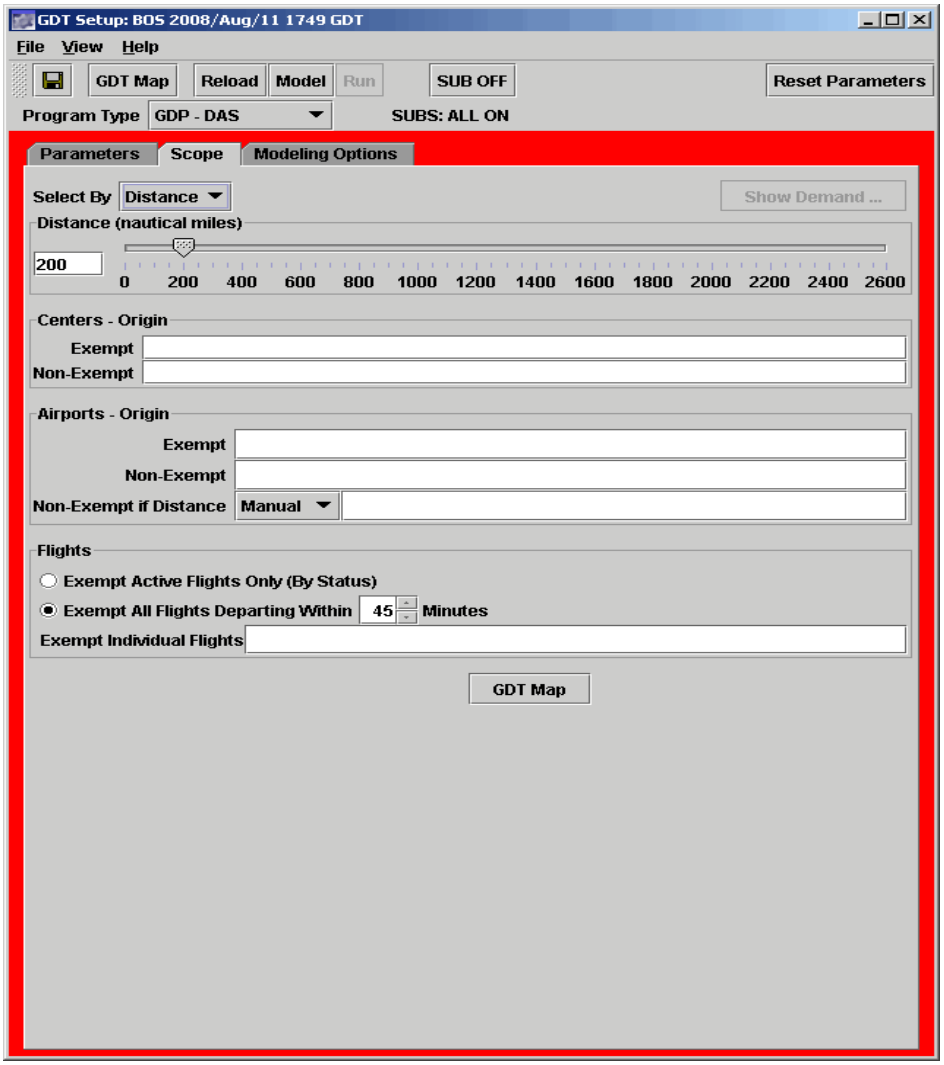


Figure 3 - 62: GDT Setup - Scope Tab Exempt By Distance

Distance: When the Distance Panel first displays, the default distance is 199 nautical miles. You can enter your distance range directly into the Distance text box or click and drag the sliding bar for the desired distance; this automatically fills in the distance. Remember, anything changed in the Setup panel is reflected in the GDT Map. You can change the distance range from the Setup panel and simultaneously view the range ring and what centers/airports are affected on the GDT Map.

Centers - Origin: You can enter centers to be ***Exempt*** (have higher priority than Non Exempt) or ***Non Exempt***.

- ***Exempt***: You can exempt certain centers from a TMI that were originally partially, or entirely, included based on the Distance criteria. Enter the three or four-letter center identifier to exempt a particular center. Separate multiple centers with a space or a comma. The maximum number of exempt centers you can enter is 36.
- ***Non-Exempt*:** You can include certain centers from a TMI that were not included originally based on the Distance criteria. Enter the three or four-letter center identifier

to include a particular center. Separate multiple centers with a space or a comma. The maximum number of non-exempt centers you can enter is 16.

Airports - Origin: This section of the panel allows you to include and/or exempt airports.

- ***Exempt*:** You can exempt certain departure airports from a TMI. Enter the three or four-letter airport code to exempt that airport. Separate multiple airports with a space or a comma. The maximum number of exempt airports you can enter is 24.
- ***Non-Exempt*:** You can include certain departure airports from a TMI that were not included originally based on the Distance criteria. Enter the three or four-letter airport code to include that airport. Separate multiple airports with a space or a comma. The maximum number of non-exempt airports you can enter is 16.
- ***Non-Exempt if Distance*:** Use this field to include Canadian airports. If you select a Canadian airport, FSM includes that airport if it falls within the selected distance parameter.

Flights: This section of the panel allows you to exempt, i.e., give no delay, to priority flights as well as select Exempt by Departure Status or Time.

- ***Exempt Active Flights Only (By Status)*:** Selecting this option gives exemption status only to active flights, therefore, all flights within the scope of the program that are not active are considered Non-Exempt. This option is selected by default when there is a Ground Stop in place.
- ***Exempt All Flights Departing Within* 'XX' Minutes:** When exempting flights based on departure time, you may adjust the time either manually by clicking in the field and typing in a value enter a value, or by using the spinner controls (the up/down arrows to the right of the field) to change the value in five-minute increments. This value must be greater than or equal to 0. Selecting this option will exempt all flights with ETDs within XX minutes of the Data Time. This option is selected by default when there is no Ground Stop in place.
- ***Exempt Individual Flights*:** Enter a flight's ACID to exempt priority flights.

Modeling Options Tab

The Modeling Options tab is available for all program types with the exception of Purge. Once the parameters are set, you may want to determine which parameters run the best TMI. In this case, you can take advantage of FSM's powerful analysis capabilities to view the results of the parameters you have selected before actually running the operation.

You can use the Modeling Options tab in the GDT Setup component as an analysis tool. There are four GDP, three AFP, three GS, one Compression, and one Blanket Power Run operations, which analyze the results for any program. You can select these options from the dropdown menu that displays next to ***Power Run By***. You use the Power Run function to determine whether you need to modify the parameters. When any Power Run is generated, FSM automatically saves the Power Run to a file.

Once you have clicked **Run** on the GDT Setup component, you still have the option to analyze the parameters used. FSM generates a post-operation evaluation, called the

Analysis Report, when you click **Run**. The Analysis Report is an option on the Reports menu in any delay operation Coversheet.

To view a scenario, select the type of program to model in the ***Power Run By*** dropdown menu and click **Model**. Model displays the effects of potential operation parameters and how traffic at the airport would be affected by using these parameters for an actual program in all GDT components. Review the program statistics in the Data Graph. To preview the effects of running a Power Run scenario as an actual program, move the black line on the Data Graph component to other options displayed on the X-axis. This is discussed in more detail in the Data Graph Component Section.

With the exception of Power Run for Decision Time, you can preview the proposed parameters and their effect on the airport's traffic.

> **Note:** After you click **Model**, the Setup Panel no longer contains a red border, which indicates that all the components reflect the information in the GDT Setup component.

Power Run Options

The different options when using ***Power Run By*** describe what data is displayed on the X-axis of the Data Graph and the headers in the Data Table (see Figure 3 - 63). The Program Type you select determines which options are displayed in the Power Run By dropdown menu. All GDP functions have "GDP" listed before the Power Run Type, all AFP functions have "AFP" listed before the Power Run Type, and all GS functions have "GS" listed before the Power Run Type.

Table 3-8: Power Run Options by Program Type

Program Type	Power Run By Options
GDP - DAS	GDP Distance
	GDP Data Time
	GDP Data Time & Distance
GDP - GAAP	GDP Distance
	GDP Data Time
	GDP Data Time & Distance
AFP - DAS	AFP Percent Demand
	AFP Percent Capacity
	AFP Data Time
AFP - GAAP	AFP Percent Demand
	AFP Percent Capacity
	AFP Data Time
Ground Stop	GS Center Group
	GS Time Period
	GS Center Group & Time Period

Table 3-8: (Continued)Power Run Options by Program Type

Program Type	Power Run By Options
Compress Flights	Start Time
Blanket	Minutes of Adjustment

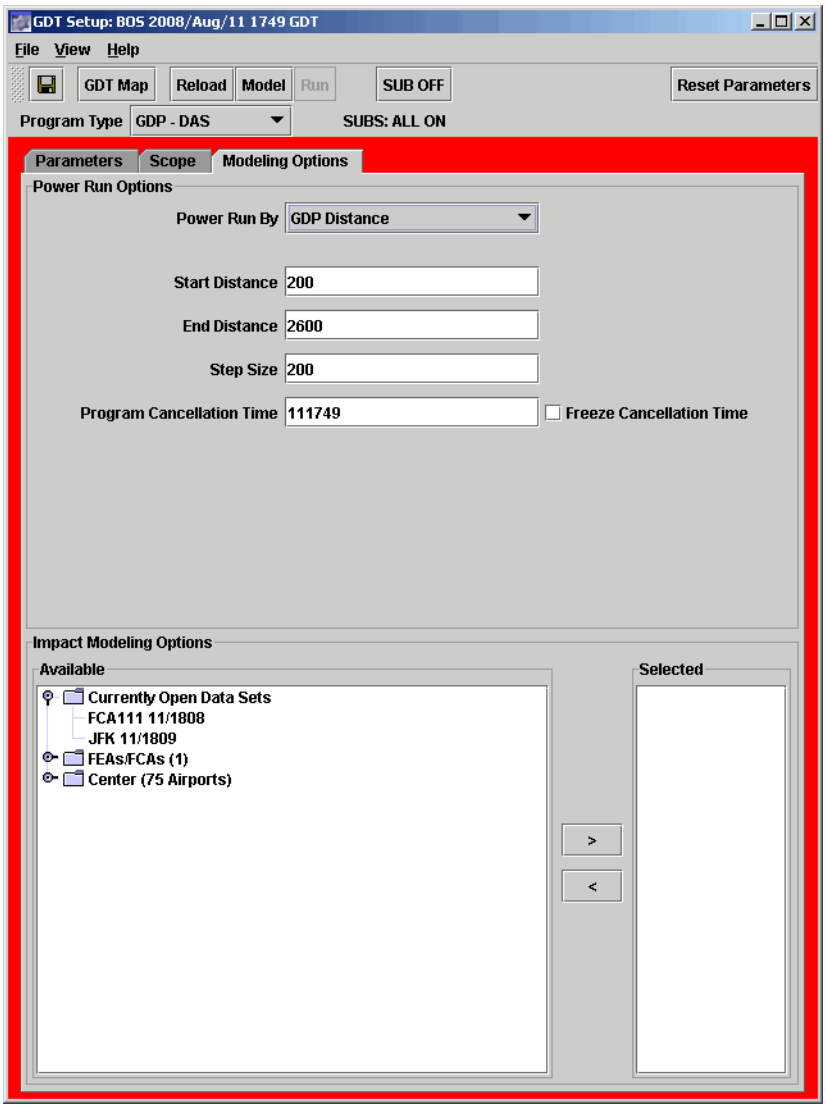


Figure 3 - 63: GDT Setup - Modeling Options Tab

Note: Distance variables are only editable when you model a Distance based Program.

Program Cancellation Time

Using the ***Program Cancellation Time***, you can model unrecoverable delay assuming a program cancellation time other than the program start time. The field defaults to the program start time and uses the ddhhmm format. The ***Program Cancellation Time*** is available for all Power Runs for GDP and AFP program types, but not for GS, Blanket,

and Compression program types. The ***Program Cancellation Time*** defaults to the Program's Start time in the GDT Setup Panel. If you change the ***Start Time***, this automatically reflects in the ***Program Cancellation Time***.

A checkbox labeled ***Freeze Cancellation Time*** displays to the right of the ***Program Cancellation Time***. By default the checkbox is unchecked. When checked, the ***Program Cancellation Time*** does not change with a newly entered ***Start Time*** or when FSM reloads a new ADL.

GDP Power Run Options

- GDP Center Group: This option allows you to view the effect of the “proposed parameters” on the different center groups. The post-operation demand rate for each hour for a specific group of centers displays in the Data Graph. Other information displayed, includes average delay, number of affected flights, and total delay.
- GDP Data Time: From the Setup Panel, select GDP Data Time in the Power Run By dropdown menu. This option is available only for GDP program types. This option allows you to view the effects of the proposed GDP according to the time the GDP is issued. Using the display, you can determine how far in advance you need to issue the GDP. Any hour whose demand still exceeds the AAR is highlighted in red.
- Distance: From the *GDT Setup* component, select Distance from the Power Run By dropdown menu when modeling either a GDP or GS. This function shows you the effect of running a GDP or GS for various distance parameters. When Distance is selected from the Power Run By dropdown menu, three text fields become active in the Modeling Options tab: ***Start Distance***, ***End Distance***, and ***Step Size*** (distance increment). The default is set to start at 199 nautical miles and end at 2600 nautical miles with a step size of 200 nautical miles. You can manually enter your desired distance and increment range into the appropriate text fields.
- GDP Center Group & Data Time: From the *GDT Setup* component, select GDP Center Group & Data Time from the Power Run By dropdown menu. This option is available only for GDP program types. This function combines Power Run by Center Group and Power Run by Data Time. When you perform Power Run by Center Group & Data Time, you can view all available options to run a GDP using a particular center group at various data times.
- GDP Data Time & Distance: From the *GDT Setup* component, select GDP Data Time & Distance from the Power Run By dropdown menu. This option is available only for GDP program types. This function combines Power Run by Data Time and Power Run by Distance. When you perform Power Run by Center Group & Data Time, you can view all available options to run a GDP using a particular distance at various data times. Just as in the Distance set up, three text fields become active in the Modeling Options tab: ***Start Distance***, ***End Distance***, and ***Step Size*** (distance increment). The default is set to start at 199 nautical miles and end at 2600 nautical miles with a step size of 200 nautical miles. You can manually enter your desired distance and increment range into the appropriate text fields.

AFP Power Run Options

- AFP Data Time: This option allows you to view the effects of the modeled AFP according to the time the AFP is issued. Using the display, you can determine how far in advance you need to issue the AFP.
- AFP Percent Demand: This is the default option when you select an AFP RBS program type. An AFP Percent Demand Power Run has three fields: ***Min Percent Demand (%)***, ***Max Percent Demand (%)***, and ***Step Size***. The default is set to start at Min Percent Demand of 50% and Max Percent Demand at 100% with a step size of 10%. You can change the min and max percent demand and increment range to meet your needs. The AFP Percent Demand Power Run scenario analyzes alternatives by increasing/decreasing average demand for the indicated AFP start/end time. Moving the black vertical line in the Data Graph to adjust the percent of demand automatically adjusts the AFP AAR to meet the adjusted demand.
- AFP Percent Capacity: This Power Run analyzes alternatives by increasing or decreasing the modeled AAR value for the indicated AFP Start and End times. An AFP Percent Capacity Power Run has three fields: ***Min Capacity Reduction (%)***, ***Max Capacity Reduction (%)***, and ***Step Size***. The default value for Min Percent Capacity is 50. The default for Max Percent Capacity is 100. The ***Step Size*** default is 10.

Ground Stop Power Run Options

- GS Center Group: This Power run allows you to see different statistics for all center groups. The Data Graph's X-axis and the Data Table's column header display the various center groups. This option is available only for GS program types.
- GS Time Period**:** From the *GDT Setup* component, select GS Time Period in the Power Run By dropdown menu. This option is available only for GS program types. This function shows you the effect of running a ground stop for various lengths of time. When you select GS Time Period, two text fields become active: *Number of Start Times* and *Number of End Times*. The default for both is set to 2, but you can manually enter in another value to meet your analysis needs.

  Note: If you decide to run a GS for longer than one hour, FSM provides a warning message to ensure you want the ground stop to last for that duration.

- GS Center Group & Time Period: This Power Run allows you to see which combination of center groups and time periods put in the GS parameters would produce the best program. The Data Graph's X-axis and the Data Table's column headers show the various Time Periods and Center Group combinations. This option is available only for GS program types.

Compress Flights Power Run Option

- Start Time: This Power Run allows you to model a Compression based on Earliest Start Time, Latest Start Time, and Step Size. The Data Graph shows Average Delay Difference in addition to the usual statistics. Average Delay Difference is the difference in calculated average delay prior to and after the modeled program. It represents the reduction of delay benefit in minutes resulting from a later start time.

Blanket Power Run Option

- Minutes of Adjustment: This Power Run allows you to see alternatives by minutes of adjustment for a Blanket program. You must enter a Minimum Adjustment, Maximum Adjustment, and Step Size for the program. Each of these values must be integers between -999 and 999.

Impact Modeling Options

You can view the impact of a TMI on up to five other elements while modeling a program on the current element. FSM applies the results of the model TMI to each matching flight instance found in the impact elements. Then, FSM updates specific flight data fields within each impact element based on values calculated for the model element.

> **Note:** You cannot use impact modeling in Historical mode.

FSM does not allow modeling errors in Impact elements to prevent modeling for the Model element or the issuance of the TMI. If an error occurs in any of the Impact elements, it does not prevent you from modeling or submitting a program.

The Impact Modeling Options section of the Modeling Options tab displays a list of elements in the ***Available*** box that you can use for impact modeling. Use the arrow buttons to move the selected elements into and out of the ***Selected*** box.

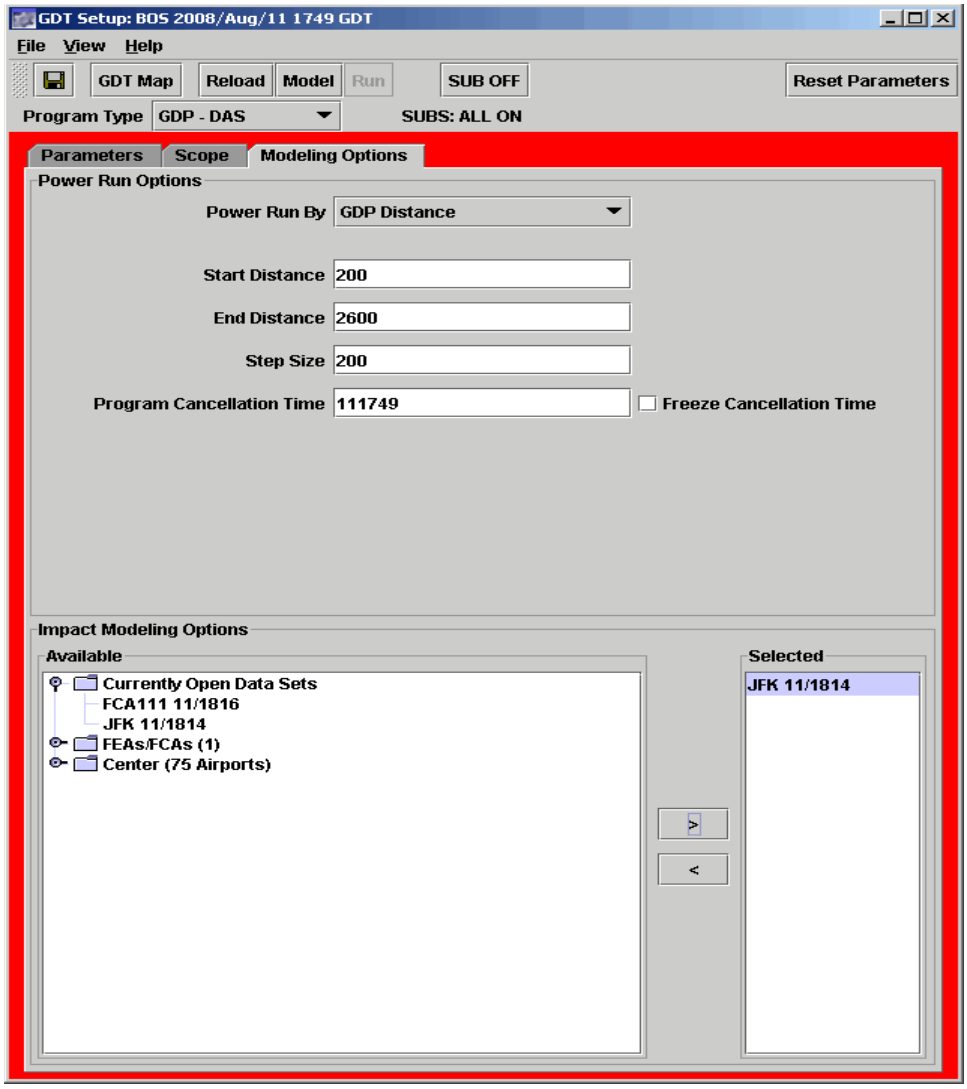


Figure 3 - 64: Impact Modeling Options on Modeling Options Tab

The ***Available*** box is populated with elements from the list of monitored elements on the FSM server. The elements in the ***Available*** box are grouped by Currently Open data Sets, FEAs/FCAs, and Center. Any program information and update times associated with them are displayed next to the element name. FSM updates the program information and update times for each element when it receives new information from the ADL.

Once you place an element in the ***Selected*** box, the update time for it is frozen and does not update unless you click **Reload**. FSM updates all impact elements with the most current ADL data when you click **Reload**.

When you click **Reset Parameters** on the GDT Setup Panel, any Impact Elements you selected in the Impact Modeling Options section remain. FSM clears the Impact elements of the modeled data and displays the current ADL data on the GDT Bar Graph. The GDT Bar Graph displays the Model data set, but you can click the Impact element buttons to view each Impact element's reset data.

The Impact Modeling Options section has two buttons labeled **>** and **<** that you use to move items between lists. Selecting an element and clicking **>** adds the element to the Selected box. When you select an element in the Selected box and click **<**, FSM removes the selected element from the Selected box.

GDT Map Component

The GDT Map component is one of four components that opens when you click **GDT Mode** on the Control Panel. The GDT Map component is similar to the display of the Map component in monitor mode, however the functionality is different. See the Map section above for more information. Selections made in the GDT Setup component are dynamically reflected in the GDT Map component. Airports the server is currently monitoring are displayed with the airports' three-letter identifier and a colored dot indicating the GDT status of each airport. FCAs the server is currently monitoring are displayed with a colored boundary that indicates the AFP status of that FCA. The title bar displays the normal component labeling conventions. GDT displays at the end of the title bar label to indicate that you are looking at the Map in GDT mode. Adaptive compression status displays in the SUBS section.

When you initially open GDT mode, the GDT Setup component default on the Scope tab for airports has the exempt by tier with internal centers selected; therefore, the GDT map initially has only the airport's Internal center selected. The Scope default for airspace data sets is ALL. When a center is included, it is colored with a maroon overlay and the airports that are within the centers are colored red (see Figure 3 - 65). A red airport indicates that a TMI includes that airport. A green colored airport indicates that the airport is exempt from delay.

Interactions between the GDT Setup component and the GDT Map for FCAs operate in the same manner as with Airport data sets. That is, only departure exemptions or non-exemptions are shown in the red/green color scheme to minimize any confusion and to keep the same conventions between airport and airspace elements. To exempt an arrival facility, the airport identifier must be entered in the GDT Setup panel on the Scope tab.

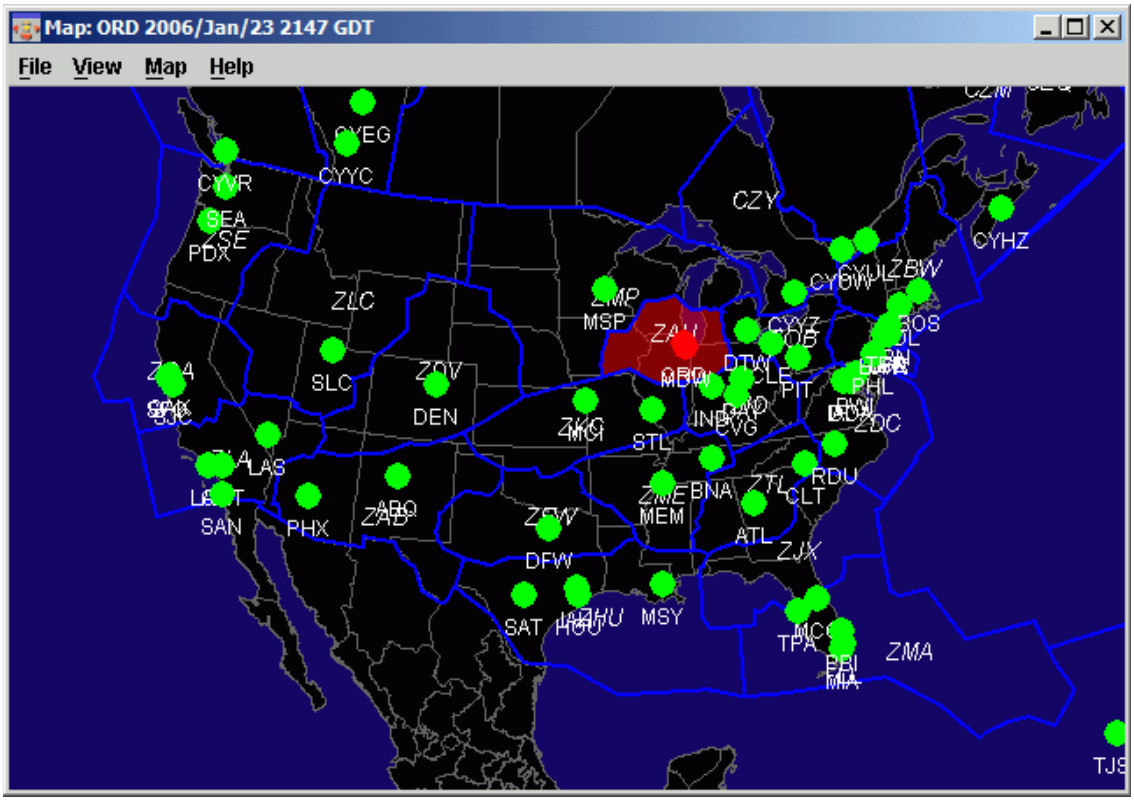


Figure 3 - 65: GDT Map Component

The GDT Map operates somewhat differently than when in Monitor Mode. The Auto-Show menu on the GDT Map is disabled for all data set types. This should reduce clutter on the Airport data sets and minimize confusion when modeling an Airspace data set. In addition, when modeling an airspace control element, the GDT Map only displays the FEA or FCA for the TMI being modeled and is colored white for easier viewing (see Figure 3 - 66).

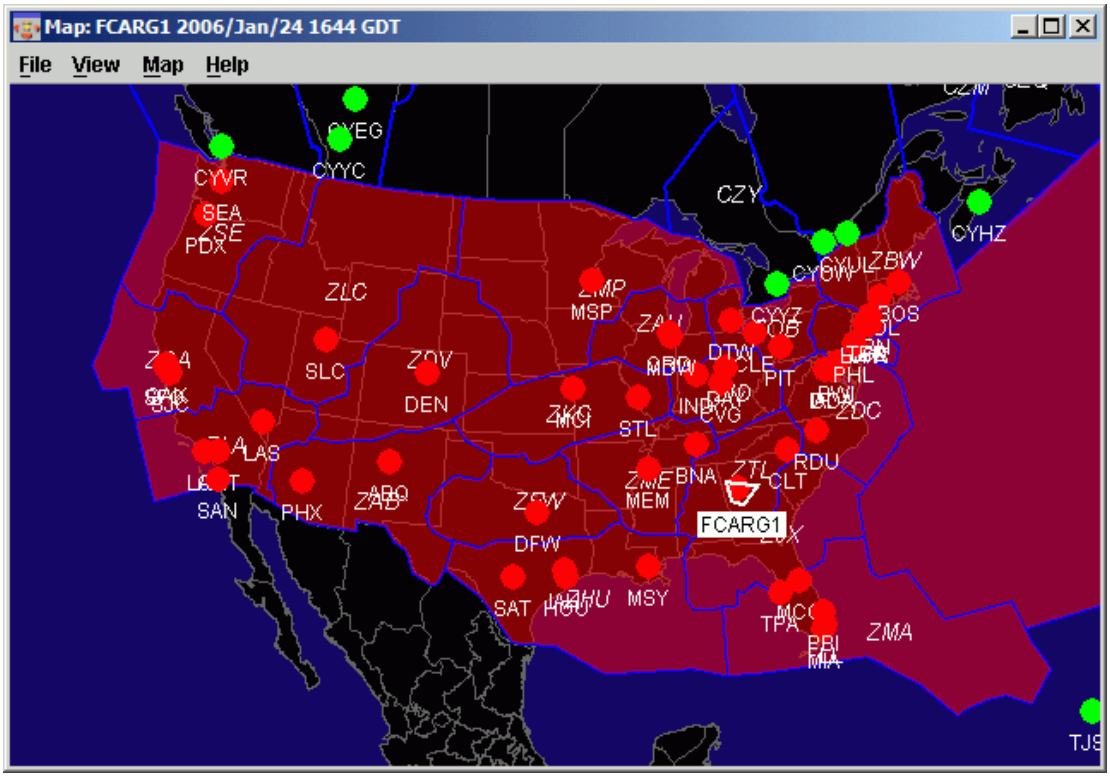


Figure 3 - 66: GDT Map Component-AFP FCA

The GDT Map component allows you to design a TMI visually by selecting/deselecting airports and/or centers. Selecting/Deselecting airports, centers, and adjusting the distance range interactively updates other GDT components.

GDT Map Zoom Capabilities

GDT Map contains the same zoom capabilities as the Map in Live mode, for more detail refer to Map Component section of this chapter.

Distance Based GDPs

When you select a distance based GDP in the GDT Setup component, a maroon colored “range ring” displays on the GDT Map component. The default distance is set to 199 nautical miles. The range distance is indicated on the GDT Map just outside the top of the ring. In addition to adjusting the range from the GDT Setup component, you can alter the distance directly on the GDT Map. Put your cursor on the edge of the distance ring until the cursor turns into direction arrows, then hold down the left mouse button and drag and drop the edge of the ring to increase or decrease the distance. All airports within the range limit are included automatically into the program and colored red. To exclude an airport from within the distance range, just click the dot for that particular airport. Clicking an airport within the distance ring turns the dot to green and excludes that airport from program delay. Any additional airports you select are displayed in the GDP Setup component in the Airports: Non Exempt or Exempt field in the Scope tab. Likewise you can select/deselect centers to include in a program on the GDT Map. Clicking once on a center includes the center in the program. The color of the selected center changes to

maroon and the airports within that center change color indicating that the program includes them as well. The selected center displays in the GDP Setup component in the Centers: Non Exempt field in the Scope tab. ZTL in Figure 3 - 67 and Figure 3 - 68 is an example of a user selected non-exempt center.

> **Note:** Clicking only once on a center that is already included within the program selection does not reflect any visual difference on the screen.

If you click twice on a selected center, that center is exempt from the program. The selected center turns to black and the airports within the center turn green to indicate that they are exempt from delay. The center selected displays in the GDP Setup component in the Centers: Exempt field in the Scope Tab. Figure 3 - 67 is an example of a user selected exempt center (ZAU). If you click a center a third time, the center selection returns to the distance based default selection.

Table 3-9: Mouse Actions on the GDT Map

Mouse Action	Description
Click Airport	Toggle an airport from Exempt/Non-exempt
Click center once	Includes Center in program
Click center twice	Exempts center from program delay
Click center three times	Default selection by distance

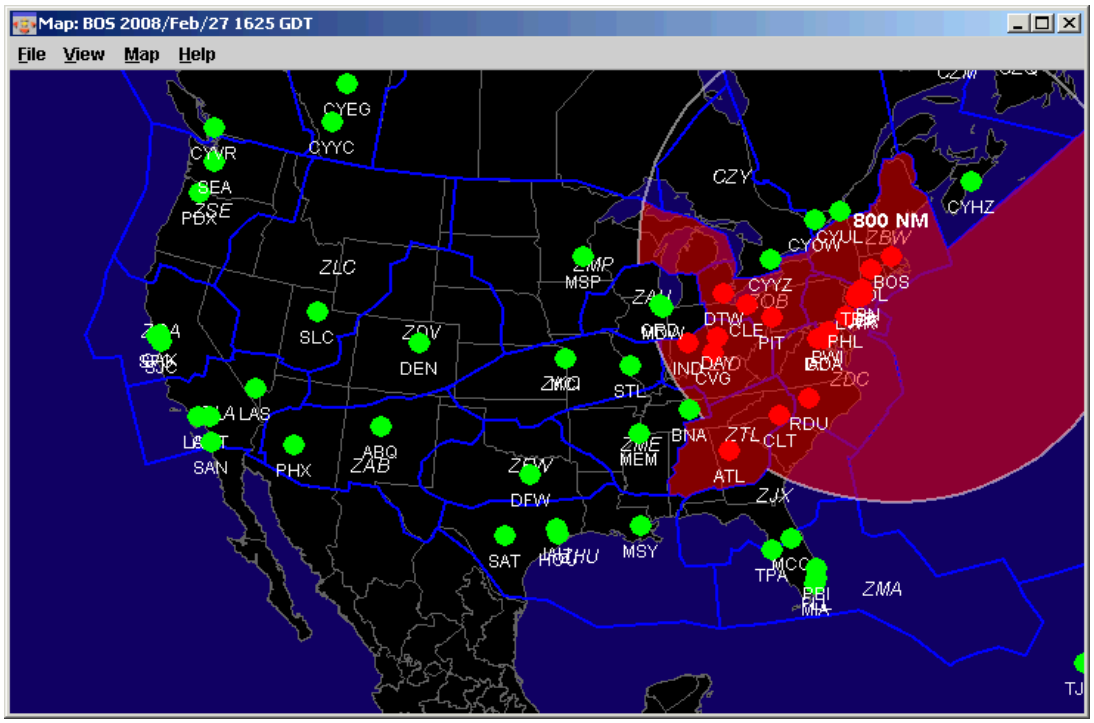


Figure 3 - 67: GDT Map Setup

Figure 3 - 67 is the GDT Setup component which corresponds with the GDT Map component setup in Figure 3 - 68.

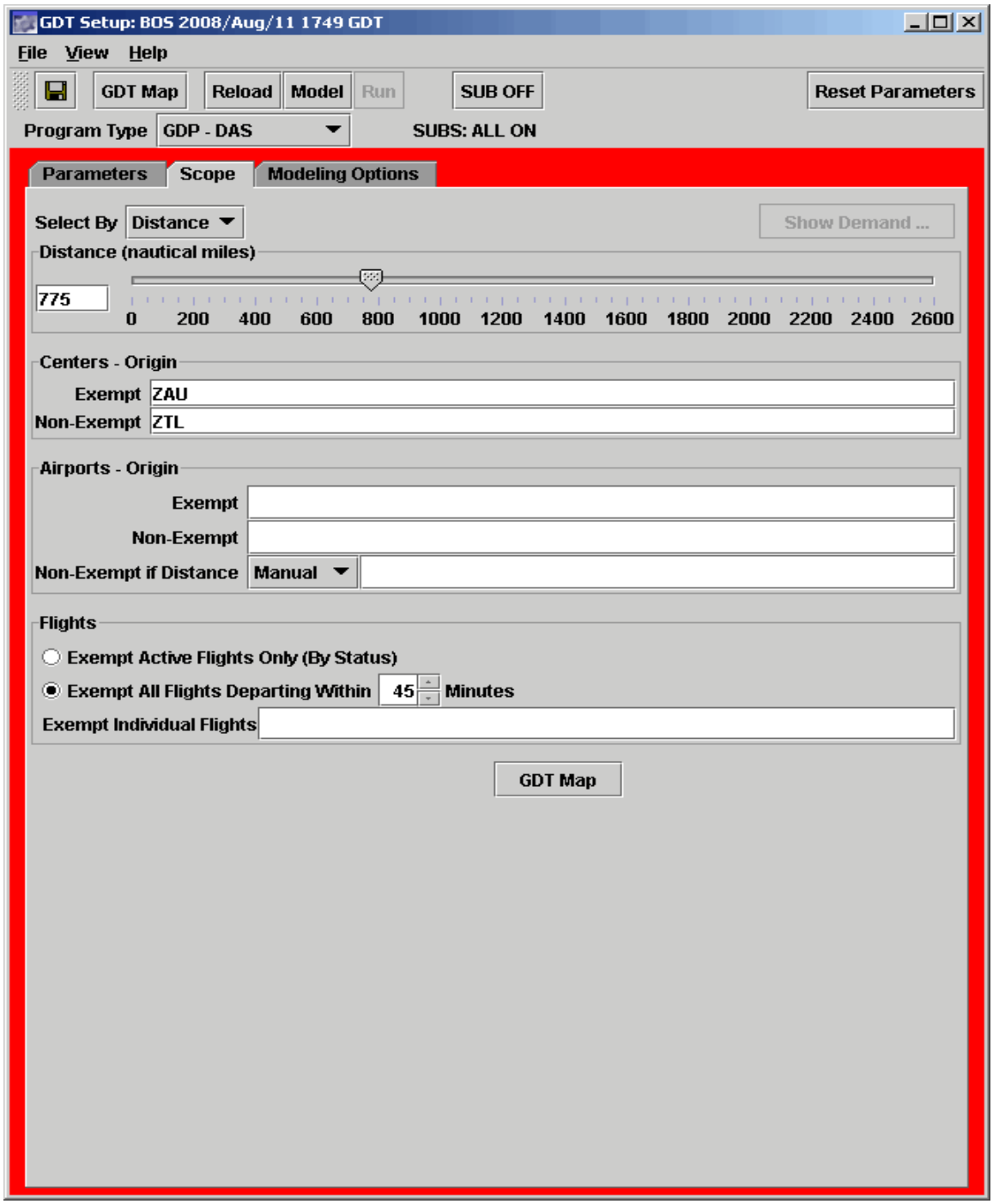


Figure 3 - 68: GDT Setup Reflected GDT Map Component

Tier-Based GDPs

The initial default setting when you open GDT Mode components is an internal tier-based GDP. When you select a tier based GDP from the GDP Setup component, FSM colors all centers included in a TMI maroon on the map and colors all airports included red. For example, the next figure illustrates a SFO 1st Tier GDP with user selected airport, PHX, as an additional Non-Exempt airport. The method of selecting/deselecting airports and/or centers is the same as described above in the distance based GDP (see Figure 3 - 69).

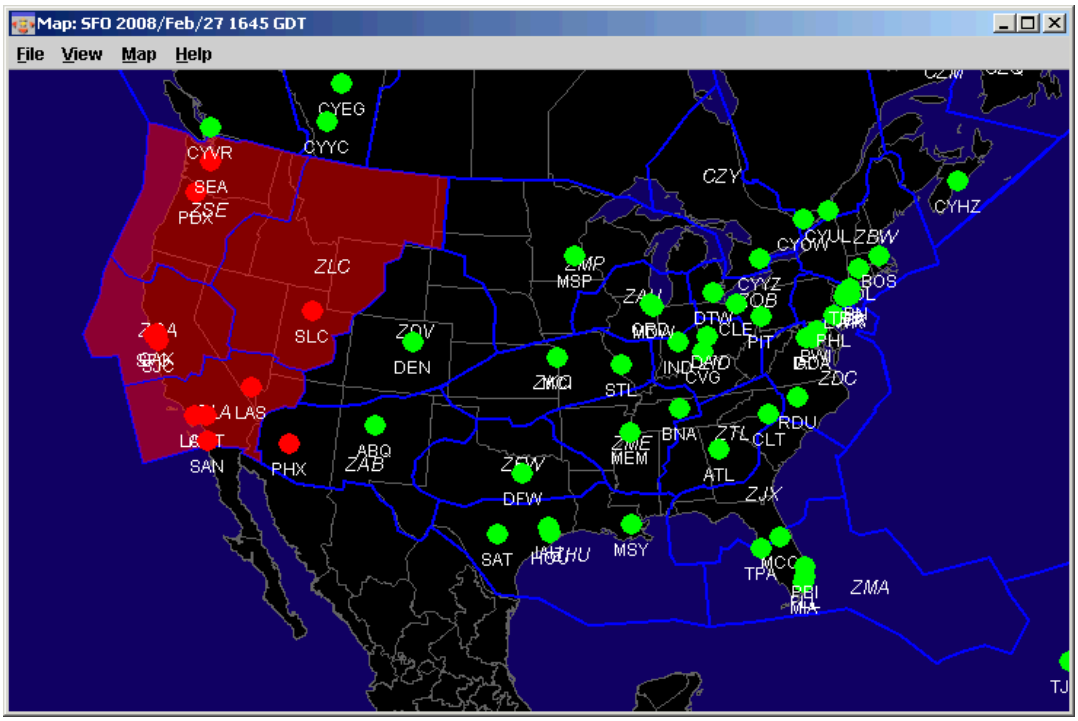


Figure 3 - 69: SFO 1st Tier Program

Figure 3 - 70 displays the GDT setup component that corresponds with the GDT Map component Figure 3 - 69.

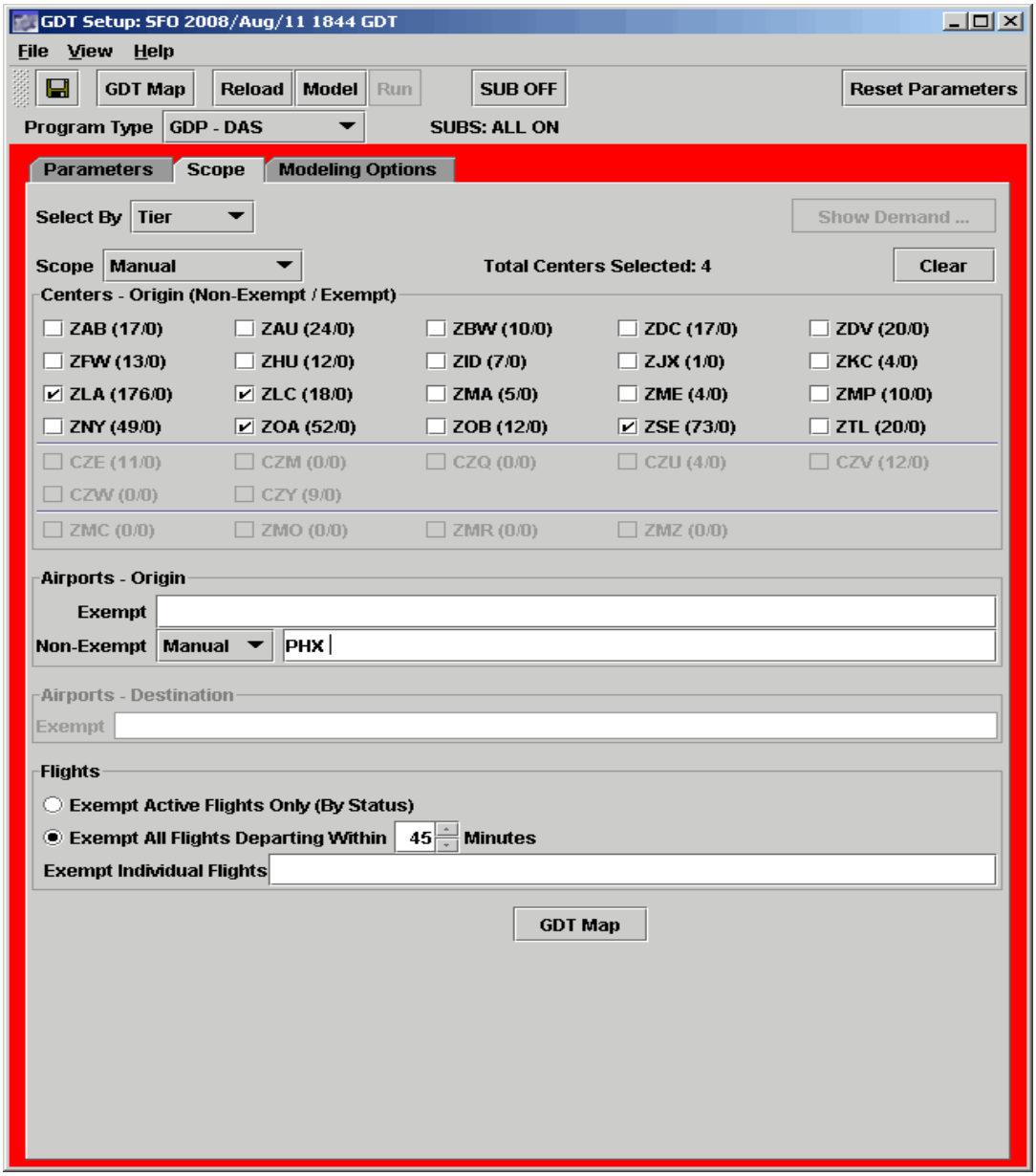


Figure 3 - 70: GDT Setup Component ORD 1st Tier

GDT Map Menu Bar

The GDT Map component menu bar contains four options: File, View, Map, and Help. The menu selections are the same for the GDT Map as they are for the Monitor Live Map—see the Map Component section in this chapter for more information. The Auto-Show menu on the GDT Map is disabled for all data set types.

GDT Bar Graph Component

The GDT Bar Graph component is one of four components that opens when you click **GDT Mode** on the Control Panel component. The Bar Graph allows you to view arrival demand at the airport or FCA being monitored and compares actual data with proposed

parameters. By default, the GDT Bar Graph displays flights based on their ETAs for modeled Airport TMIs or ENTRY times for modeled Airspace TMIs.

Click **Model** on the GDT Setup component to view the modeled parameter results in the Bar Graph as well as the Data Graph component. The GDT Bar Graph menu and tab options are almost identical to the Monitored Live Bar Graph. Please review the Bar Graph Component section above for more detail. There are some minor differences in the GDT Bar Graph. In GDT mode, only arrival information displays, therefore, under the **View** menu no ADL ADR Line option is displayed.

Another difference between the Bar Graph and the GDT Bar Graph is that the GDT Bar Graph displays both solid and hashed bars. Solid bars represent the original data, while hashed bars represent modeled data (see Figure 3 - 71).

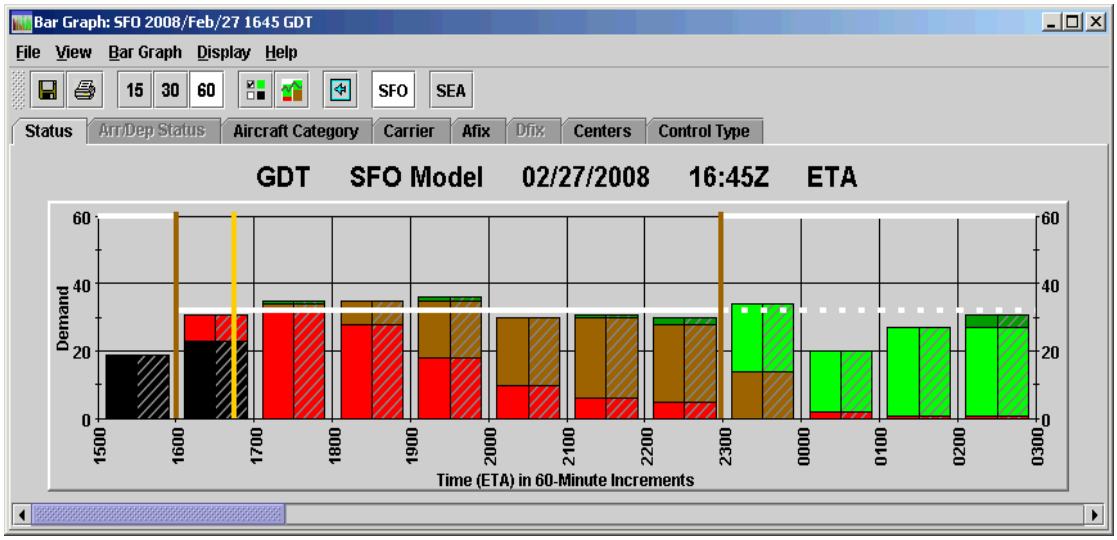


Figure 3 - 71: GDT Bar Graph

The last difference between the Bar Graph and the GDT Bar Graph are the Model and Impact element buttons.

Model and Impact Element Buttons

Once you click **Model** on GDT Setup for your program, any impact elements you specified in the GDT Setup component Modeling Options tab > Impact Modeling Options section are displayed as buttons on the GDT Bar Graph. The first button is always the Modeled element and is separated from the Impact element buttons by extra space. The buttons for the Model and Impact elements in the GDT Bar Graph are displayed to the right of the existing buttons.

When you click an Impact element you want to view, a bar graph for that element displays. Any menu items that are available for the Model element's GDT Bar Graph are also available for the Impact element's Bar Graph with the exception of **Model Program Rate** which is enabled only for the Model element. The labeling of the buttons is similar to that of the data set buttons used on the FSM Control Panel. The selected button displays depressed.

If you are on a tab for one element and switch to another element, FSM maintains the tab view if possible. Otherwise, FSM returns the GDT Bar Graph to the Status tab in any situation where the tab you were on in another element does not exist. For example, if you are on an AFIX tab for an airport element and switch to an FCA element, the GDT Bar Graph view changes to the Status tab. Additionally, if you change the Bar Graph display for one of the Model or Impact elements, the changes for all of the elements in the GDT Bar Graph component (where applicable) are displayed.

GDT Data Graph Component

The GDT Data Graph component opens in front of the GDT Map when you click **Reload** or **Model** from the GDT Setup component. You have the option to review, or model your ground delay parameters before actually running the program or revising any parameters. Click **Model** on the GDT Setup component to view the initiative's results with your current parameters in the Data Graph.

From the Modeling Options tab on the GDT Setup component, you can choose the type of data you want to view on the Data Graph's X-axis. When you click **Model**, you can view the results of various scenarios. You have the option to change your parameters, analyze the program further, or, if satisfied with the result, run the program (see Figure 3 - 72).

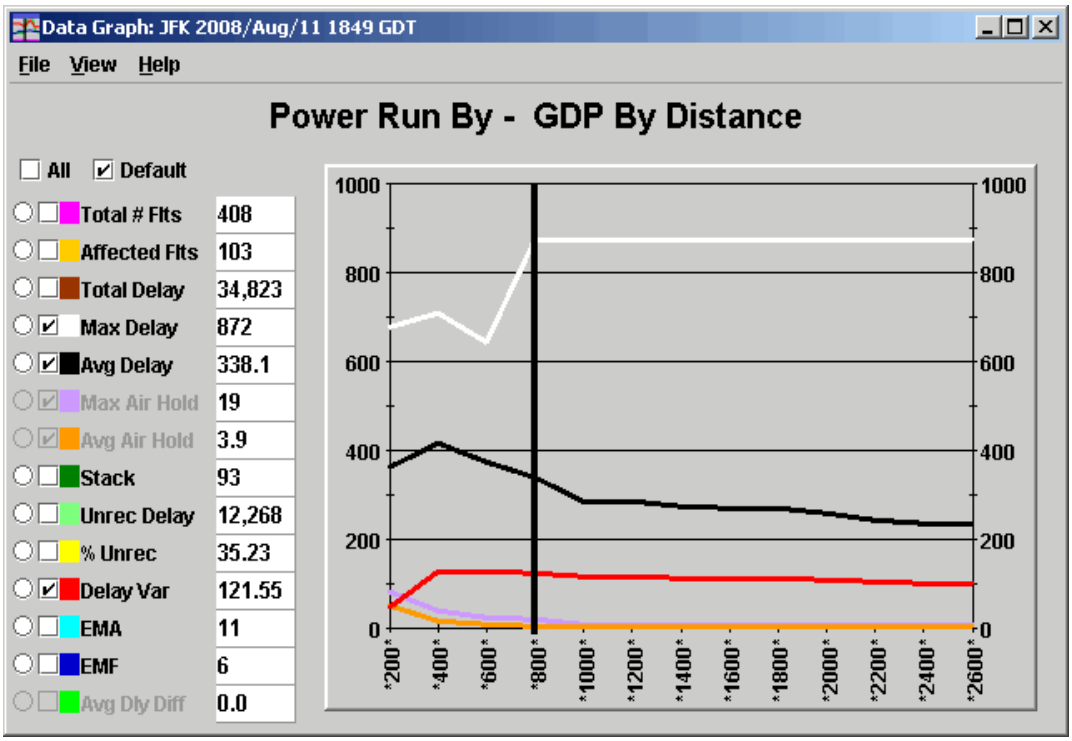


Figure 3 - 72: Data Graph Component

Selecting Different Scenarios

You can view all the available scenarios based on the Power Run selection from the GDT Setup component. For example, selecting **Power Run By > GDP Center Group** from the Modeling Options tab on the GDT Setup and then clicking **Model,** displays all the

available tiers for the monitored airport on the Data Graph component's X-axis. Your modeled scenario statistics are displayed in the Legend Table. Use your cursor to drag the black vertical line to a center group, or just move the cursor over the desired center group and click to move the line. The delay statistics to the right of the Data Graph reflect the line of scenario delineation. In addition, changing the center option automatically updates all GDT components to reflect the new parameters. The Data Graph component includes a roll-over feature. Rolling your cursor over any line in the Data Graph gives you the delay statistics for the colored line that reflects the results of the center group. From the Data Graph, it is easy to visualize what center groups give the best results.

Delay Statistics

The Legend Table displays the delay statistics. By default the Legend Table displays when you open the Data Graph component. You can hide the legend by un-checking the **View > Show Legend** box from the Data Graph Menu. In the Legend Table, you can view a desired delay statistic several ways. Selecting the ***All*** checkbox selects and displays all the delay statistics. Selecting the ***Default*** checkbox displays the default delay statistics, which are Max Delay, Avg Delay, Max Air Hold, Avg Air Hold, and Delay Var. You can select/deselect any of the delay statistic checkboxes that you want to view in the Data Graph. To view one delay statistic in more detail, select the desired radio button option, located to the left of the checkboxes. The radio button option displays only one delay statistic at a time, but gives a more refined looked at the numbers. The Data Graph includes the following Delay Statistics:

- ***Total # Flts***: The total number of flights included in the TMI (cancelled and exempt flights) for each particular power run scenario. Default color is pink.
- ***Affected Flts***: The total number of flights included in and affected by the TMI for each particular power run scenario (non-exempt and non-cancelled flights only).
- ***Total Delay***: The total amount of delay that would occur if you ran that particular scenario. Default color is maroon.
- ***Max Delay***: The maximum amount of delay (in minutes) that any one flight would receive if you ran that particular scenario. Default color is white.
- ***Avg Delay***: The average amount of delay (in minutes) flights would receive if you ran that particular scenario. Default color is black.
- ***Max Air Hold***: The maximum amount of airborne holding delay (in minutes) that would be placed on any one flight if you ran that particular scenario. Default color is lavender.
- ***Avg Air Hold***: The average amount of airborne holding (in minutes) that would be placed on flights if you ran that particular scenario. Default color is orange.
- ***Stack***: The amount of flights that would be left in the "stack" hour following the end of the initiative if you ran that particular scenario. Default color is hunter green.
- ***Unrec Delay***: Unrecoverable delay is the amount of delay that remains on flights even if you release the TMI right before the start time for the selected scenario. FSM determines this value by setting the time to the TMI start time and performing the release delay function. Default color is lime green.

- ***% Unrec***: Percentage of Unrecoverable delay is a value that FSM calculates by taking the Unrecoverable Delay and dividing it by Total Delay (Unrecoverable Delay/Total Delay). This is the percentage of delay that remains even if you release all delay at the start time for the selected scenario. Default color is yellow.
- ***Delay Var***: Delay Variability is the standard deviation of the carriers' average delay. FSM determines this value by taking the average delay of all carriers to see if they are similar. If the average delay is similar for all carriers, the delay variability is a small value. Larger deviation, or increased dissimilarity of average delay for all carriers, results in larger delay variability values. Default color is red.
- ***EMA***: The Equity Metric for Airlines (EMA) is a metric that indicates (as a whole) how equitable, or fair, the proposed initiative is for the airlines. Equity is determined by comparing the delay assigned in a proposed initiative to that which results if you use the airborne holding model. You must view any deviation from the airborne holding model as decreased equity. The values shown in this field are integers rounded from the calculated values. A value of 1 indicates that the initiative option results in delays that are exactly the same as those for airborne holding. A value from 2 to 8 indicates an option that still exhibits good equity, though the one with the lower value is still preferred. A value from 9 to 16 indicates an option with increasingly significant deviation from the standard. A value above 16 indicates an option with poor equity. Default color is cyan.
- ***EMF*:** The Equity Metric for Flights is a metric that indicates (as a whole) how equitable, or fair, the proposed initiative is for all the flights. Equity is determined by comparing the delay assigned in a proposed initiative to that which results from using the airborne holding model. You must view any deviation from the airborne holding model as decreasing equity. The values shown in this field are integers rounded from the calculated values. A value of 1 indicates that the initiative option results in delays that are exactly the same as those for airborne holding. A value from 2 to 8 indicates an option that still exhibits good equity, though the one with the lower value is still preferred. A value from 9 to 16 indicates an option with increasingly significant deviation from the standard. A value above 16 indicates an option with poor equity. Default color is blue.
- ***Avg Dly Diff***: The difference in the calculated average delay prior to and after the program. This is always a negative number and FSM only calculates it for a Compression program.

GDT Data Graph Menu

The menu bar in the GDT *Data Graph* component contains three options: **File, View,** and **Help.**

1. File Menu
    - **File > Save As** - Saves the Data Graph as a.jpg image in a directory that you specify.
    - **File > Print** - Prints the Data Graph that is currently active on your screen.
    - **File > Close** - Closes the Data Graph component only.

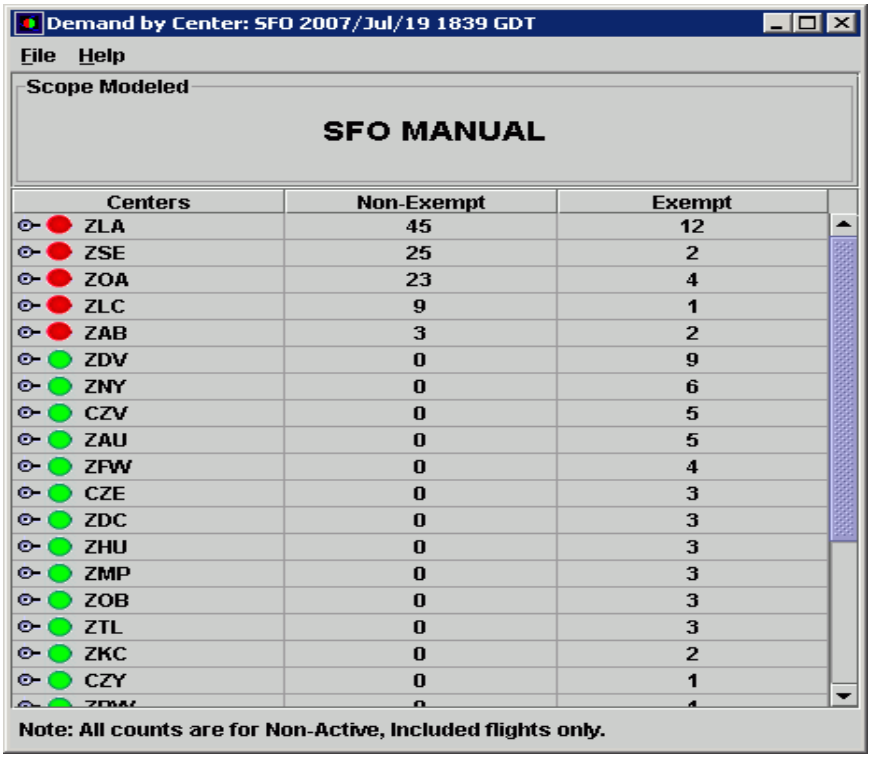
2. View Menu
   - **View > Show Legend** - By default the checkbox is selected and the color legend of the delay statistics is displayed. Deselect the checkbox to hide the legend and the delay statistics.
3. Help Menu
   - **Help > Data Graph** - Opens the on-line help system.

Demand By Center Component

The GDT Demand by Center component provides you with an additional analysis tool to help with scope decision making for GDPs, AFPs, and Ground Stops. The Demand by Center component functionality is similar to that of the Data Graph, in that there is only data available for display after you model a TMI. After you model a TMI, click **Show Demand** on the Scope tab of the GDT Setup panel or select **View > Show Demand** from the Setup panel menu.

The Demand by Center component displays the scope of the modeled TMI and has three columns: Centers, Non-Exempt, and Exempt. All centers and the top five airports within each center (based and ordered primarily by the number of Non-Exempt flights and then by the number of Exempt flights) are displayed under the Centers column. The number of Non-Exempt flights displays under the Non-Exempt column and the number of Exempt flights for each center or airport displays under the Exempt column.

A red dot to the left of the center or airport identifier indicates that at least one Non-Exempt flight is present within that center or airport. A green dot indicates that all flights are Exempt within that center or airport (see Figure 3 - 73).



Centers	Non-Exempt	Exempt
ZLA	45	12
ZSE	25	2
ZOA	23	4
ZLC	9	1
ZAB	3	2
ZDV	0	9
ZNY	0	6
CZV	0	5
ZAU	0	5
ZFW	0	4
CZE	0	3
ZDC	0	3
ZHU	0	3
ZMP	0	3
ZOB	0	3
ZTL	0	3
ZKC	0	2
CZY	0	1

Figure 3 - 73: Demand By Center

By default, the Centers are collapsed. Click the key icon next to the center identifier to expand the center and view the top five airports within each Center. If there are more than five airports with included flights in the selected Center an additional “Others” row combines the rest of the flights within the remaining airports. If a center does not contain any flights, that center’s airport list is empty.

Demand By Center Menu Bar

The Demand By Center menu bar contains two options, **File** and **Help**.

1. File Menu
   - **File > Save as** - Saves the Demand By Center window as a .jpg image in a directory that you specify.
   - **File > Print** - Prints the Demand By Center component that is currently active on your screen.
   - **File > Close** - Closes the Demand By Center component only.
2. Help Menu
   - **Help > Center Demand** - Opens the on-line help for the Demand By Center component.

GDT Time Line Component

The GDT Time Line component is an optional component in GDT Mode. To open the GDT Time line, select **View > GDT Time Line** from the GDT Setup component menu bar. The GDT Time Line displays flights based on their ETAs for modeled Airport TMIs or ENTRY times for modeled Airspace TMIs by default. The Time Line in GDT Mode is almost identical to the Time Line in Monitored Live mode. The title bar of the GDT Time Line has “GDT” after the ADL time.

There are two differences to the GDT Time Line that should be noted. First, GDT Mode uses only arrival data, the GDT Time Line displays only arriving flights where as the Live Time Line can display both arrival and departure data. The **View > Departure Data** option that displays in the Monitored Live Time Line is not an option in GDT Mode.

Second, there is an extra menu option, **Display**, available in the GDT Time Line. The **Display** menu contains nine radio button choices for viewing flights in the GDT Time Line component (see Figure 3 - 74).

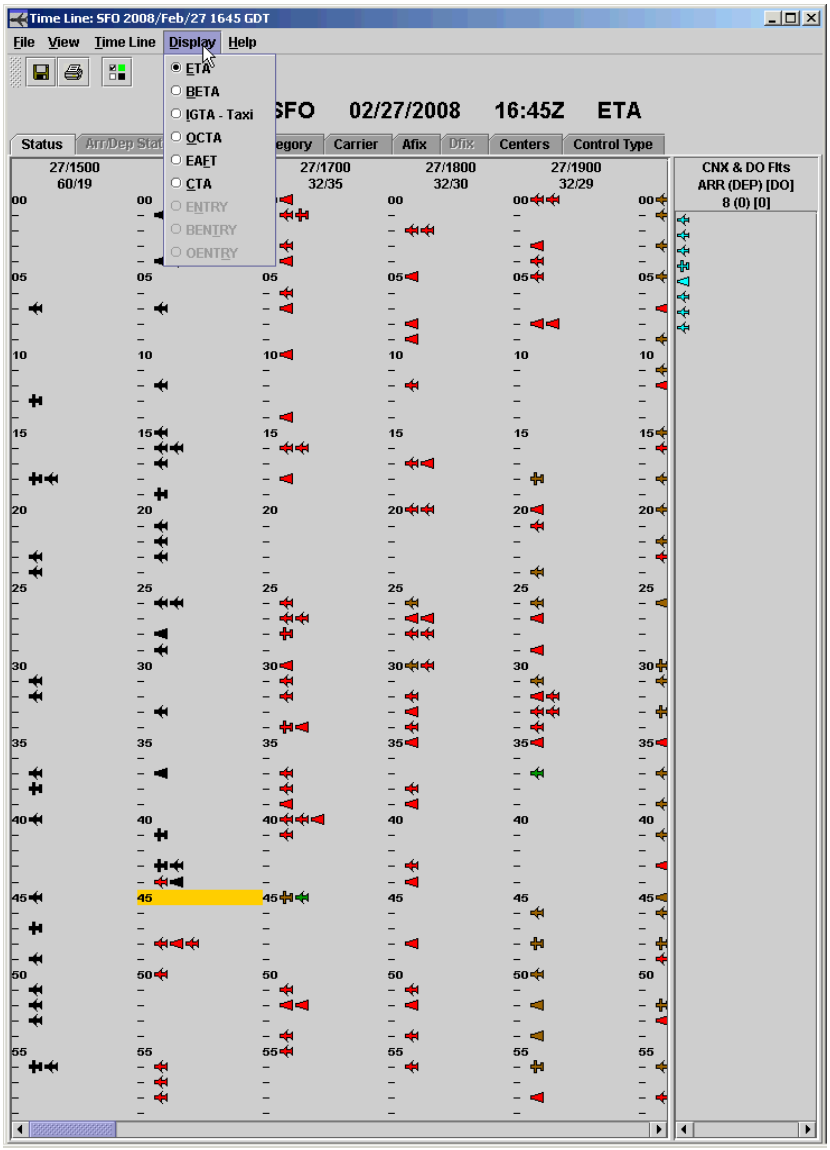


Figure 3 - 74: GDT Time Line Component

You can display the flights in the Time Line based on various ADL arrival data fields. By default, the GDT Time Line displays based on ETA.

GDT Time Line Menu Bar

The menu bar in the GDT Time Line component contains five options: **File, View, Time Line, Display** and **Help**.

1. File Menu - the GDT Time Line File menu is exactly the same as the Monitored Live Time Line File menu except that it has no Close Group option. See the Time Line Menu Bar section above for more information.
2. View Menu - the GDT Time Line View menu is exactly the same as the Monitored Live Time Line View menu except that it has different default selections. See the Time Line Menu Bar section above for more information.

Note: Show CNX/DO, Open Slots in Carrier Color, Show Unassigned Slots, and Auto Icons checkboxes are selected by default.

3. Time Line Menu - the GDT Time Line component Time Line menu is exactly the same as the Monitored Live Time Line component Time Line menu. See the Time Line Menu Bar section above for more information.
4. Display Menu
   - **Display > ETA** - Display flights based on their Estimated Time of Arrival (ETA).
   - **Display > BETA** - Displays flights based on their Base Estimated Time of Arrival (BETA). The BETA matches the ETA and is frozen when the flight becomes active or when the flight becomes controlled.
   - **Display > IGTA - taxi** - Displays flights based on their Initial Gate Time of Arrival (IGTA) minus taxi time (IGTA Wheel Time). The IGTA is based on the OAG times or flight plan times and never changes. Taxi time default is 10 minutes, but you can change it in the GDT Control window.
   - **Display > OCTA** - Displays flights based on their Original Controlled Times of Arrival (OCTA), Original ETA, OGTA Wheel Time, or ETA position, depending on the available information. For example, if the Original CTA is not available, FSM uses Original ETA and so on. This time never changes.
   - **Display > EAFT** - Displays flights based on their Estimated Arrival Fix Time (EAFT), which is the time at which the flight crosses its designated arrival fix.
   - **Display > CTA** - Displays flights based on their current Controlled Time of Arrival (CTA).
   - **Display > ENTRY** - Displays flights based on their current Estimated Element Entry Time (Airspace data set only)
   - **Display > BENTRY** - Displays flights based on their current Based Element Entry Time (Airspace data set only)
   - **Display > OENTRY** - Displays flights based on their current Original Element Entry Time (Airspace data set only)
5. Help Menu
   - **Help > Time Line** - Opens the on-line help for the GDT Time Line component.
   - **Help > Legend** - Opens the on-line help for the Time Line icon legend.

GDT Coversheet

Each GDT program generates a coversheet and advisory when you run the program. The GDT Coversheet contains all the GDT parameters, depending on Program Type selected, including the text fields for specific parameters. This section describes each type of Coversheet, the Coversheet menu, and Coversheet buttons.

Coversheet Menu

There are four file menu options available on the GDT Coversheet: File, View, Resend, and Help.

1. File Menu
   - **File > Close** - Closes the Coversheet window.
2. View Menu
   - **View > FADT** - Displays the FADT Report.
   - **View > Analysis** - Displays the Analysis Report.
   - **View > Carrier Statistics** - Displays the Carrier Statistic report
3. Resend Menu

   Note: This menu is available only after you click **Send**.

   - **Resend > Resend Program** - Starts the ETMS Autosend process to send the FADT file to the hub site and the coversheet file to NTML and remote copies the files. This option is available only for Actual TMIs.
   - **Resend > Resend Parameters** - Sends the parameters and the AAR message. This option is available for proposed and actual TMIs but not for Purges.
   - **Resend > Resend Advisory** - Uses an existing advisory number (if available) and starts the ETMS Autosend process to send only the Advisory for the program. This option is available for all proposed and Actual TMIs.
   - **Resend > Resend Program & Advisory** - This starts the same process that starts when you click **Send** for the first time on the Coversheet. This option is available only for Actual TMIs.
4. Help Menu
   - **Help > Coversheet** - Opens the on-line help information about the FSM Coversheet.

General Parameters

Table 3-10: General Parameters

Field Name	Description	Applicable Program Type
Airport/Center	The affected arrival airport where the program is issued.	GDP - DAS, GDP - GAAP, Compress Flights, Compress Slots, Blanket, Ground Stop, Airport Holding, Purge
Control Element	Name of Model Element	AFP - DAS, AFP - GAAP, Compress Flights, Compress Slots, Purge
Program Type	The type of program you ran. Either RBS, RBS++, or compression when you run a GDP.	GDP - DAS, GDP - GAAP, Compress Flights, Compress Slots, Ground Stop, Blanket, Purge, AFP - DAS, AFP - GAAP
Program Time	The program time period (Start Time/End Time).	GDP - DAS, GDP - GAAP, Compress Flights, Compress Slots, Ground Stop, Blanket, Purge, AFP - DAS, AFP - GAAP
Report Time	The current date and time in DDHHMM format. The time is according to the 24-hour clock in Zulu time.	GDP - DAS, GDP - GAAP, Compress Flights, Compress Slots, Ground Stop, Blanket, Purge, AFP - DAS, AFP - GAAP
Update Time	Last ADL time that passed before running the program.	GDP - DAS, GDP - GAAP, Compress Flights, Compress Slots, Ground Stop, Blanket, Purge, AFP - DAS, AFP - GAAP
Last GDP End Time	If this is not the first GDP of the day for the airport, the ending time of the last GDP run displays here.	GDP - DAS, GDP - GAAP
Last AFP End Time	If this is not the first AFP of the day for the airport, the ending time of the last AFP run displays here.	AFP - DAS, AFP - GAAP
Aircraft Type	The Aircraft Type selected for the program.	GDP - DAS, GDP - GAAP, Blanket, Ground Stop, Purge
Arrival Fix	The arrival fixes of the affected airport being included in the program.	GDP - DAS, GDP - GAAP, Blanket, Ground Stop, Purge

Table 3-10: (Continued)General Parameters

Field Name	Description	Applicable Program Type
Carrier	Carriers that operate at that airport are in the program. This can be “All” or a single major carrier and its sub-carriers. A 3-letter airline code indicates that the program includes only one major carrier. A single carrier included in the program is always a major carrier and its sub-carriers. It is never truly a “single” airline.	GDP - DAS, GDP - GAAP, Blanket, Ground Stop, Purge
Delay Assignment Mode	The type of delay assignment mode selected for the GDP or AFP, DAS or GAAP.	GDP - GAAP, Blanket, Ground Stop, AFP - GAAP
Delay Limit	The maximum number of minutes a pop-up flight can be delayed during a GAAP GDP or AFP.	GDP - DAS, GDP - GAAP, Blanket, Ground Stop, AFP - DAS
Sched/User Exemptions	The type of flights exempt from departure delay during a GDP, AFP, or Compression.	GDP - DAS, GDP - GAAP, Blanket, Ground Stop, AFP - GAAP
Slot Hold Override	Some carriers have the option to hold slots, or exclude their slots from compression, at an airport for future use. Overriding this option means that the algorithm includes any carriers’ slots that the carrier held in the compression at that airport.	GDP - DAS, GDP - GAAP, Compress Flights, AFP - GAAP
Exempt AFPs	List of AFPs that have been exempted from the GDP	GDP -DAS, GDP - GAAP
Program Rate	Hourly Program Rate	GDP - DAS, GDP - GAAP, Ground Stop, AFP - GAAP
Pop-Up Factor	Provides a capacity buffer to absorb demand not known at the time the program is issued	GDP - GAAP, Airborne Holding, AFP - GAAP
WX Metar	FSM automatically fills in Metar information.	GDP - DAS, GDP - GAAP, Blanket
WX TAF	FSM automatically fills in TAF information.	GDP - DAS, GDP - GAAP, Blanket

Scope Parameters

Table 3-11: Scope Parameters

Field Name	Description	Applicable Program Types
Select By	Lists if the program is either Tier or Distance based. For Distance based GDPs, the distance of the range ring displays in nautical miles.	GDP - DAS, GDP - GAAP, Blanket, Ground Stop, AFP - DAS, AFP - GAAP
Departure Time/Status	Lists if flights are exempt by Departure Time or Departure Status. If flights are exempted by Time, the Time value is listed.	GDP - DAS, GDP - GAAP, Blanket, Ground Stop, AFP - GAAP
Exempt GS Flights By Status	NO or N/A	GDP - DAS, GDP - GAAP, Blanket, Ground Stop
Non-Exempt Centers	This is a list of the centers affected by the TMI operation. If there are too many centers to fit in the space provided, you see "..." and can click the arrow at the end of the field to pull down a menu with a complete listing of the facilities involved.	GDP - DAS, GDP - GAAP, Blanket, Ground Stop
Non-Exempt Departure Centers	This is a list of the departure centers affected by the AFP operation.	AFP - GAAP
Non-Exempt Airports	Airports affected by the TMI operation. If there are too many airports to fit in the space provided, you see "..." and can click the arrow at the end of the field to pull down a menu with a complete listing of the facilities involved.	GDP - DAS, GDP - GAAP, Blanket, Ground Stop
Non-Exempt Departure Airports	Departure airports affected by the AFP operation.	AFP - GAAP
If-Distance Airports	Canadian Airports that are included if they fall within the distance range. This field is only applicable during distance-based programs.	GDP - DAS, GDP - GAAP, Blanket, Ground Stop
Exempted Orig Centers	Centers that are within the scope of the GDP but exempt from delay.	GDP - DAS, GDP - GAAP, Blanket, Ground Stop

Table 3-11: (Continued)Scope Parameters

Field Name	Description	Applicable Program Types
Exempted Departure Centers	Departure centers that are within the scope of the AFP but exempt from delay.	AFP - GAAP
Exempted Orig Airports	Airports that are within the scope of the GDP but exempt from delay.	GDP - DAS, GDP - GAAP, Blanket, Ground Stop
Exempted Departure Airports	Departure airports that are within the scope of the AFP but exempt from delay.	AFP - GAAP
Exempted Arrival Airports	Arrival airports that are within the scope of the AFP but exempt from delay.	AFP - GAAP
Exempted Flights	List of flights by call sign exempted from the GDP operation.	GDP - DAS, GDP - GAAP, Blanket, Ground Stop, AFP - GAAP
Last Start/Var Release…	N/A for FSM current version.	

Program Results Summary

Table 3-12: Program Result Table

Field Name	Description	Applicable Program Types
Total Flights	The total numbers of flights arriving at the monitored airport within the program start and end time.	GDP - DAS, GDP - GAAP, Compress Flights, Compress Slots, Blanket, Ground Stop, Purge, AFP - GAAP
Minimum Delay Before	The minimum delay given to any one flight included in the parameters before you ran the program.	GDP - DAS, GDP - GAAP, Compress Flights, Compress Slots, Blanket, Ground Stop, Purge, AFP - GAAP
Minimum Delay After	The minimum delay given to any one flight included in the parameters after you ran the program.	GDP - DAS, GDP - GAAP, Compress Flights, Compress Slots, Blanket, Ground Stop Purge, AFP - GAAP
Minimum Delay Difference	The difference in minutes of delay before and after the program is implemented.	GDP - DAS, GDP - GAAP, Compress Flights, Compress Slots, Blanket, Ground Stop, Purge, AFP - GAAP
Total Affected Flights	Total number of flights included in the GDP operation (including cancelled flights) and the number of flights actually affected (non-exempt) by the GDP (excluding cancelled flights). (Max [0, CTA - BETA]) determines Any ATC Delay statistics.	GDP - DAS, GDP - GAAP, Compress Flights, Compress Slots, Blanket, Ground Stop, Purge, AFP - GAAP
Average Delay Before	Total delay of flights in the GDP operation divided by the Total Affected Flights in the operation before you ran the program.	GDP - DAS, GDP - GAAP, Compress Flights, Compress Slots, Blanket, Ground Stop, Purge, AFP - GAAP
Average Delay After	Total delay of flights in the GDP operation divided by the Total Affected Flights in the operation after you ran the program.	GDP - DAS, GDP - GAAP, Compress Flights, Compress Slots, Blanket, Ground Stop, Purge, AFP - GAAP
Average Delay Difference	The difference in minutes of delay before and after the program is implemented.	GDP - DAS, GDP - GAAP, Compress Flights, Compress Slots, Blanket, Ground Stop, Purge, AFP - GAAP

Table 3-12: (Continued)Program Result Table

Field Name	Description	Applicable Program Types
Stack Value	Number of flights pushed out of the GDP period as a result of running the GDP.	GDP - DAS, GDP - GAAP, Compress Flights, Compress Slots, Blanket, Ground Stop, Purge, AFP - GAAP
Maximum Delay Before	The longest delay assigned to any one flight in the GDP before you ran the program.	GDP - DAS, GDP - GAAP, Compression Flights, Compress Slots, Blanket, Ground Stop, Purge, AFP - GAAP
Maximum Delay After	The longest delay assigned to any one flight in the GDP after you ran the program.	GDP - DAS, GDP - GAAP, Compress Flights, Compress Slots, Blanket, Ground Stop, Purge, AFP - GAAP
Maximum Delay Difference	The difference in minutes of delay before and after the program is implemented.	GDP - DAS, GDP - GAAP, Compress Flights, Compress Slots, Blanket, Ground Stop, Purge, AFP - GAAP
Stack AAR	The AARs that occur in the hours after the end time of the GDP, but that still have CTA flights in them because of GDP delay.	GDP - DAS, GDP - GAAP, Compress Flights, Compress Slots, Blanket, Ground Stop, Purge, AFP - GAAP
Total Delay Before	The sum of all delays resulting from this GDP operation in minutes before you ran the program. Determined by CTA - OETA.	GDP - DAS, GDP - GAAP, Compress Flights, Compress Slots, Blanket, Ground Stop, Purge, AFP - GAAP
Total Delay After	The sum of all delays resulting from this GDP operation in minutes after you ran the program. Determined by CTA - OETA.	GDP - DAS, GDP - GAAP, Compress Flights, Compress Slots, Blanket, Ground Stop, Purge, AFP - GAAP
Total Delay Difference	The difference in minutes of delay before and after the program is implemented.	GDP - DAS, GDP - GAAP, Compress Flights, Compress Slots, Blanket, Ground Stop, Purge, AFP - GAAP

Advisory/Causal Factor

This section contains several fields that you must fill in before clicking **Send**.

You must fill out the Advisory/Causal Factor section before sending a Coversheet/ Advisory.

- ***Proposed*** - One of the two types of advisories available to send. A Proposed Advisory informs the users about a potential TMI and allows users to send comments about the parameters before the program is enacted.
- ***Actual*** - One of the two types of advisories available to send. An Actual Advisory informs the users that a program has been issued and does not allow users to comment on the parameters.
- ***Respond By*** - The time by which users must respond to a Proposed TMI. It is normally defined as the current time plus 30 minutes. That time is then rounded up to the next 15-minute time increment. For example, if the current time is 1812, the Respond By time is 1845 (1812 + 30 = 1842. Round up to the nearest 15-minute increment is 1845).
- ***Valid Until*** - The time at which the Advisory message expires. This is normally defined as the Respond By time plus 30 minutes and rounded up to the end of the hour. For example, if the Respond By time is 1845, the message is valid until 1959. The message could also expire at the same time the program ends.
- ***Probability of Extension*** - Likelihood a Ground Stop will be extended past its current end time (Ground Stop Advisory only)
- ***Comments*** - This field is available for any additional comments about the program you feel are necessary.

You must also fill out the additional fields applicable to OpsNet for this section. The following table (Table 3-13) explains which OpsNet related fields are applicable to which program types.

Note: When you make a revision to a TMI, FSM sets the Advisory/ Causal Factor values to those inherited from the applicable program.

Table 3-13: Advisory/Causal Factor Fields

Field Name	Description	Applicable Program Types
Facility Type	The facility to which to charge the delay (e.g., Terminal)	AFP - DAS, AFP - GAAP
ID	Unique identifier for the facility (e.g., Center abbreviation, ZAB)	AFP - DAS, AFP - GAAP
Not Charged To FAA	Identifies whether the delay should be charged to the FAA or not.	GDP - DAS, GDP - GAAP (Include Only Carrier option selected), GS (with underlying GDP only if Include Only Carrier option is selected for a US Airport)

Table 3-13: (Continued)Advisory/Causal Factor Fields

Field Name	Description	Applicable Program Types
Category	Type of issue responsible for the delay (Weather, Volume, etc.)	GDP - DAS, GDP - GAAP, GS, AFP - DAS, AFP - GAAP
Cause	Specific cause of delay (Fog, Compacted Demand, Air Show, etc.) related to the Category selected	GDP - DAS, GDP - GAAP, GS, AFP - DAS, AFP - GAAP
FAA	Equipment Impacting Condition was attributable to FAA equipment	GDP - DAS, GDP - GAAP (US Airports - Enabled only if Impacting Condition Category = Equipment), GS (with underlying GDP only if Impacting Condition Category = Equipment) AFP - DAS, AFP - GAAP (US Airports - Enabled Only If Impacting Condition Category = Equipment)
Non-FAA	Equipment Impacting Condition was attributable to Non-FAA equipment	GDP - DAS, GDP - GAAP (US Airports - Enabled Only If Impacting Condition Category = Equipment), GS (with underlying GDP only if Impacting Condition Category = Equipment), AFP - DAS, AFP - GAAP (US Airports - Enabled Only If Impacting Condition Category = Equipment)
Scheduled	Identifies that the Equipment Impacting Condition was due to a scheduled outage	GDP - DAS, GDP - GAAP (US Airports - Enabled Only If Impacting Condition Category = Equipment), GS (with underlying GDP only if Impacting Condition Category = Equipment), AFP - DAS, AFP - GAAP (US Airports - Enabled Only If Impacting Condition Category = Equipment)

Table 3-13: (Continued)Advisory/Causal Factor Fields

Field Name	Description	Applicable Program Types
Non-Scheduled	Identifies that the Equipment Impacting Condition was due to a non-scheduled outage	GDP - DAS, GDP - GAAP (US Airports - Enabled Only If Impacting Condition Category = Equipment), GS (with underlying GDP only if Impacting Condition Category = Equipment), AFP - DAS, AFP - GAAP (US Airports - Enabled Only If Impacting Condition Category = Equipment)

Delay Assignment

Table 3-14: Delay Assignment

Field Name	Description	Applicable Program Types
Delay Assignment Mode	The type of delay assignment mode selected for the GDP, DAS or GAAP.	GDP - DAS, GDP - GAAP, AFP - GAAP
Delay Limit	The maximum number of minutes a pop-up flight can be delayed during a GAAP GDP.	GDP - DAS, GDP - GAAP, AFP - GAAP
ETA	Estimated Time of Arrival broken into 15-minute increments.	GDP - DAS, GDP - GAAP
Average Delay	Average delay for each 15-minute increment.	GDP - DAS, GDP - GAAP, AFP - GAAP
Original Demand	Number of arrival flights for each 15-minute increment before running the GDP.	GDP - DAS, GDP - GAAP, AFP - GAAP
Unassigned Slots	Number of unassigned slots for each 15-minute increment during a GAAP GDP.	GDP - DAS, GDP - GAAP, AFP - GAAP
Quarterly AAR	The Airport Arrival Rate set for each 15-minute increment after running the GDP.	GDP - DAS, GDP - GAAP, AFP - GAAP
Hourly AAR	The Airport Arrival Rate for each hour during the GDP.	GDP - DAS, GDP - GAAP, AFP - GAAP

Coversheet Buttons

- **Preview Advisory -** Opens the Advisory in text format. You can print or save the data in the Advisory preview window.

- **Send <Program Type>** - When you click **Send**, the FADT files are sent to Volpe. The files are then distributed in the next ADL. Additionally, it emails the program parameters to all parties involved, including the Hub site. If the parameters are for a Proposed Advisory, the Hub site sends out the parameters immediately in the next ADL. When you send parameters for an Actual Advisory, the Hub site ensures that it has received the associated FADT file with flight control times for the program before sending any parameters through the ADL.

  Note: The **Send** button is disabled for FEAs and for any user who is not authorized and configured to issue an AFP.

- **Close** - When you click **Close**, no action is taken from the GDP Coversheet window.

Coversheet Examples

This section provides examples of coversheets.

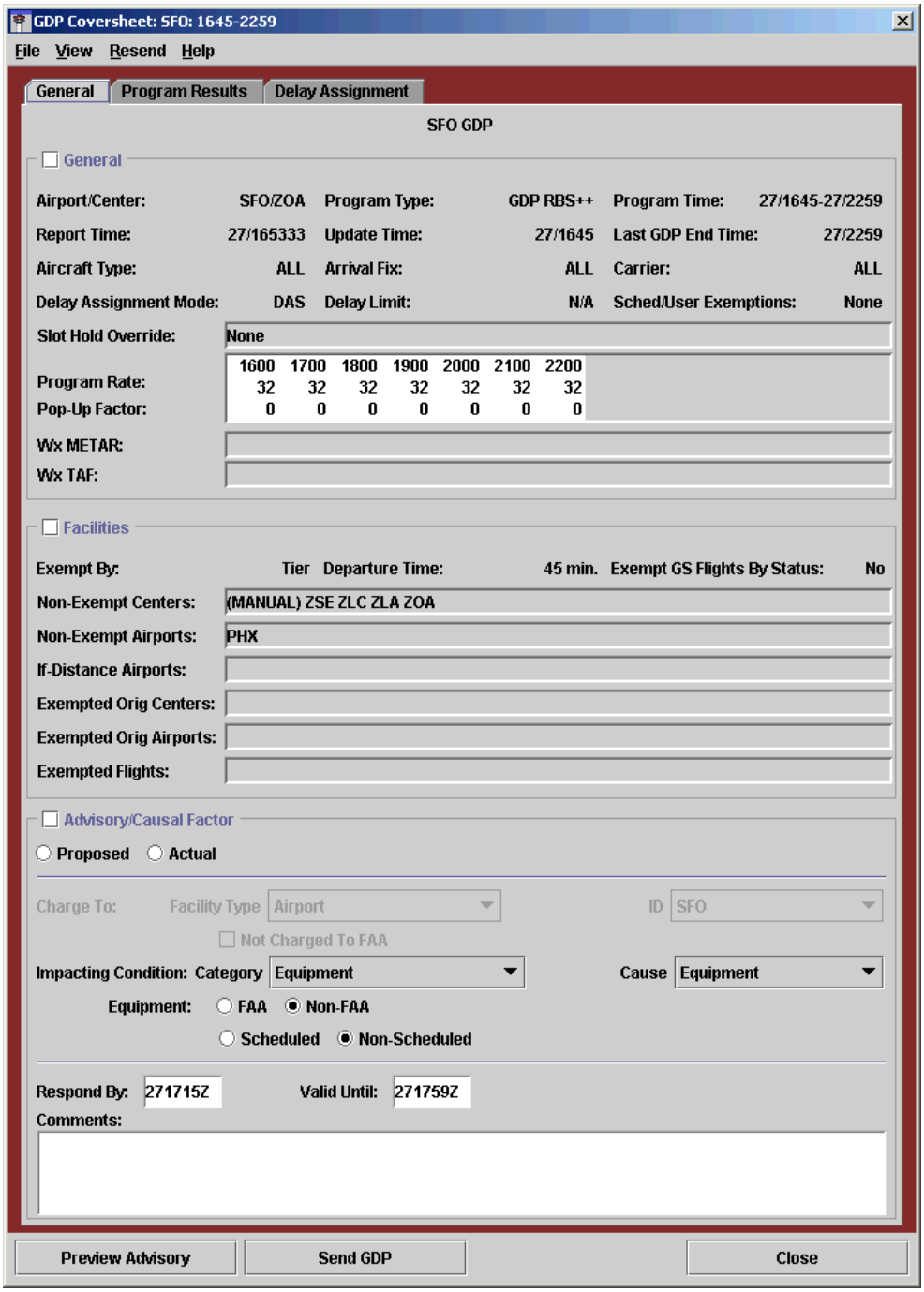


Figure 3 - 75: GDP Coversheet

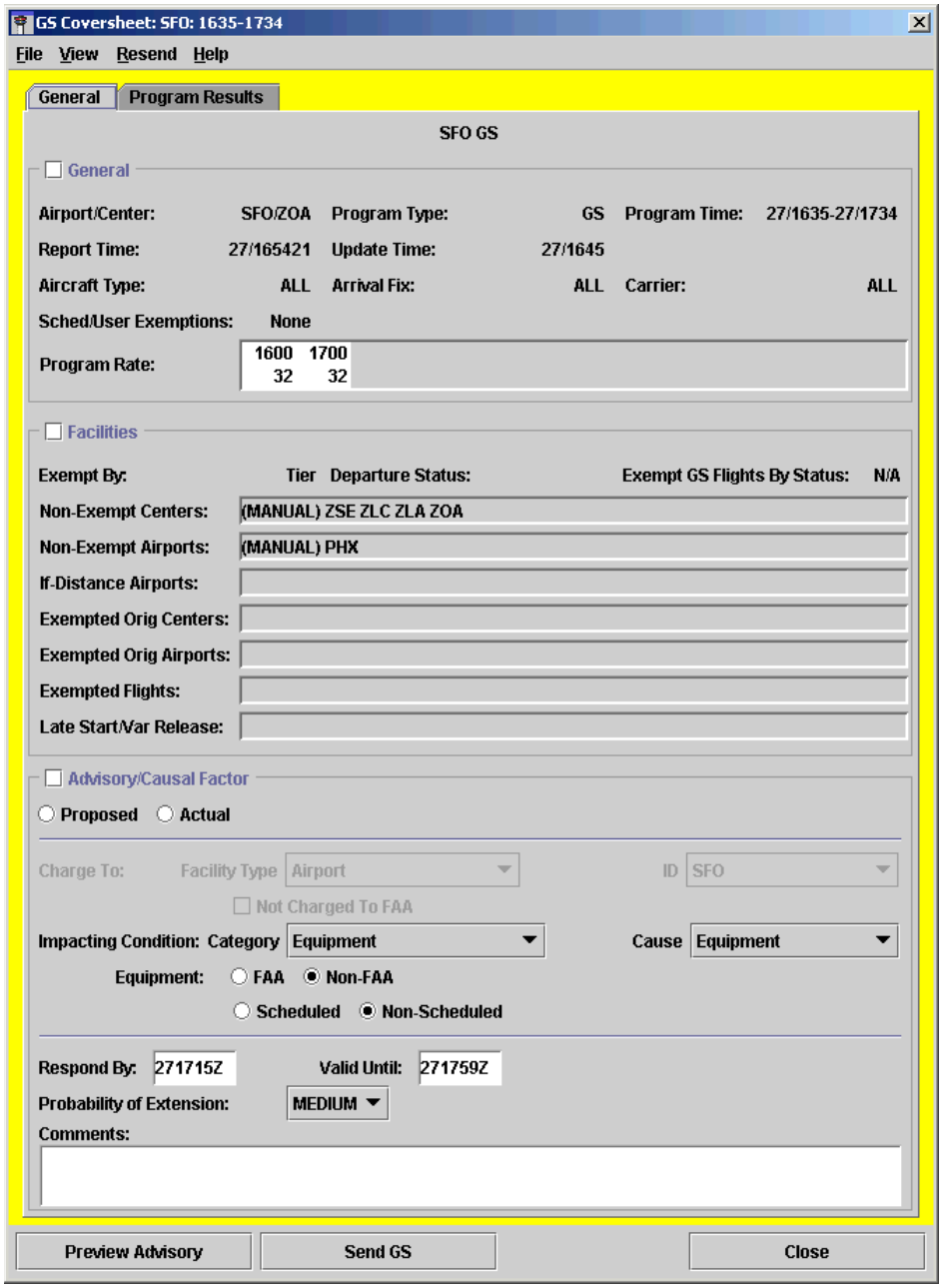


Figure 3 - 76: GS Coversheet

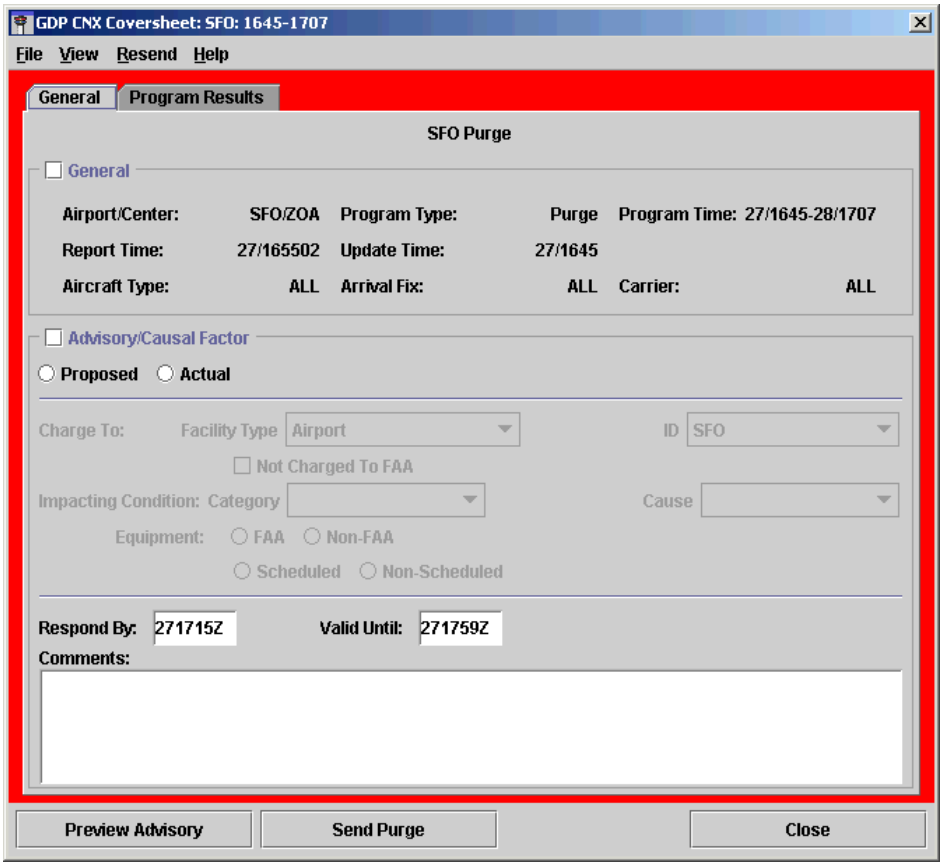


Figure 3 - 77: Purge Coversheet

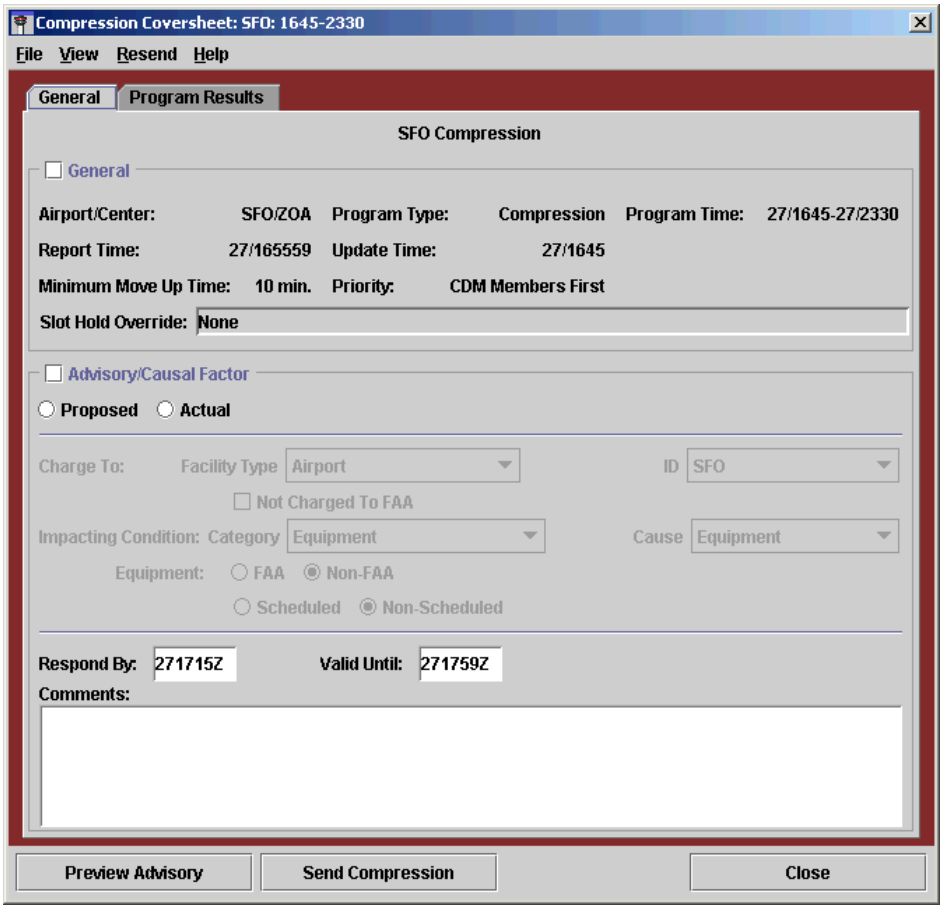


Figure 3 - 78: Compression Coversheet

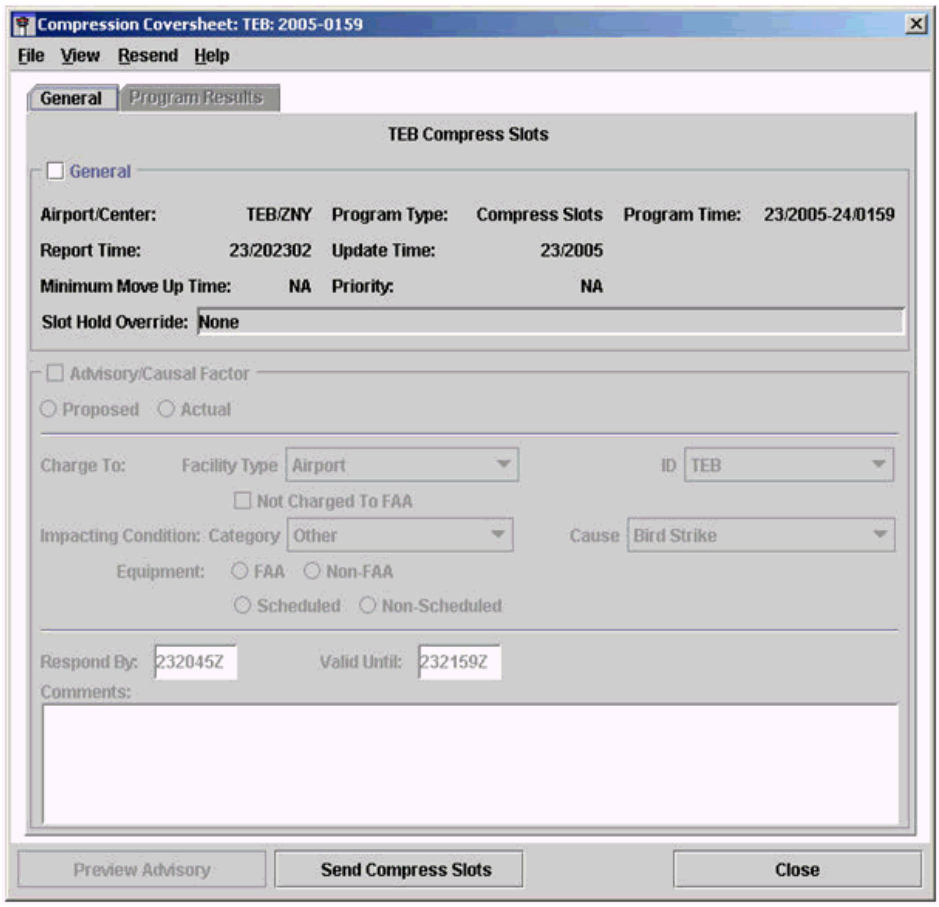


Figure 3 - 79: Compress Slots Coversheet

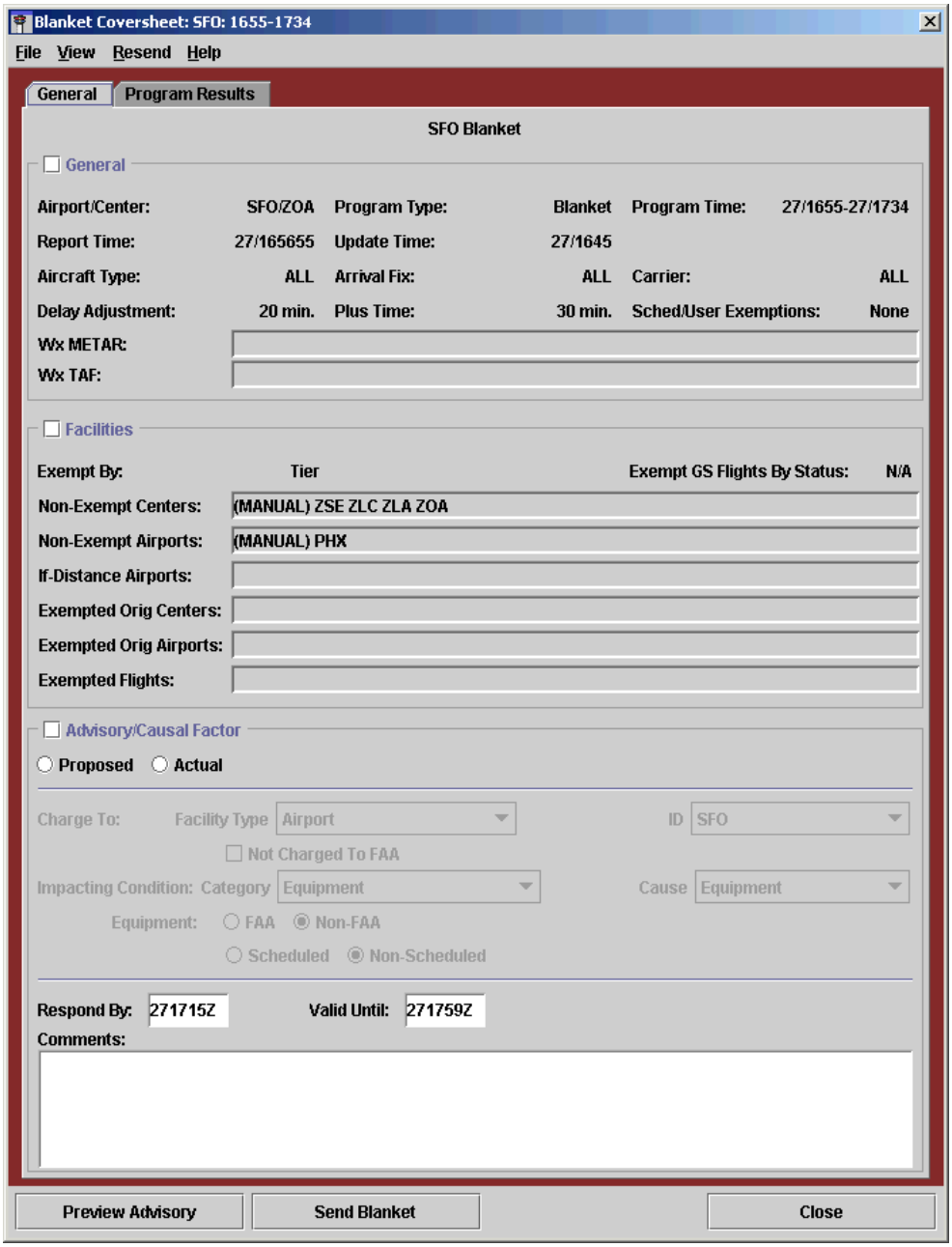


Figure 3 - 80: Blanket Coversheet

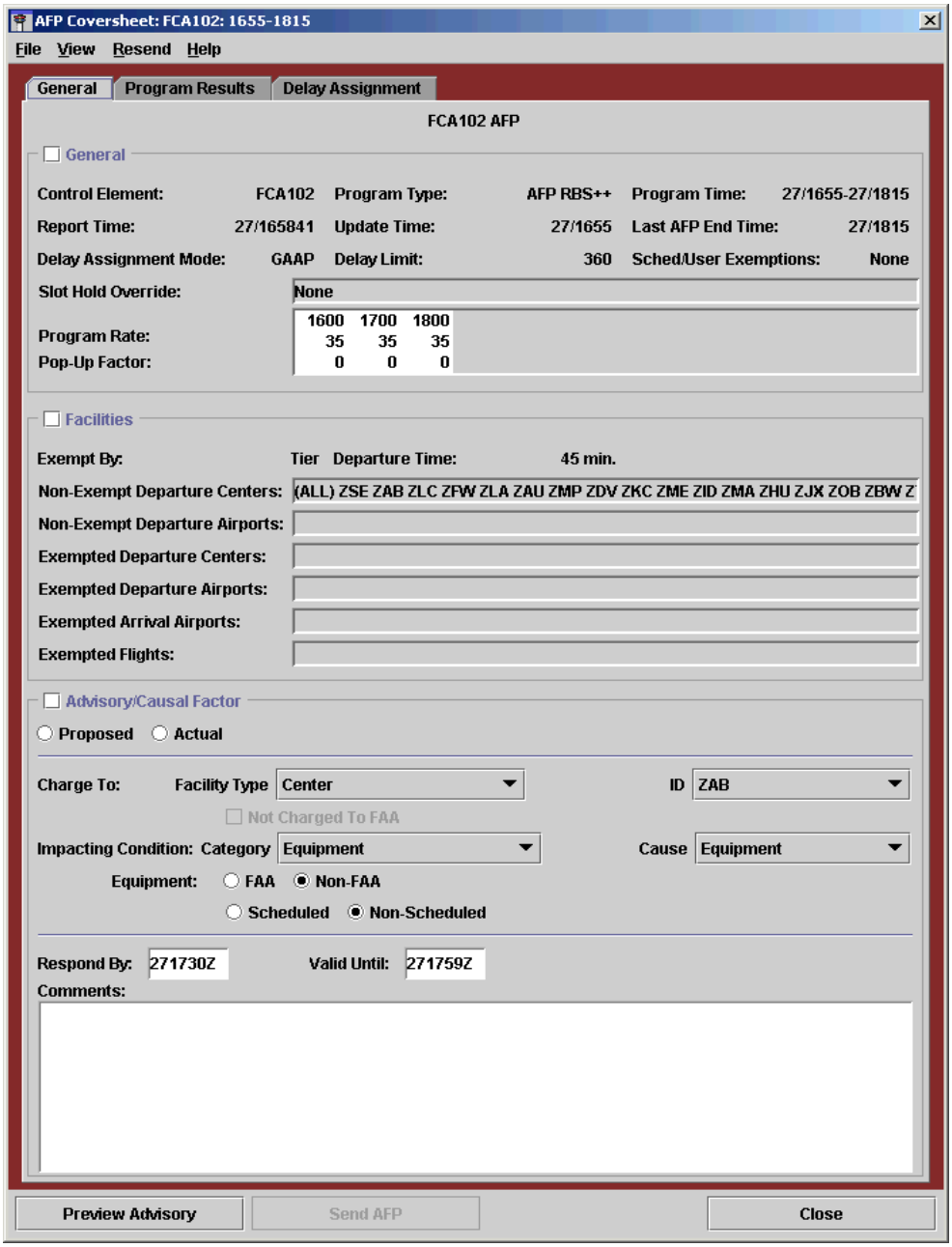


Figure 3 - 81: AFP Coversheet

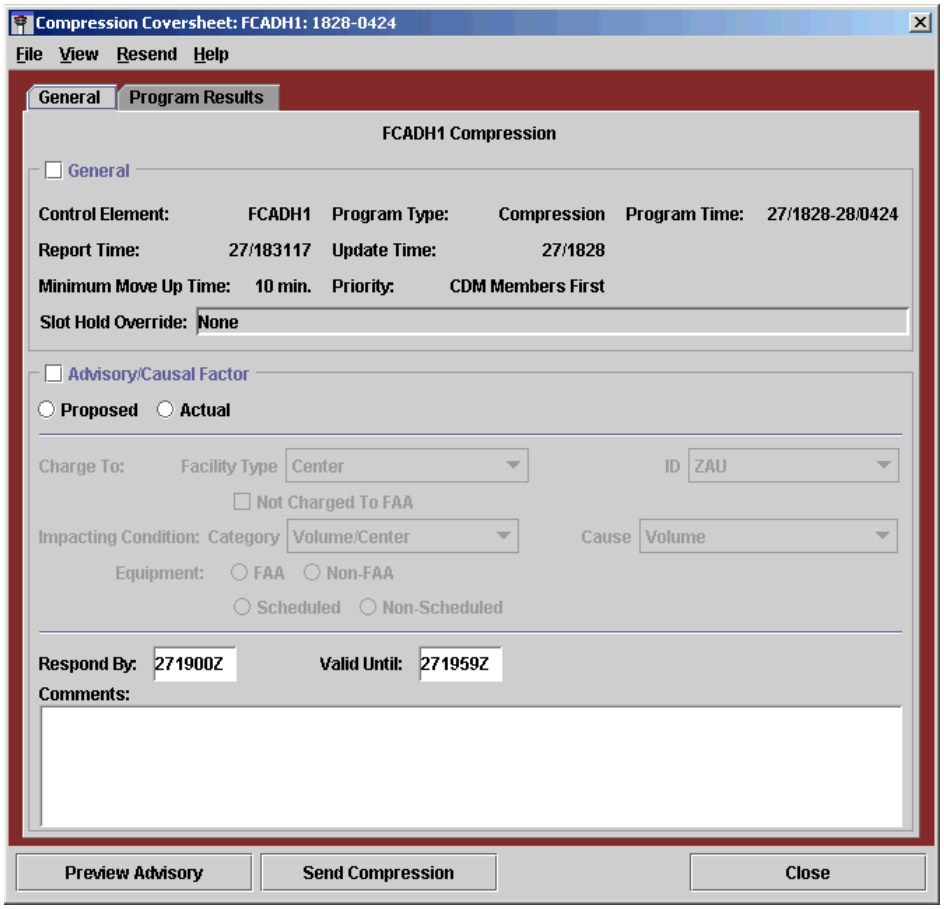


Figure 3 - 82: AFP Compression Coversheet

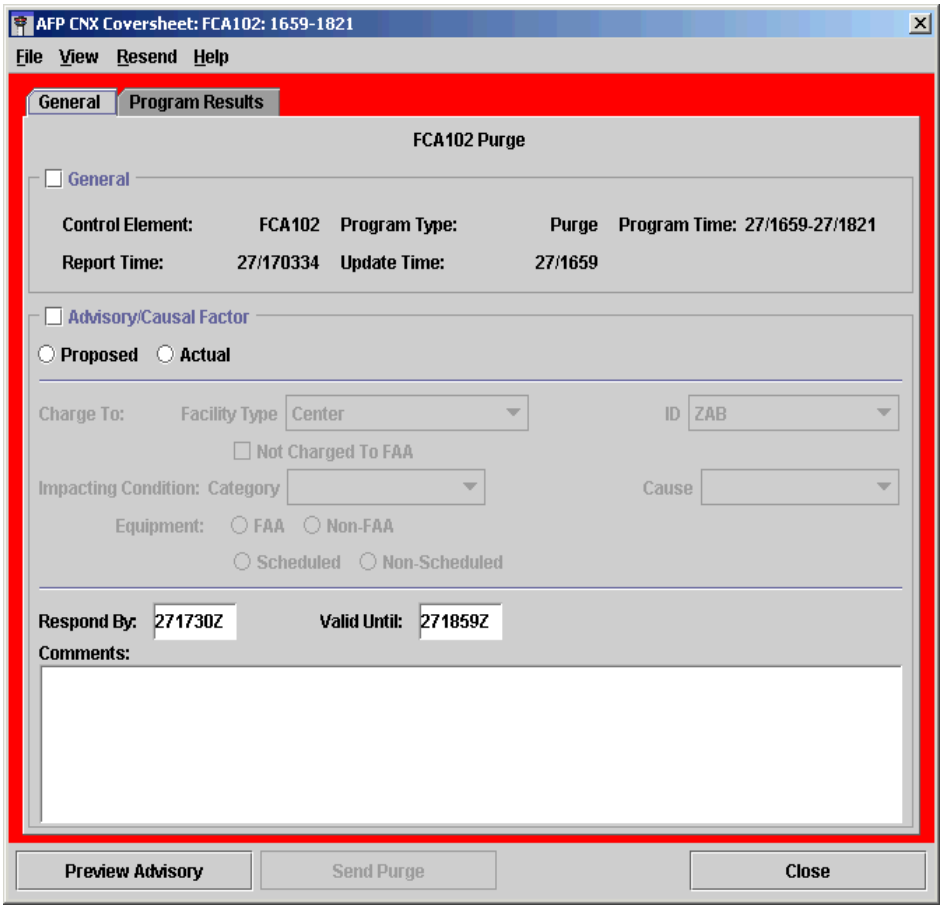


Figure 3 - 83: AFP CNX Coversheet

Program Manager

The Program Manager displays after you click **Send** on the Coversheet/Advisory. The Coversheet component sends the Program Manager a list of actions to perform based on the type of TMI you sent. The Program Manager shows all of the parallel actions in each step, when the step is initiated. The component shows the status of each action as the Program Manager performs it.

If an action fails, a dialog displays asking if the Program Manager should perform further sequential actions, or stop the process. Other actions executing in parallel are not affected regardless of whether you decide to cancel the affected process.

An icon displays in front of each action that the Program Manager performs.

- Unsuccessful actions have a red “X” displayed in front of them
- Actions in progress have a pulsing purple arrow displayed in front of them

- Successfully completed actions have a green checkmark displayed in front of them.

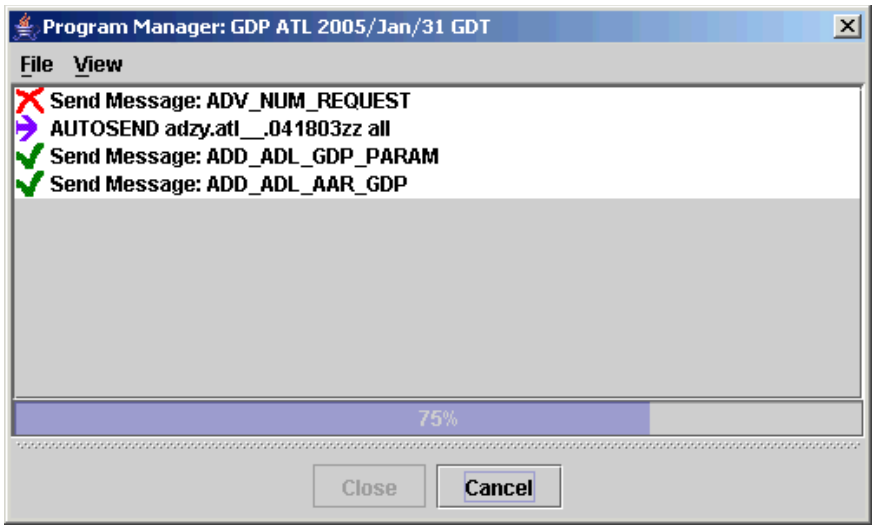


Figure 3 - 84: Program Manager

You can see the details of the processes by selecting **View > Details**. Detailed messages are date/time stamped in the standard DD/HHMMSS format. The details allow you to troubleshoot in real time at what point the processing for an action failed. If the Program Manager retries an action, the retries are numbered.

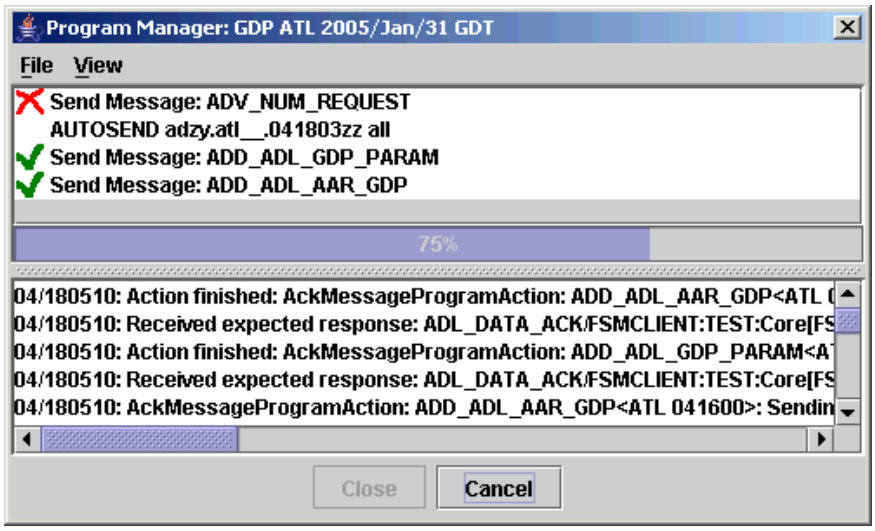


Figure 3 - 85: Program Manager with details

Actions that fail cause a dialog to open which gives the user three options:

- **Retry Action** - resubmits the request and executes the specified number of retries at intervals until the request succeeds or fails again.
- **Skip & Continue** - proceeds to the next sequential action without completing the specified action. This is only available when the action is one in a sequence of actions.

- **Cancel** - stops the entire send process and an Autosend Cancel Warning displays. FSM then activates the Resend menu options based on the type of TMI you are trying to send.

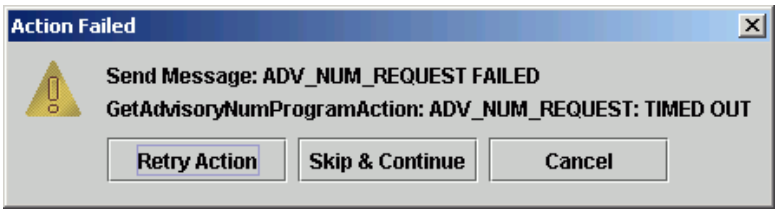


Figure 3 - 86: Action Failed dialog box

Cancelling the Program Manager

You have the option to cancel the Program Manager actions at anytime. Clicking **Cancel** at the bottom of the Program Manager stops the program transmission process (including the Autosend segments), but does not cancel sending any tasks that have already been sent or are in progress. A warning message displays, “Canceling the Program Manager while transmitting information may produce unexpected results. Do you still wish to cancel the Program Manager?”

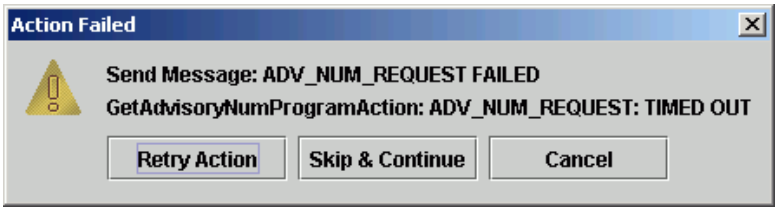


Figure 3 - 87: Cancellation Message

If the program transmission process has been cancelled in the middle of sending certain types of information to the hub site, then the **Send** (or **Purge**) button is enabled and you can click **Send**/**Purge** again. **Resend** is not available for cancelled programs. The Resend menu on the Coversheet is enabled when the GDP_PARAM—or BLKT_PARAM, etc.—(for a Proposed TMI) is sent successfully, when the FADT (for an Actual GS/GDP/BLKT/COMP) is sent successfully, or when the EDCT_COMMAND task (for Purge) is sent successfully.

Integrated Program Modeling Components

Integrated Program Modeling (IPM) allows you to model and compare multiple traffic management initiatives (TMIs), and to review their impact on other data sets. In the current FSM version, IPM provides modeling capabilities only; in other words, you cannot send TMIs.

The actual integrated program modeling of Traffic Management Initiatives (TMIs) is covered in Chapter 10: Using Integrated Program Modeling. This section familiarizes you with the IPM and IPM Setup components:

- IPM Scenario Manager

- IPM Multi Graph
- IPM Setup (opened from Scenario Manager)
    - IPM Map
    - IPM Bar Graph
    - IPM Data Graph
    - IPM Demand by Center (Optional)
    - IPM Time Line (Optional)
    - IPM Flight List (optional)

Opening IPM Mode

From the FSM Control Panel component, use one of the following methods to open IPM Mode:

- Click **IPM Mode**
- Select **View > IPM Mode**
- Press **Ctrl + I**

Scenario Manager and Multi Graph are the two default components that are displayed when you open IPM mode (see Figure 3 - 88). Scenario Manager and Multi Graph are interactive; any change made in one is dynamically reflected in the other component.

The IPM Setup and IPM Map components are interactive; any change made in one is dynamically reflected in the other component. Like GDT mode, when you model the scenarios, the other IPM Setup components reflect the changes made to the IPM Setup and Map.

> **Note:** All IPM components are labeled IPM in the component title bar. IPM Setup components also include the Scenario number in the title bar.

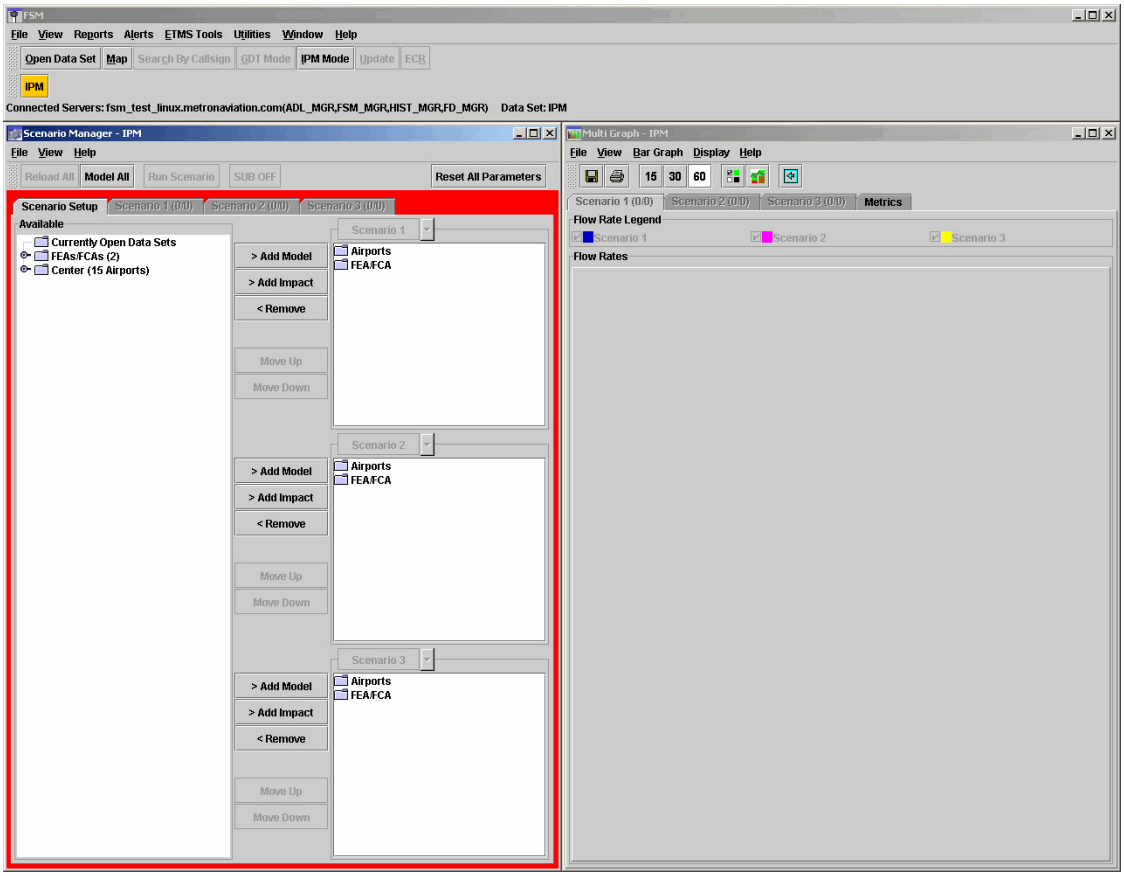


Figure 3 - 88: IPM Default Components

Scenario Manager Component

The IPM feature combines FSM-implemented TMIs into one or more system-wide views, referred to as scenarios. A scenario is a collection of data sets, program types, and parameters for modeled and impact data sets. The scenarios allow you to compare programs' effects on one another and to compare multiple strategies at one time.

The first step in using the IPM tool is to create one or more scenarios in the Scenario Manager component (see Figure 3 - 89). The creation of a scenario involves the selection of elements that are either going to be controlled through initiatives or may be impacted by those initiatives. For example, a GDP(s) may be included in a scenario because you want to see its impact on an FCA.

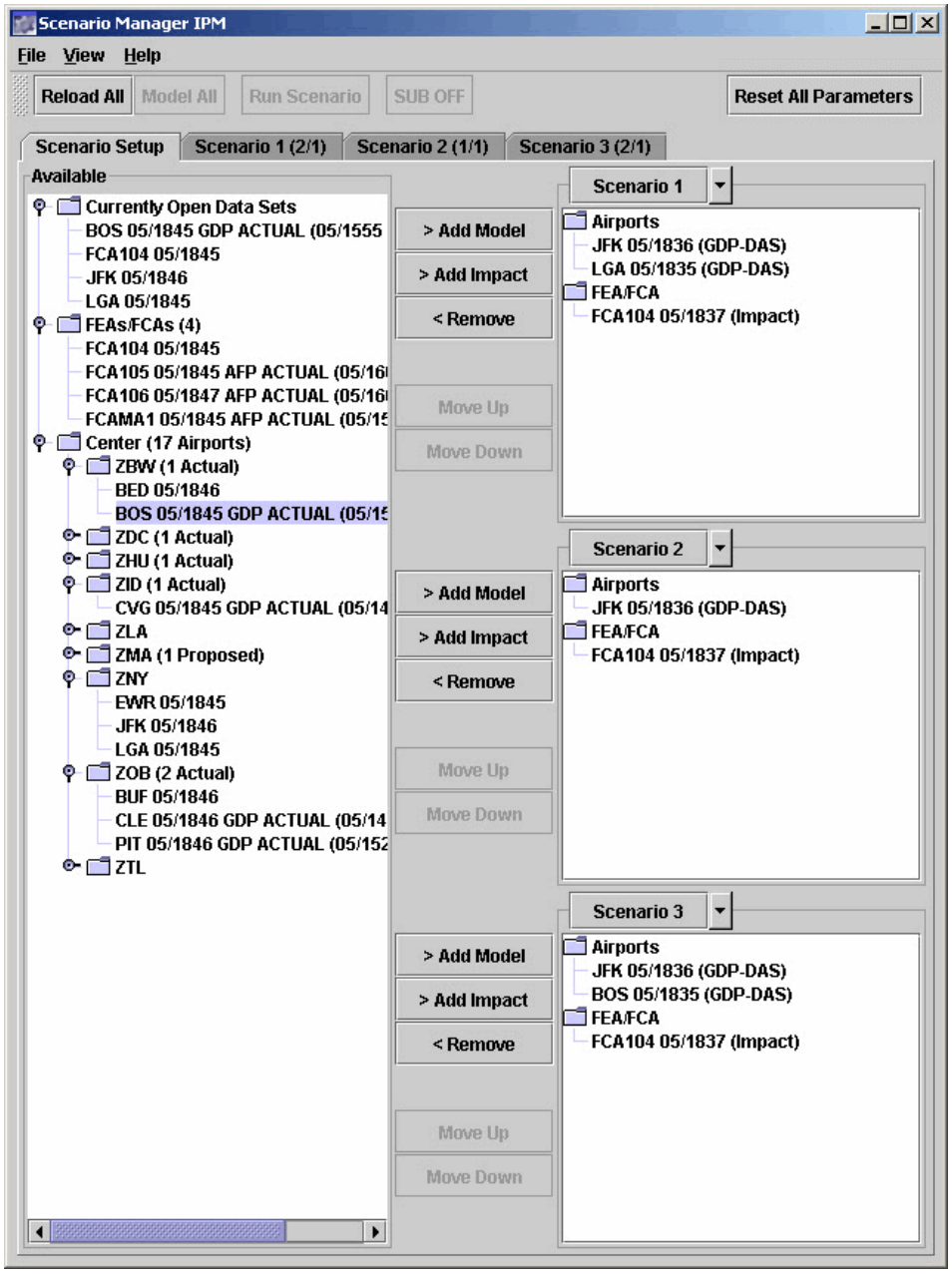


Figure 3 - 89: Scenario Manager Component After Scenarios are Created

Scenario Manager Menu Bar

The menu bar in the Scenario Manager component contains three menus: File, View, and Help.

1. File Menu
   - **File > Close** - Closes the Scenario Manager window.
2. View Menu
   - **View > IPM Multi Graph** - Opens the Multi Graph component.

- **View > Rename Window** - Opens the Rename Window dialog box to change the component name in the title bar.

3. Help Menu
   - **Help > Scenario Manager** - Opens the on-line help information specific to Scenario Manager.
   - **Help > Scenario Manager Tab** - Opens the on-line help information specific to Scenario Manager tabs.

Scenario Manager Panel Buttons

The following action buttons are located below the Menu bar.

- **Reload All** - Loads the latest ADL data and models the data for all elements in all scenarios. This button is enabled only if there are elements present in any of the scenarios. Note that **Reload All** is run automatically each time an element is added to a scenario.
- **Model All** - Applies selected models to all elements in all scenarios. This button is enabled only if there are elements present in any of the scenarios.
- **Run Scenario** - This button is for future use and is disabled at all times.
- **SUB OFF** - This button is for future use and is disabled at all times.
- **Reset All Parameters** - Loads the most current ADL, clears any elements of the modeled data, and returns the IPM settings to their defaults.

Scenario Manager Tabs

Scenario Manager consists of four tabs. The Scenario Setup tab provides a high-level view of all scenarios and is where you create scenarios. Scenario 1, Scenario 2, and Scenario 3 provide a detailed view of the scenarios.

Scenario Setup Tab

Available Box - The Available box lists all available Airport and FEA/FCA elements from the FSM server's list of monitored live elements. The elements in the Available box are grouped by Currently Open Data Sets, FEAs/FCAs, and Center. The number of available FEAs/FCAs and Centers are listed in parenthesis. For example, Center (17 Airports) means there are 17 airports being monitored.

Any program information and update times associated with the element is displayed next to the element name. FSM updates the program information and update times for each element when it receives new information from the ADL.

Buttons - Five buttons are displayed to the left of each Scenario box. The following buttons are used to create the scenarios and manipulate their order within scenarios:

- **> Add Model** - Adds selected elements as modeled elements to the specified scenario. Use the Shift or Ctrl keys to select and add multiple elements. The elements will be added to the bottom of the appropriate Airport or FEA/FCA list.

  The default TMI selection will be the underlying program type; otherwise, by default, the elements will be added as GDP-DAS or AFP-DAS.

You can add up to eight elements within each scenario. If you attempt to add more elements to a scenario than the maximum allows, an error message reading "Maximum number of elements in Scenario has been exceeded" is displayed.

If you select an element that cannot model a GDP (e.g., Mexican elements) an error message reading, "[Element Name] can only be added as an Impact element" is displayed. The message also is displayed if you multi-selected elements and at least one of them cannot be added. In such a case, none of the selected elements will be added.

- **> Add Impact** - Adds selected elements as impact elements to the specified scenario. Use the Shift or Ctrl keys to select and add multiple elements. An impact data set is defined as a data set for which you would like to view the effect of a modeled TMI. The added element will be added to the bottom of the appropriate Airport or FEA/FCA list. By default, elements will be added as Impact.
- **< Remove** - Removes a selected element from a scenario. When you remove an element, you lose any associated parameters.
- **Move Up** - Moves up the position of a selected element. The order shown is the order the elements will be modeled. The button is disabled if no element is selected or if the selected element is in the top-most position. You cannot move the Airports and FEAs/FCAs folders.
- **Move Down** - Moves down the position of a selected element. The order shown is the order the elements will be modeled. The button is disabled if no element is selected or if the selected element is in the bottom-most position. You cannot move the Airports or FEAs/FCAs folders.

Scenario Box - There is a Scenario box for each scenario labeled Scenario 1, Scenario 2, and Scenario 3. Each Scenario box groups elements by Airports or FEAs/FCAs.

Click the dropdown arrow next to the scenario tab label to open a menu with two options:

- **Copy to** - Copies the list of elements and all parameters in the source scenario to either of the other two scenarios. If an element already exists in the scenario, the copy function will replace its parameters in the destination scenario. A warning message reading "One or more elements already exits. Clicking Continue will replace parameters in the destination scenario" is displayed. Click Cancel (default) to clear the warning without making any changes.
- **Clear Scenario** - Removes all elements from the scenario. A warning message reading "Parameters of all elements in Scenario [n] will be lost" is displayed. Click Continue to clear the warning and clear all elements from the scenario. Click Cancel (default) to clear the warning without making any changes.

Element Right-Click Menu Options - Right-click an element within a scenario to change the type of TMI or open IPM Setup. When you change the management option, the new program type is displayed parenthetically next to the element.

The following right-click menu options are available for airport elements:

- **GDP - DAS** - Changes to GDP-DAS program type

- **GDP - GAAP** - Changes to GDP-GAAP program type
- **Ground Stop** - Changes to Ground Stop program type
- **Purge** - Changes to Purge program type
- **Impact** - Changes to Impact program type
- **IPM Setup…** - Opens the IPM Setup component

The following right-click menu options are available for airspace elements:

- **AFP - DAS** - Changes to AFP-DAS program type
- **AFP - GAAP** - Changes to AFP-GAAP program type
- **Purge** - Changes to Purge program type
- **Impact** - Changes to Impact program type
- **IPM Setup…** - Opens the IPM Setup component

Hover your mouse cursor over an element within a scenario to display a tooltip containing the following information: Program Type, Scope, Start Time, End Time, Program Rate, and Pop-Up Factor. The tooltip is a summary of the information found on the Scenario 1, 2, and 3 tabs.

Scenario Tabs

There are three scenario tabs that represent each scenario on the Scenario Setup tab. The scenario tab is disabled until the corresponding scenario is created. Once you create a scenario, the corresponding tab-label parenthetically lists the number of model elements and number of impact elements in the scenario. Scenario 1 (2/1) indicates that Scenario 1 consists of two Model elements and one Impact element (see Figure 3 - 90).

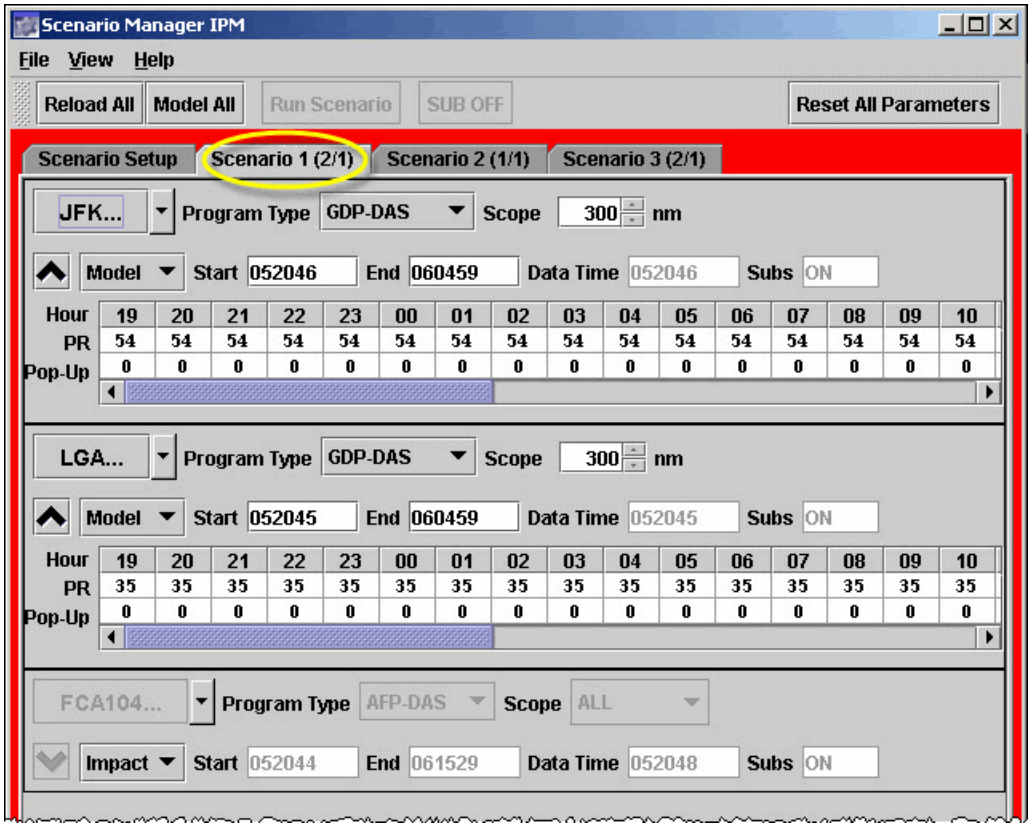


Figure 3 - 90: Scenario 1 Tab Layout

Changing Segment Order

The tab is divided into segments that represent each element in the order they are displayed on the Scenario Setup tab. You can drag and drop a segment to change the order displayed on the tab. Any change will dynamically change the order on the Scenario setup tab and the Multi Graph component. The displayed order determines the order that the elements are modeled.

> **Note:** Airports are always modeled before FEAs/FCAs; therefore, you cannot move an FEA/FCA above an airport.

Element ID action button - Click to open IPM Setup. This button is disabled for Impact elements.

To the right of the Element ID button click the arrow to open the dropdown menu with the following options:

- **IPM Setup…** - Opens IPM Setup for the selected element. Opens with the ADL currently opened in the Scenario Manager. Note that ADLs are updated only when **Reload All** is selected or an additional element is added to a scenario. If the ADL is behind the current ADL, the **Reload All** button will be enabled. IPM Setup is disabled for Impact elements. Only one instance of IPM Setup can be opened at a time.

  You cannot move the IPM Setup component; therefore, in order to return to Scenario Manager, you must close IPM Setup.

- **Copy To** - Copies the specific element and its parameters to all the scenarios or a specific scenario.
- **Move To** - Moves the specific element and its parameters to a specific scenario.
- **Load Proposed Parameters** - Select to open a secondary dropdown menu to select from specific parameter options:
    - **> Airspace Flow Program** - Loads the proposed AFP parameters. This option is not available for airports.
    - **> Ground Delay Program** - Loads the proposed GDP parameters. This option is not available for FEAs/FCAs.
    - **> Ground Stop** - Loads the proposed Ground Stop parameters. This option is not available for FEAs/FCAs.
- **Load Actual Parameters** - Opens a secondary dropdown menu to select from specific parameter options:
    - **> Airspace Flow Program** - Loads the proposed AFP parameters.This option is not available for airports.
    - **> Ground Delay Program** - Loads the proposed GDP parameters. This option is not available for FEAs/FCAs.
    - **> Ground Stop** - Loads the proposed Ground Stop parameters. This option is not available for FEAs/FCAs.
- **Open New GDT Mode Instance…** - Opens a new instance of GDT Mode for the selected element, and copies all parameters to that GDT Mode. This option lets you run a program without having to re-enter all the information. All current restrictions on the number of GDT Modes allowed are enforced.

  GDT Mode is opened with the ADL currently opened in the Scenario Manager. If the element's ADL for the Scenario Manager is later than the current ADL time, the **Reload** button in GDT Mode will be enabled.

  This option is disabled for Impact elements.
- **Delete Element** - Removes the selected element from the scenario.

Program Type - Click the dropdown box arrow to select available TMI types for the element:

- GDP - DAS
- GDP - GAAP
- Ground Stop
- Purge - This program type requires no input on any tab option. If Purge is selected, all selections except Impact/Model and Program Type are disabled.
- AFP - DAS
- AFP - GAAP

Scope - The scope value is determined by the element's scope in GDT Mode. If you want to change the scope, use IPM Setup.

- For a tier-based scope, the dropdown box will contain the available tier keywords for the selected element.
- For distance-based scope, the dropdown box will contain [x]NM (nautical miles) where ‘x’ is an editable field. Use the spinners to adjust the scope in 100 nm increments.

Expand or Collapse Segment Arrow

- Click the down arrow toggle button to the left of the Model box to expand the segment. By default, Impact elements are collapsed and the Expand/Collapse button is disabled as Impact elements cannot be expanded.
- Click the up arrow toggle button to the left of the Model box to collapse the segment. By default, Model elements are expanded but you can collapse their presentation.

Model or Impact - This dropdown box indicates whether the element is a modeled or impact TMI. Click the arrow to change the element to either Model or Impact.

Start - Enter the date and time when the TMI should begin.

End - Enter the date and time when the TMI should end.

Data Time - Displays ADL time on which you are modeling and analyzing your TMI. This is a read-only field in the current FSM version.

Subs - Indicates whether Subs are on or off. This is a read-only field in the current FSM version.

Program Rate / Pop-Up Grid - This is similar to the GDT Mode Program Rate / Pop-Up Grid. The primary difference is that you must manually change the PR and Pop-up values as the Fill between Hours option is not available. For Fill between Hours functionality, open the IPM Setup component and make your changes. Any updates will dynamically change the element’s corresponding segment in the Multi Graph component.

Multi Graph Component

The Multi Graph component has four tabs. Three tabs with stacked bar graphs for each element in the Scenarios 1,2 and 3, and a tab with consolidated metrics for all scenarios (see Figure 3 - 91).

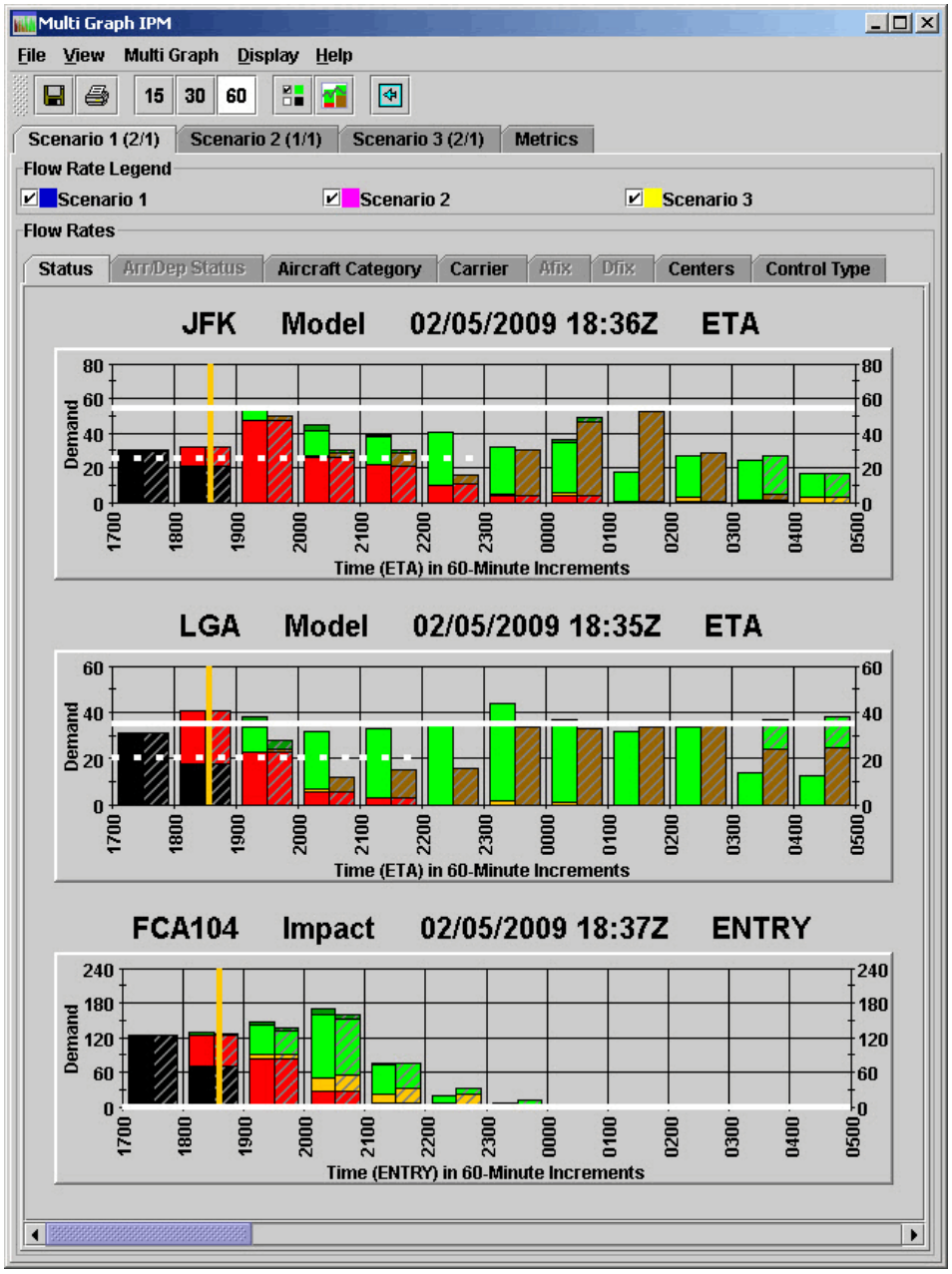


Figure 3 - 91: Multi Graph Component

Multi Graph Menu Bar

The menu bar of the FSM Multi Graph component contains five options: File, View, Bar Graph, Display, and Help.

1. File Menu
   - **File > Save As** - Saves the Multi Graph as a .jpg image to a directory you specify.
   - **File > Print** - Prints the Multi Graph currently displayed on your screen.

- **File > Close** - Closes the Multi Graph component.

2. View Menu

   The View Menu consists of 15 checkboxes and two additional menu items. Check the box to view the information and uncheck the box to hide the information.

   - **View > Rename Window** - Displays the Rename Window dialog box used to change the component name in the title bar. Enter the desired component name, and click OK to change the title bar heading. Click Cancel to close the Rename Window dialog box without making any changes.
   - **View > Set Tabs Displayed** - Dynamically shows and hides specific coloring schemes for the Bar Graph component. The selected scheme controls all of the bar graphs.
   - **View > Current Data** - Replaces GDT Mode's **View > Arrival Data** and **View Departure Data** options. The concept of viewing arrival and departure data is not possible in IPM Mode since you are simultaneously viewing both airspace and airport traffic.
   - **View > Show Cancellations** - Displays cancelled flights in the color cyan. Cancelled flights are not automatically displayed in the graph. Showing cancelled flights is useful to compare the original demand with the demand after the cancellations. To differentiate between cancelled and regular flights, use the Arrival Status tab to color your flights.
   - **View > Show Unassigned Slots** - Displays all unassigned slots in the color white for a GDP or AFP.
   - **View > Show Legend** - Displays the appropriate color legend associated with the tab option you are viewing. If you click the legend button on the Bar Graph, FSM dynamically selects the checkbox for Show Legend.
   - **View > Time Indicator** - Displays an orange vertical line that remains fixed at the current time. Like the FSM Time Line, the Bar Graph Component also tracks time.
   - **View > Cumulative GDP/AFP Indicators** - Displays a brown solid vertical line representing the cumulative start and end time for a GDP or AFP.
   - **View > Event GDP/AFP Indicators** - Displays a brown vertical dashed lines to indicate the start time and end time of a current GDP or AFP. The program time indicators are displayed automatically when a program goes into effect at the monitored data set. Note: If the cumulative time and the event time are the same, the solid brown line (cumulative time) will take precedence over the dashed brown line (event time).
   - **View > GS Indicators** - Displays a yellow vertical lines to indicate the start time and end time of a current GS. The GS time indicators are displayed automatically when a GS goes into effect at the monitored airport.

- **View > Model Flow Rates** - Displays a thin colored line that represents the model flow rate independently of the time-bin convention, enabling you to visualize arrivals and departures as a dynamic flow rate. The color of the thin line color unique to each scenario. Blue represents Scenario 1, Magenta represents Scenario 2, and Yellow represents Scenario 3.
- **View > ADL AAR Line** - Displays a white horizontal line that runs through the graph representing the current Airport Arrival Rate (AAR) for the monitored airport or airspace data set. The ADL AAR (shown by default) is a fixed AAR sent by the FAA Air Traffic Control System Command Center (ATCSCC) to advise of the number of arriving aircraft a data set can accommodate at any given interval of time. The AAR changes according to the interval of time being displayed. For example, an AAR of 60 per hour = AAR of 15 per quarter hour. Only ATCSCC users can change the ADL AAR.
- **View > Model Program Rate** - Displays a user-specified Program Rate as a dashed white line. You use the Model Program Rate for modeling and analysis; you can change this according to program needs.
- **View > Time Increment>15 Minutes, 30Minutes, 60 Minutes** - Displays a bar graph capacity and demand information based on the time-bin value selected. The default time increment is 60-minutes. If you click one of the time bin buttons on the Bar Graph, the same increment displays selected on the associated menu item.
- **View > Hours Shown > 2/3/4/5/6/8/10/12/14/16/18/20/22/24/36 Hours** - The default data display is 10 hours. You can specify the number of hours displayed in the Bar Graph to see more or less flight data. For example, you may want to view the AAR in 15-minute increments, which is difficult to see on a graph with 10 hours' worth of data. To change the number of hours in the graph, select View > Hours Shown > X Hours (X = number of hours). The graph automatically updates to show the number of hours specified.

3. Bar Graph Menu

   - **Bar Graph > Track Time** - Makes the graph move as the time changes. When you track time in this way, the second bar on the graph is always the current time. When you uncheck the box, the bars do not move, but you can still use the Time Indicator to determine the current time on the graph.

4. Display Menu

   Display Menu changes the data shown in the Bar Graph to show demand based on the following display options. Selecting a display option means that the selected display option is applied across all scenario tab displays.

   - **Display > ETA / ENTRY** - Displays the Estimated Time of Arrival (ETA) for airport only, and Estimated Element Entry Time (ENTRY) for airspace only. This is the default display mode.

- **Display > BETA / BENTRY** - Displays the Base Estimated Time of Arrival (airport only) and Based Element Entry Time (airspace only).
- **Display > OCTA** - Displays the Original Controlled Time of Arrival.
- **Display > CTA** - Displays the Controlled Time of Arrival.

5. Help Menu
   - **Help > Multi Graph** - Opens the on-line help for the Multi Graph component.

Multi Graph Panel Buttons

The eight buttons in the Multi Graph window are identical to the standard GDT Mode Bar Graph buttons. The behavior of the panel buttons differs from GDT mode in that any action affects all bar graphs in all scenarios. For example, if you click the Cancellations toggle button, cancelled flights are displayed on each bar graph in Scenario 1, Scenario 2, and Scenario 3.

- **Save As** - Saves the Multi Graph as a .jpg image in a directory that you specify.
- **Print** - Prints the Multi Graph.
- **15, 30, and 60** - Clicking the 15, 30, or 60 time-bin buttons displays each Bar Graph's capacity and demand information based on the time-bin value selected. The default time increment is 60-minutes.
- **Legend** - Displays the color legend on each Bar Graph. The same color legend will be applied to all Bar Graphs on the Multi Graph.
- **Model Flow Rate** - Displays the Model Flow Rate line for each Bar Graph.
- **Cancellations** - Displays the cancelled flights on each Bar Graph.

Multi Graph Tabs

There are four tabs: Scenario 1, Scenario 2, Scenario 3, and Metrics.

Scenario Tabs

There are three scenario tabs, one for each scenario created on the Scenario Setup tab. There is a one-on-one correspondence between the number of datasets in a scenario and the number of bar graphs displayed for each scenario. Once you create a scenario, the corresponding tab label parenthetically lists the number of models and number of impacts in the scenario. Scenario 1 (2/1) indicates that the scenario consists of two Model elements and one Impact element (see Figure 3 - 92).

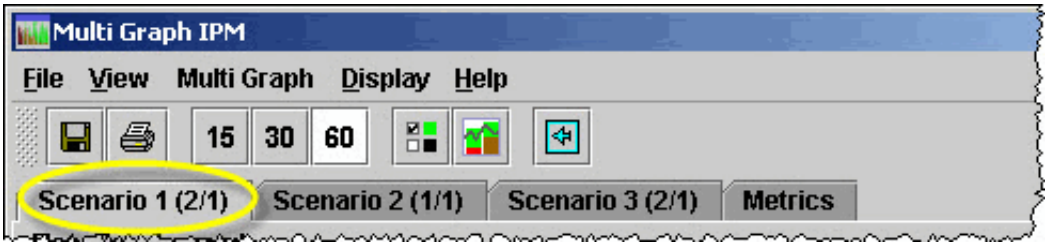


Figure 3 - 92: Number of Multi Graph's Model/Impact Elements

Below the tabs, the ***Flow Rate Legend*** has a checkbox and color unique to each scenario. The flow rate option is disabled if the scenario does not have any elements.

The Flow Rate Legend allows you to display the flow rate of an element across the other scenarios. If an element is in multiple scenarios, the element's associated flow rate is displayed on the scenario tab being displayed (see Figure 3 - 93).

Scenario flow rates are layered from top to bottom using the following precedence: Scenario 1, Scenario 2, and Scenario 3. For example, if Scenario 1 and Scenario 2 have the same flow rate, the line would be blue. If Scenario 2 and Scenario 3 had the same flow rate, the line would be magenta.

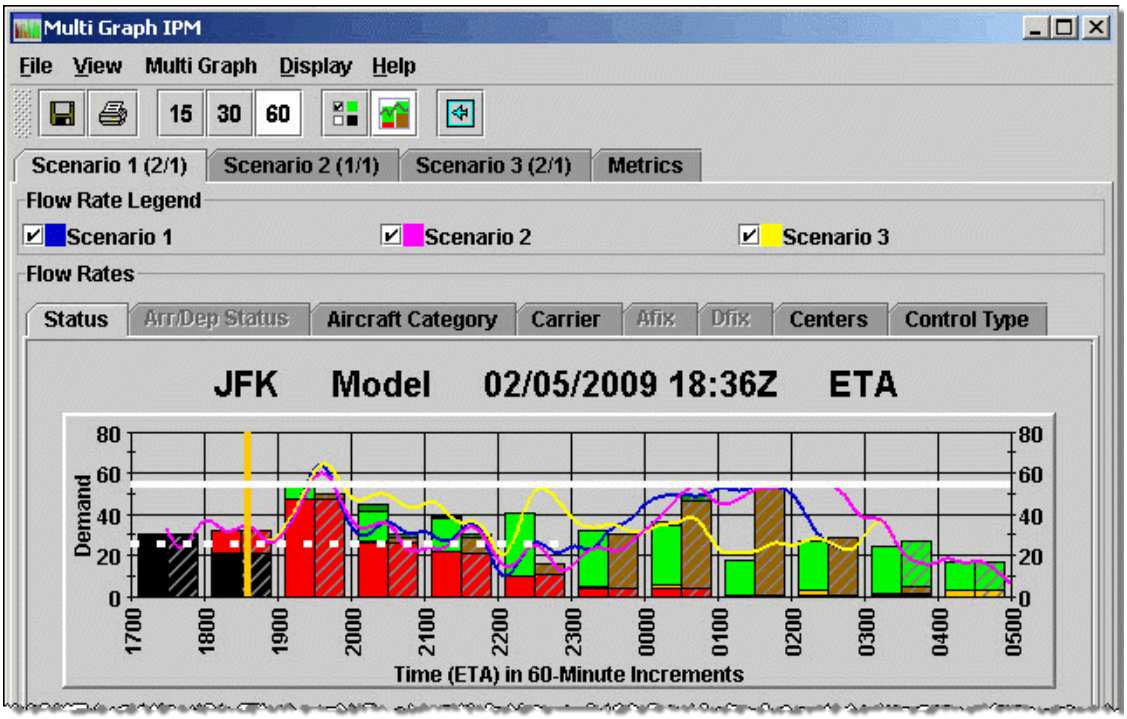


Figure 3 - 93: Multi Graph Flow Rate Legend for Multiple Scenarios

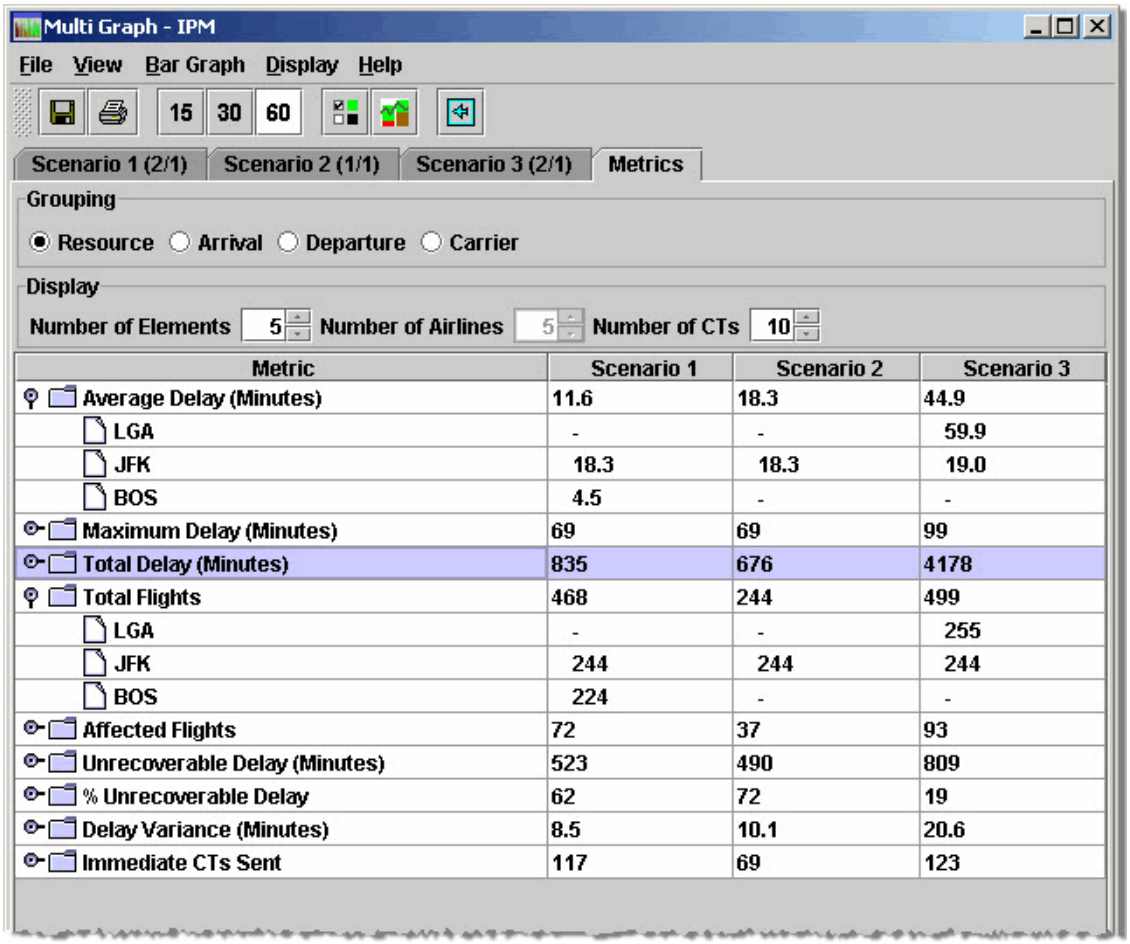
Bar Graph

Each Scenario tab displays a bar graph for each element in the scenario. Impact or Model is displayed to the right of the element name. The bar graphs are in the same order as they are displayed in the Scenario Manager. The bar graphs are the standard FSM bar graphs; however, there some differences to accommodate for the display of multiple bar graphs:

- The horizontal bar at the bottom of the window simultaneously scrolls all elements.
- A single set of Color tabs (**View > Set Tabs Displayed**) controls all of the bar graphs.
- Only color options with a common legend are enabled.
- The **Dynamic Carriers** and **Recalculate** buttons found on the Carrier tab in GDT's Bar Graph has been removed from the Multi Graph Carrier tab.

Metrics Tab

The Metrics grid contains expandable trees to simultaneously display consolidated statistics across all scenarios (see Figure 3 - 94). Use different combinations of the ***Grouping*** and ***Display*** options to analyze the data.



Metric	Scenario 1	Scenario 2	Scenario 3
Average Delay (Minutes)	11.6	18.3	44.9
LGA	-	-	59.9
JFK	18.3	18.3	19.0
BOS	4.5	-	-
Maximum Delay (Minutes)	69	69	99
Total Delay (Minutes)	835	676	4178
Total Flights	468	244	499
LGA	-	-	255
JFK	244	244	244
BOS	224	-	-
Affected Flights	72	37	93
Unrecoverable Delay (Minutes)	523	490	809
% Unrecoverable Delay	62	72	19
Delay Variance (Minutes)	8.5	10.1	20.6
Immediate CTs Sent	117	69	123

Figure 3 - 94: Metrics Tab

Grouping

Four ***Grouping*** options are displayed at the top of the Metrics tab. The selected grouping determines which statistics are displayed.

If you click ***Resource***, the following statistics are displayed:

- Average Delay
- Maximum Delay
- Total Delay
- Total Flights
- Affected Flights
- Unrecoverable Delay
- % Unrecoverable Delay

- Delay Variance
- Immediate CTs Sent

If you click ***Arrival*** or ***Carrier***, the following statistics are displayed:

- Maximum Delay
- Total Delay
- Total Flights
- Affected Flights

If you click ***Departure***, the following statistics are displayed:

- Average Delay
- Maximum Delay
- Total Delay
- Total Flights
- Affected Flights
- Immediate CTs Sent

Display

Three Display options are displayed below the Grouping section. Not all Display options are available for all Groupings:

- ***Number of Elements*** (default 5) – Not available for Grouping by Carrier
- ***Number of Airlines*** (default 5) – Not available for Grouping by Arrival, Departure, or Resources)
- ***Number of CTs*** (default 10) – Not available for Grouping by Arrival or Carrier

Use the arrows to select the top number of Elements, Airlines, or CTs to be included in the metrics. For example, an ***Airline*** value of seven means that the statistics for the top seven airlines will be displayed for each scenario. All airlines that fall outside of the selected parameters will be grouped together as “All Others”.

IPM Setup Components

The Integrated Program Modeling (IPM) Setup component allows you to review detailed statistics for an element’s modeled data. IPM Setup is very similar to GDT Setup. The main distinction is that you can only model programs in IPM. You cannot run and issue TMIs from IPM Setup. Changes made while in IPM Setup are reflected in the Scenario tab of the Scenario Manager component.

This section familiarizes you with the IPM Setup components:

- IPM Setup
- IPM Map
- IPM Bar Graph
- IPM Data Graph
- IPM Time Line (Optional)

- IPM Demand by Center (Optional)
- IPM Flight List (see Chapter 6: Viewing Flight Information)

Opening IPM Setup

Unlike GDT Setup, only one instance of IPM Setup can be opened at one time. You must be in IPM Mode's Scenario Manager component to open IPM Setup. Use one of the following three methods to open IPM Setup:

1. On the Scenario Setup tab, right-click an element in a Scenario box, and select **IPM Setup...** from the menu options (see Figure 3 - 95).

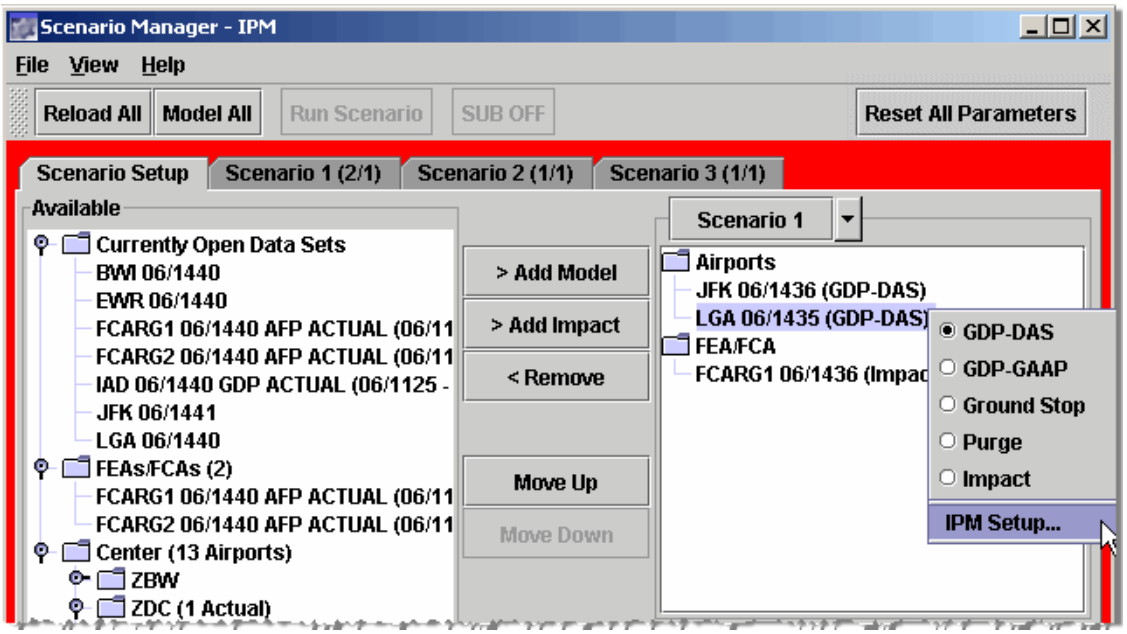


Figure 3 - 95: Right-click Element in Scenario Box to Open IPM Setup

2. On the Scenario 1, Scenario 2, or Scenario 3 tab, click the **Element ID** action button (see Figure 3 - 96). This button is disabled for Impact elements.

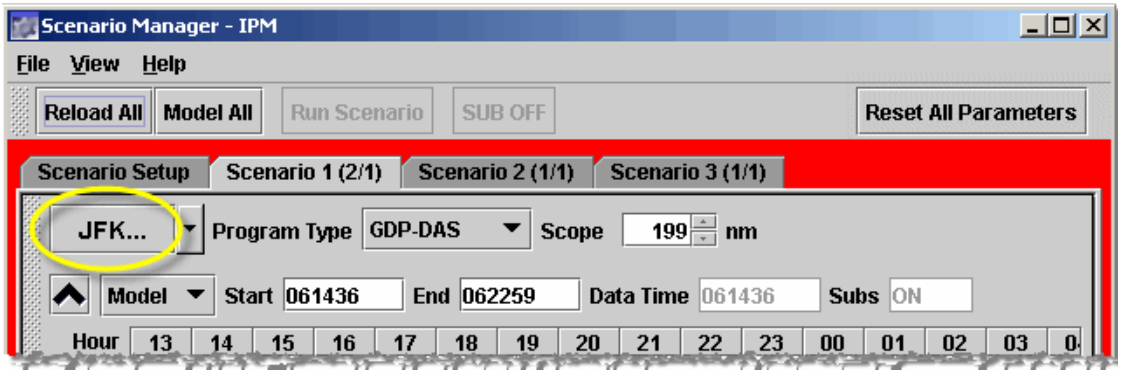


Figure 3 - 96: Click Element Action Button to Open IPM Setup

3. On the Scenario 1, Scenario 2, or Scenario 3 tab, click the arrow located to the right of the **Element ID** action button. Select **IPM Setup...** from the dropdown menu (see Figure 3 - 97).

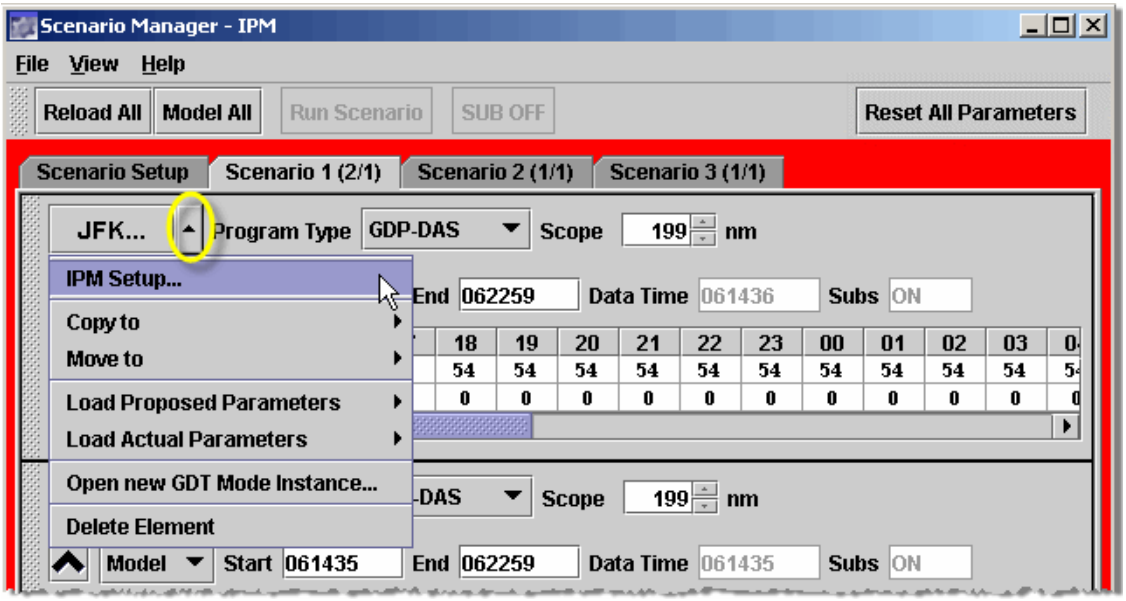


Figure 3 - 97: Right-click Element Drop-Down Arrow to Open IPM Setup

IPM Setup opens with the ADL currently opened in the Scenario Manager. Note that ADLs are updated only when **Reload All** is selected or when an additional element is added to a scenario. If the ADL is behind the current ADL, the **Reload All** button will be enabled.

You cannot move the IPM Setup component; therefore, in order to return to Scenario Manager, you must close IPM Setup.

Four default IPM components are opened for the selected data set (see Figure 3 - 98). The IPM Setup and IPM Map component are interactive; any change in one is dynamically reflected in the other component. Other IPM components reflect changes made to the IPM Setup and IPM Map when you model the TMI.

Note: All IPM components are labeled IPM in the component title bar. IPM Setup components also include the Scenario number in the title bar.

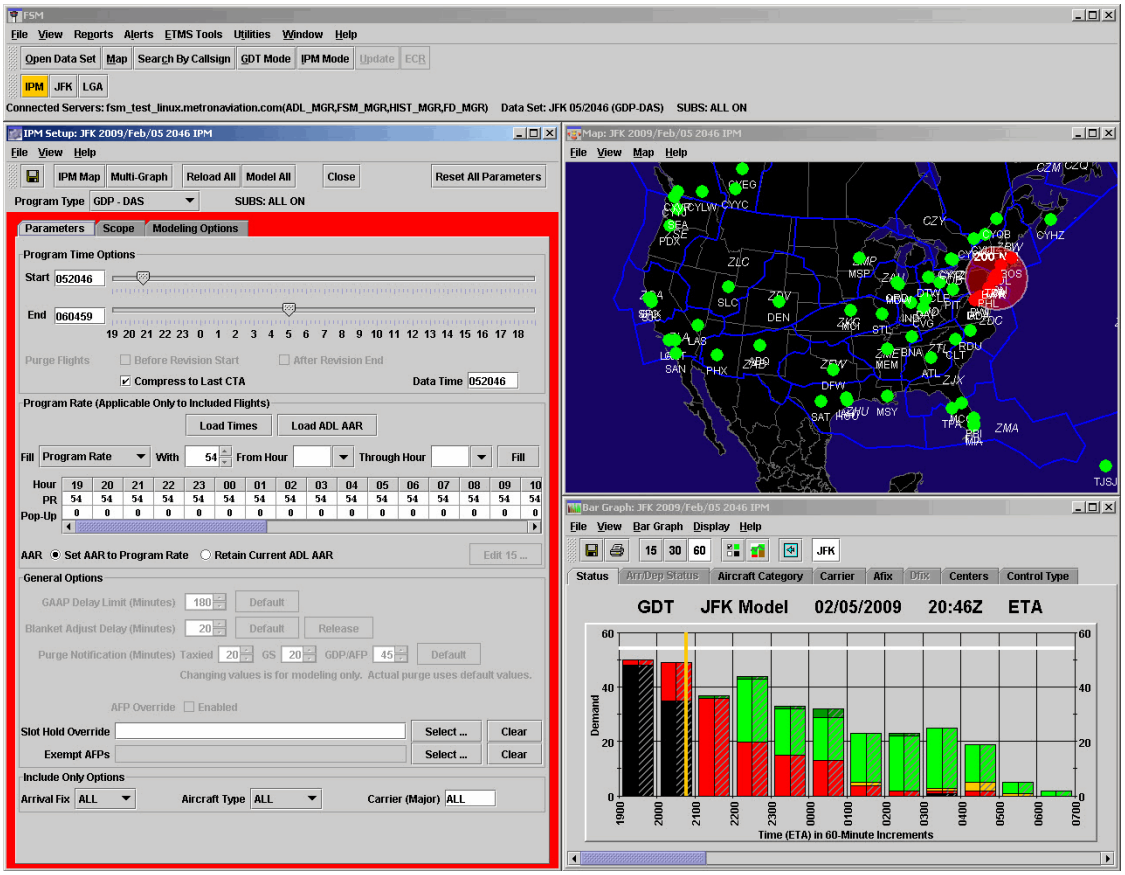


Figure 3 - 98: IPM Setup Default Components

IPM Setup Component Tabs

The IPM Setup window is similar to the GDT Setup window. It consists of a menu bar, seven action buttons, the Program Type selection box, SUBS Indicator, and three tabs that focus on different areas of information (see Figure 3 - 99).

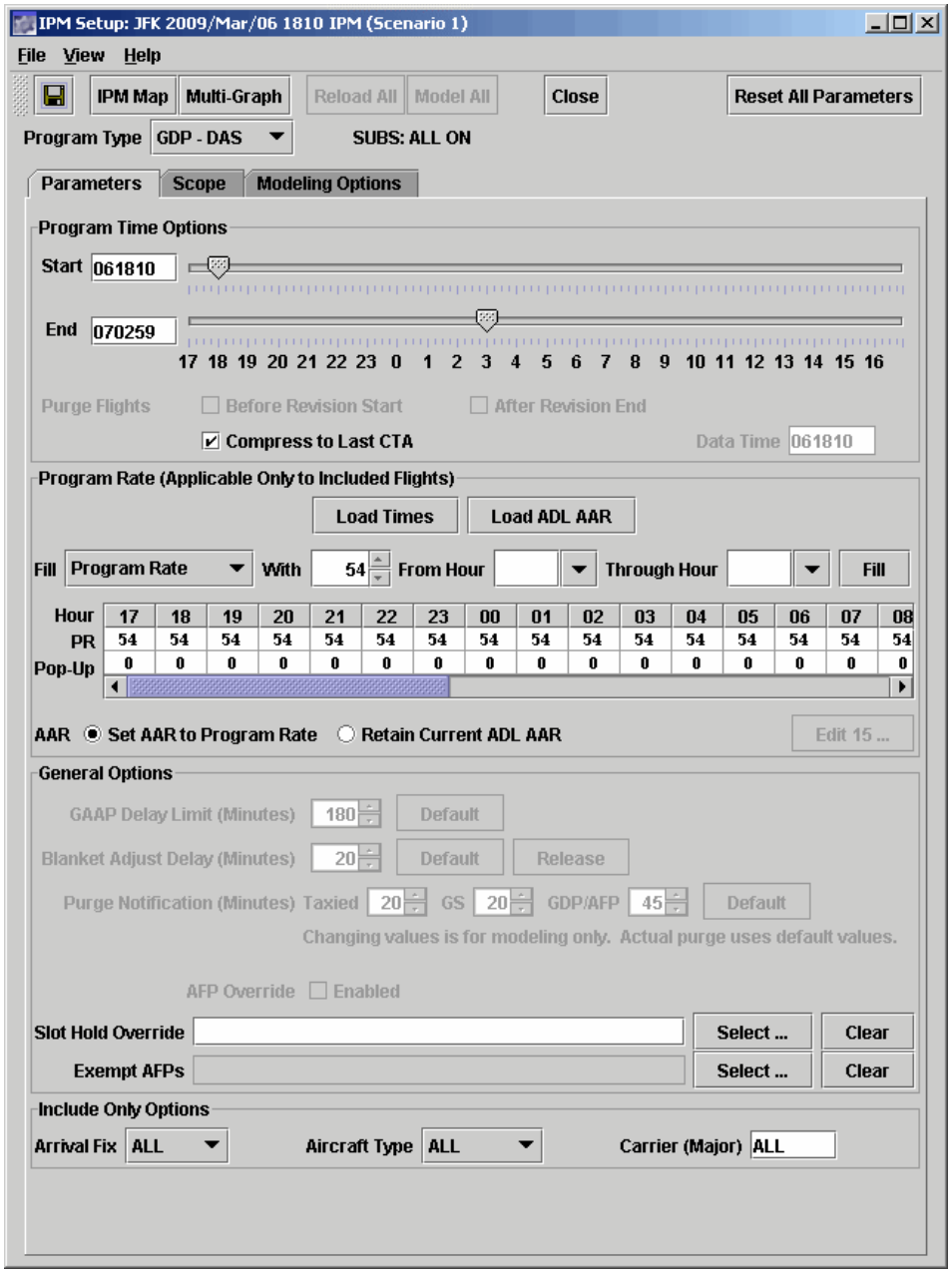


Figure 3 - 99: IPM Setup Parameters Tab

Select the type of TMI you want to model from the ***Program Type*** selection box:

Airports have four Program Types:

1. GDP - DAS - The default Program Type for airports. Not available for FCAs.
2. GDP - GAAP - This program type is similar to GDP-DAS except it automatically sets the Delay Assignment Mode to GAAP.

3. Ground Stop - Unlike ground delay programs, which delay flights because of a reduced AAR, the Ground Stop function prevents flights from departing until further notice. Not available for FCAs.
4. Purge - Cancels a GDP or GS, releasing all delay on included flights.

FCAs/FEAs have three Program Types:

1. AFP - DAS - Airspace Flow Program available only for airspace data sets. This program is used to control traffic flow through an FCA.
2. AFP - GAAP - Airspace Flow Program available only for airspace data sets. This program type automatically sets the Delay Assignment Mode to GAAP.
3. Purge - Cancels a AFP, releasing all delay on included flights.

   Note: Blanket, Compress Flights, Compress Slots, and Airborne Holding program types are not available in IPM Setup.

The IPM Setup component tab options and features change based on the Program Type selection. The three IPM Setup tabs are Parameters (default selection), Scope, and Modeling Options.

This section discusses the IPM Setup component based on each tab option. Closing the IPM Setup component closes all the IPM components for the data set. The IPM Setup panel displays the substitution status the data set: SUBS: ALL ON, ALL OFF

IPM Setup Panel Menu Bar

The menu bar in the IPM Setup component contains three options: File, View, and Help.

1. File Menu

   - **File > Load Proposed Parameters** - Opens a secondary dropdown menu to select from specific parameter options:

   - **> Airspace Flow Program** - Loads the proposed AFP parameters.

   - **> Ground Delay Program** - Loads the proposed GDP parameters.

   - **> Ground Stop** - Loads the proposed Ground Stop parameters.

   - **File > Load Actual Parameters** - Opens a secondary dropdown menu to select from specific parameter options:

   - **> Airspace Flow Program** - Loads the actual AFP parameters.

   - **> Ground Delay Program** - Loads the actual GDP parameters.

   - **> Ground Stop** - Loads the actual Ground Stop parameters.

   - **File > Open Parameters File** - Opens the PARAM_DIRECTORY File in file explorer. Select the parameters file and click **Open** to view the Parameters Files.

   - **File > Save As** - Not available in the current version.

- **File > Close** - Closes the IPM Setup component and all the complimentary IPM components for that particular element.

2. View Menu

   - **View > Rename Window** - Displays the Rename Window dialog box and allows you to change the component name in the title bar.

   There are six additional display options under the **View** menu. If you close a component and want to reopen it, use the **View** menu options to select and reopen the desired component.

   - **View > IPM Data Graph** - Displays the IPM Data Graph component
   - **View > IPM Map** - Displays the IPM Map component
   - **View > IPM Bar Graph** - Displays the IPM Bar Graph component
   - **View > IPM Time Line** - Displays the IPM Time Line component
   - **View > IPM Flight List** - Displays the Flight List for the monitored airport, FEA, or FCA.
   - **View > Show Demand** - Displays the Demand by Center component.

3. Help Menu

   - **Help > IPM Setup** - Opens the on-line help for the IPM Setup component.
   - **Help > IPM Setup Tab** - Select to open the on-line help for the IPM Setup tabs (Parameters, Scope, and Modeling Options).

IPM Setup Panel Buttons

The seven action buttons are **Save** (the button with the disk icon), **IPM Map, Multi Graph, Reload All**, **Model All**, **Close**, and **Reset Parameters**. These buttons are active when the feature is available.

- The **Save** button is not available in the current version.
- Clicking **IPM Map** opens the IPM Map.
- Clicking **Multi Graph** opens the Multi Graph component.
- Clicking **Reload All** causes FSM to load the latest ADL data into the IPM mode. You then can model the program using the latest data and make any adjustments you think are necessary.
- Clicking **Model All** models and updates your changes in all IPM components for analysis and review. After you make any modification to any portion of the IPM Setup component, which FSM indicates by highlighting the tab window area with a red border, the **Model All** button becomes active. After clicking **Model All,** your IPM Setup component also resets and the red border no longer is displayed until you make an additional change.
- Clicking **Scenario Mgr** closes all IPM Setup components. It does not close the Scenario Manager or Multi Graph components.

- Clicking **Reset All Parameters** loads the most current ADL, clears any elements of the modeled data, and returns the IPM settings to their defaults.

  Note: The **Run** and **Subs OFF** buttons found in GDT Setup are not part of the current functionality of IPM Setup.

Parameters Tab

The Parameters tab is active for all program types and is the default tab that opens when you open the IPM Setup component. Within this tab you can specify parameters including the program time, program rate, and general options for GAAP delay and Purge notifications. Options which are not features for certain program types are disabled.

You can edit ***Start*** and ***End*** time parameters in the Program Time Options section for all program types.

- ***Start*** **-** Enter the date and time when the TMI should begin.
- ***End*** **-** Enter the date and time when the TMI should end.

The default End time for Ground Stops will adjust to 15 minute increments on the hour (00, 15, 30, and 45). All other programs will have a default end time on the 14, 29, 44, or 59th minutes. The End time for Ground Stops will be a time increment that results in at least a one hour GS. For example, if the Ground Stop Start time is 1902, the default End time will be 2015.

If you are using the slider to select the End time for a Ground Stop, the slider will adjust to 15 minute increments on the hour. Using the slider to adjust the End time for all other programs will result in an End time on the 14th, 29th, 44th, and 59th minutes.You can populate the times in the text box to the right of the time field or use the slide bars, which automatically fill the time into the text box.

The Purge Flights section of the IPM Setup component contains two checkboxes that allow you to purge flights before a revision start time and after a revision end time as appropriate for AFP/GDP revisions.

- ***Before Revision Start*** **-** This checkbox allows you to specify if control times should be purged off of flights between the revision start time and the cumulative start time. ***Before Revision Start*** is disabled if a GDP or AFP does not exist for a current data set. The purge ***Before Revision Start*** is enabled only when the selected GDP/AFP start time is later than the existing program's Cumulative Start Time. This option is dynamically enabled and disabled with the mouse release action on the slider bar.

  Note: FSM will reset the Cumulative Start Time to the new (later) start time and determine which flights are no longer controlled due to the change.

- ***After Revision End*** **-** This checkbox allows you to specify if control times should be purged off of the flights between the revision end time and the cumulative end time. ***After Revision End*** is disabled if a GDP or an AFP does not exist for the current data set. The purge ***After Revision End*** is enabled when the selected GDP/AFP end time is

earlier than the existing program's Cumulative End Time. This option is dynamically enabled and disabled with the mouse release action on the slider bar.

Note: FSM will reset the Cumulative End Time to the new (earlier) end time and determine which flights are no longer controlled due to the change.

- ***Compress to Last CTA*** - This functionality is available during an AFP (initial and revision), GDP (initial and revision), and Compression. When checked, all flights that have control times are eligible for compression. When unchecked, only flights with CTAs through the End time of the program are compressed.
- ***Data Time*** - This functionality is the ADL time on which you are modeling and analyzing your TMI. Data Time is a read-only field in the current version of IPM Setup. The default ADL time always displays in the IPM Setup title bar.

The Program Rate section is active for all Program Types except Compression, Ground Stop, Blanket, and Purge. The Program Rate table is oriented horizontally so that the hours are displayed across the top of the table (see Figure 3 - 100). The hours shown in the program rate table range from one hour prior to the current time to 35 hours ahead of the current time. To view the hours across the table, use the horizontal scroll bar directly below the table.

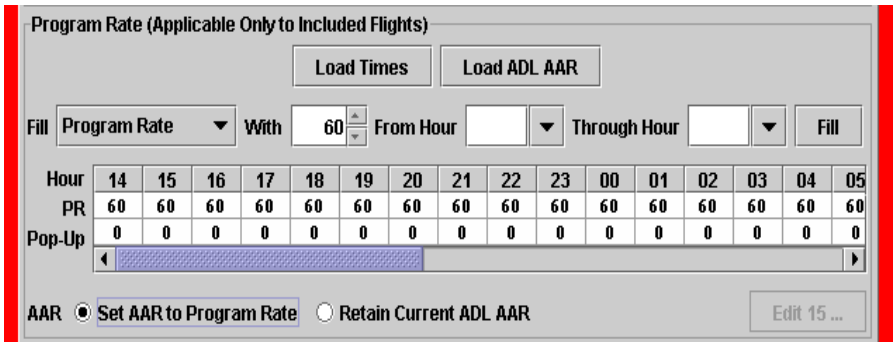


Figure 3 - 100: IPM Setup - Program Rate Section

Fill in the program rates by entering a rate in the ***With*** box, and using the ***From Hour*** and ***Through Hour*** to select the time frame, and clicking **Fill**. There are two additional features to the Program Rate section of the Parameters tab which are *not* included in Modify Program Rate; the **Load Times** button and the ***Pop-up Factor*** column. You can click **Load Times** to fill the ***From Hour*** and ***Through Hour*** fields to match the Program Time Options section. If you click **Fill** after entering the Program Rate and hours, FSM automatically fills in the appropriate hour columns. The ***Pop-up Factor*** is not available in the Ground Stop Program Type. The ***Pop-up Factor*** accounts for potential "pop-up" flights. For example, if you change the Program Rate for a certain number of hours to 40 with a Pop-up Factor of 5, the Program Rate that FSM uses to run the GDP or AFP is 35. This leaves room for any unknown flights that show up in that hour because the actual capacity of the airport is 40.

To set the Pop-Up Factor for a program from the IPM Setup component.

1. Select the Parameters tab on the IPM Setup component.
2. Select **Pop-Up Factor** from the ***Fill*** dropdown (see Figure 3 - 101).

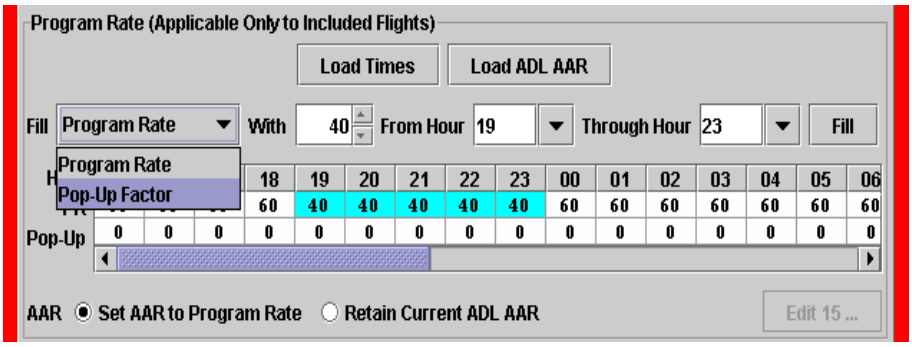


Figure 3 - 101: Program Rate Pop-Up Factor

3. Enter the number of Pop-Up slots you want FSM to create in ***With***.
4. Enter the hours for this Pop-Up Factor in ***From Hour*** and ***Through Hour***.
5. Click ***Fill***. FSM enters the Pop-Up Factor specified into the appropriate hours (see Figure 3 - 102).

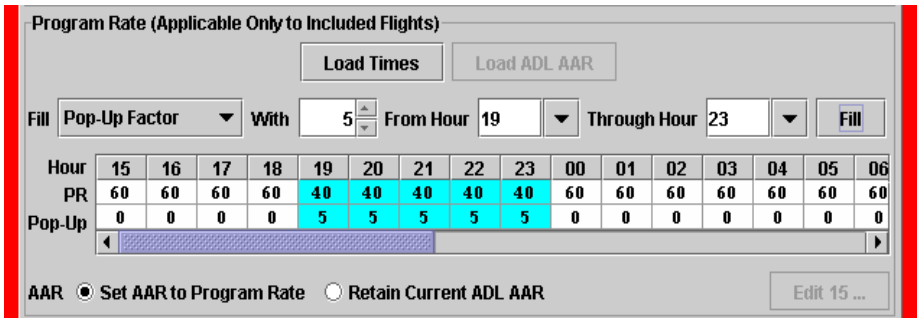


Figure 3 - 102: Pop-Up Factor Filled

6. Select the number in the Pop-Up Factor column. FSM enables the **Edit 15** button.
7. Click **Edit 15**.

   The 15 Minute Pop-Up Factor window displays (see Figure 3 - 103).

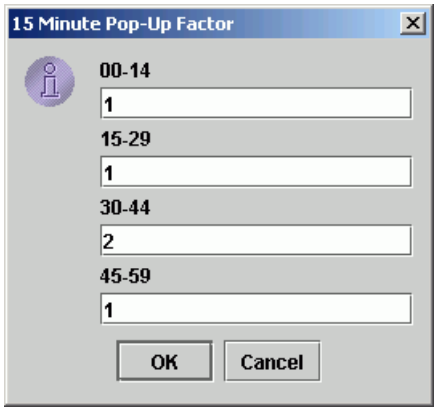


Figure 3 - 103: 15 Minute Pop-Up Factor

8. Enter the Pop-Up Factor you want for each 15 minute increment of the selected hour.
9. Click **OK**. The edited Pop-Up Factor is highlighted green (see Figure 3 - 104).

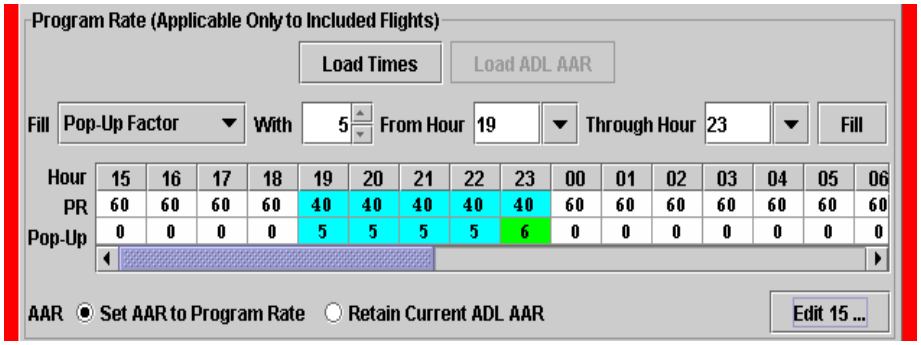


Figure 3 - 104: Pop-Up Factor Edited in 15 Minute Increments

You may set the following parameters within the General Options section of the Parameters tab:

- ***GAAP Delay Limit (Minutes)*** - Allows you to set the amount of delay (in minutes) for flights controlled by a GDP - GAAP. The default ***Delay Limit*** is 180 minutes. If an ADL contains GDP parameters that include a Delay Limit, that limit displays when you use the Load Parameters feature.
- ***Blanket Adjust Delay (Minutes)*** - This parameter is not available as IPM does not support the Blanket program type.
- ***Purge Notification (Minutes)*** - These options are only available when a Purge program type is selected. Although these values will be used for the purge, you may change the values for modeling purposes. To model the purge using different values, you may either enter the number of minutes in the fields, or use the spinner controls to change the values in five-minute increments. These values may not be negative. Click **Default** to reset the values to the default times.
- ***AFP Override*** - Gives priority to the current AFP over previously issued AFPs. FSM assigns control times based on the current modeled AFP and overrides any other

control times that flights received due to previous AFPs. These control times do NOT override control times assigned due to airport based TMIs.

- ***Slot Hold Override*** **-** You can change parameters only for RBS++. The Slot Hold Override field allows you to override an airline's slot holding status by either typing an airline's three-letter identifier directly in the text field next to ***Slot Hold Override*** or click **Select** to open the Select Slot Holding window (see Figure 3 - 105). The Select Slot Holding window lists the airlines currently holding slots at the data set constraint and allows you to select which airline(s) to override. Select the box next to each airline to override its slot holding status and include the slot in compression. When you check a box, that airline's slot hold status is ignored.

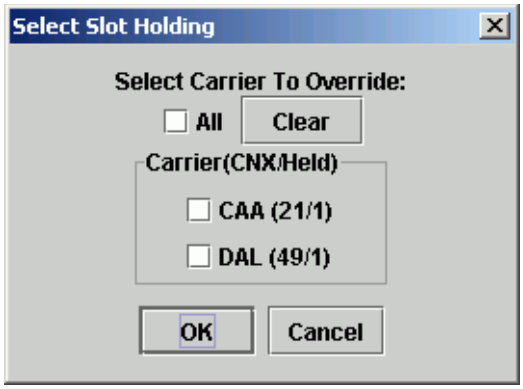


Figure 3 - 105: Slot Holding Override Window

- ***Exempt AFPs*** **-** To minimize the number of changes to control time for flights that are controlled by a GDP and to minimize the change in the demand at the AFP, you may exempt AFP flights from GDP. Selected flights will be treated as previously controlled regardless of their AFP exemption status and given the first available airport arrival slot after their estimated arrival time, which is based on their current AFP EDCT and any airline submitted flight delays. FSM will make an effort not too change the assigned departure time (CTD) for the flight, subject to capacity constraints at the airport and any known flight delays.

You can select parameters for ***Arrival Fix***, ***Aircraft Type***, and ***Carrier*** for all program types except AFP - DAS, Compress Flights, and Airborne Holding in the Include Only Options section.

- ***Arrival Fix*** **-** Use the dropdown menu to determine which Arrival Fixes to include in the operation. You can select ALL (default value) or one individual fix.
- ***Aircraft Type*** **-** Select ALL (default value), Jet Only, or Prop Only from the Aircraft Types dropdown menu to specify the aircraft types included in the operation.
- ***Carrier (Major)*** **-** Select ALL (default value) to include all carriers at that airport. If you want to include only a single airline, type the carrier's 3-letter code into the text box. The application does not allow you to include only one carrier without including its sub-carriers. Likewise, you cannot include one sub-carrier. Typing a carrier code into this field always includes the major and its sub-carriers.

Scope Tab

In IPM Setup, the Scope tab is active for all Program Types except Purge. The Scope tab has two types of exemption criteria for airports, Tier-based and Distance-based. In the ***Select By*** dropdown box, select either a Tier or Distance based initiative. FCAs can only issue tier-based AFPs; therefore, distance is not an option.

Scope Tab for Data Sets with Select By Tier Selected

When you select ***Select By*** Tier, the following panel is displayed (see Figure 3 - 106). The panel contains four sections where you can modify parameters: Centers - Origin, Airports - Origin, Airports - Destination, and Flights.

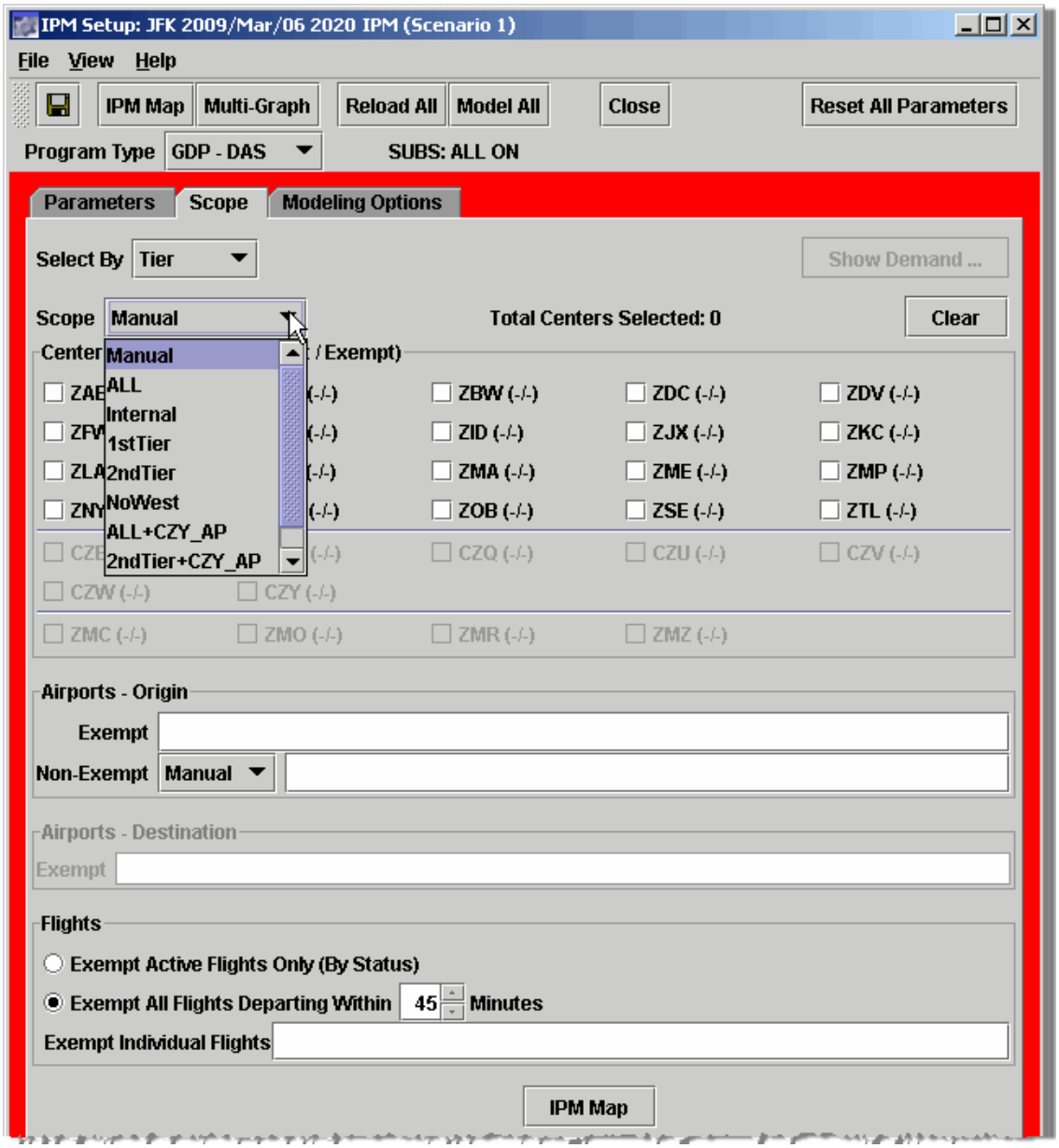


Figure 3 - 106: IPM Setup - Exempt by Tier Scope Tab

Centers - Origin: You can select the centers you want to include in the program or select a Tier level from the ***Scope*** dropdown menu:

- ***Scope***: Select a tier option from the dropdown menu. Selecting a Tier, automatically selects the associated centers. The total number of centers selected displays to the right of the Tier selection. Click **Clear** to erase all centers with checkmarks and return the included tier selection back to Manual.
- Manual Center Selection**:** Click the checkbox to select or deselect individual centers to include in the program.

  Note: The recommended scope for AFP programs is ALL + Canada

Airports - Origin: This section of the panel allows you to exempt and non-exempt airports:

- ***Exempt***: You can exempt certain departure airports from a TMI. Enter the three or four-letter airport code to exempt that airport. Separate airports with a space or a comma. The maximum number of exempt airports you can enter is 24.
- ***Non-Exempt***: You can include certain departure airports for a TMI that were not originally included based on the Center section criteria. Select Manual from the dropdown, then enter the three or four-letter airport code to include that airport. Separate airports with a space or a comma. The maximum number of non-exempt airports you can enter is 16.

Airports - Destination: This section of the panel is only for airspace datasets and is disabled for airport data sets.

- ***Exempt*** **-** You can exempt certain arrival airports from an AFP. Enter the three or four-letter airport identifier to exempt flights that are arriving from that airport from departure delay. Separate airports with a space, comma, semi-colon, or colon.

Flights: This section of the panel allows you to exempt, i.e., give no departure delay, to priority flights as well as select ***Exempt by Departure Status*** or time.

- ***Exempt Active Flights Only (By Status)*****:** Selecting this option gives exemption status only to active flights, therefore, all flights within the scope of the program that are not active are considered Non-Exempt. This option is selected by default when there is a Ground Stop in place.
- ***Exempt All Flights Departing Within*** **'XX' Minutes:** When exempting flights based on departure time, you may adjust the time either manually by clicking in the field and typing in a value enter a value, or by using the spinner controls (the up/down arrows to the right of the field) to change the value in five-minute increments. This value must be greater than or equal to 0. Selecting this option will exempt all flights with ETDs within XX minutes of the Data Time. This option is selected by default when there is no Ground Stop in place.
- ***Exempt Individual Flights*****:** Enter a flight's ACID to exempt priority flights.

Scope Tab for Airport Data Sets with Select By Distance Selected

When you select ***Select By*** Distance, the parameters for Distance are displayed. (see Figure 3 - 107). The Distance panel contains four sections in which you can modify the parameters: Distance, Centers - Origin, Airports - Origin, and Flights.

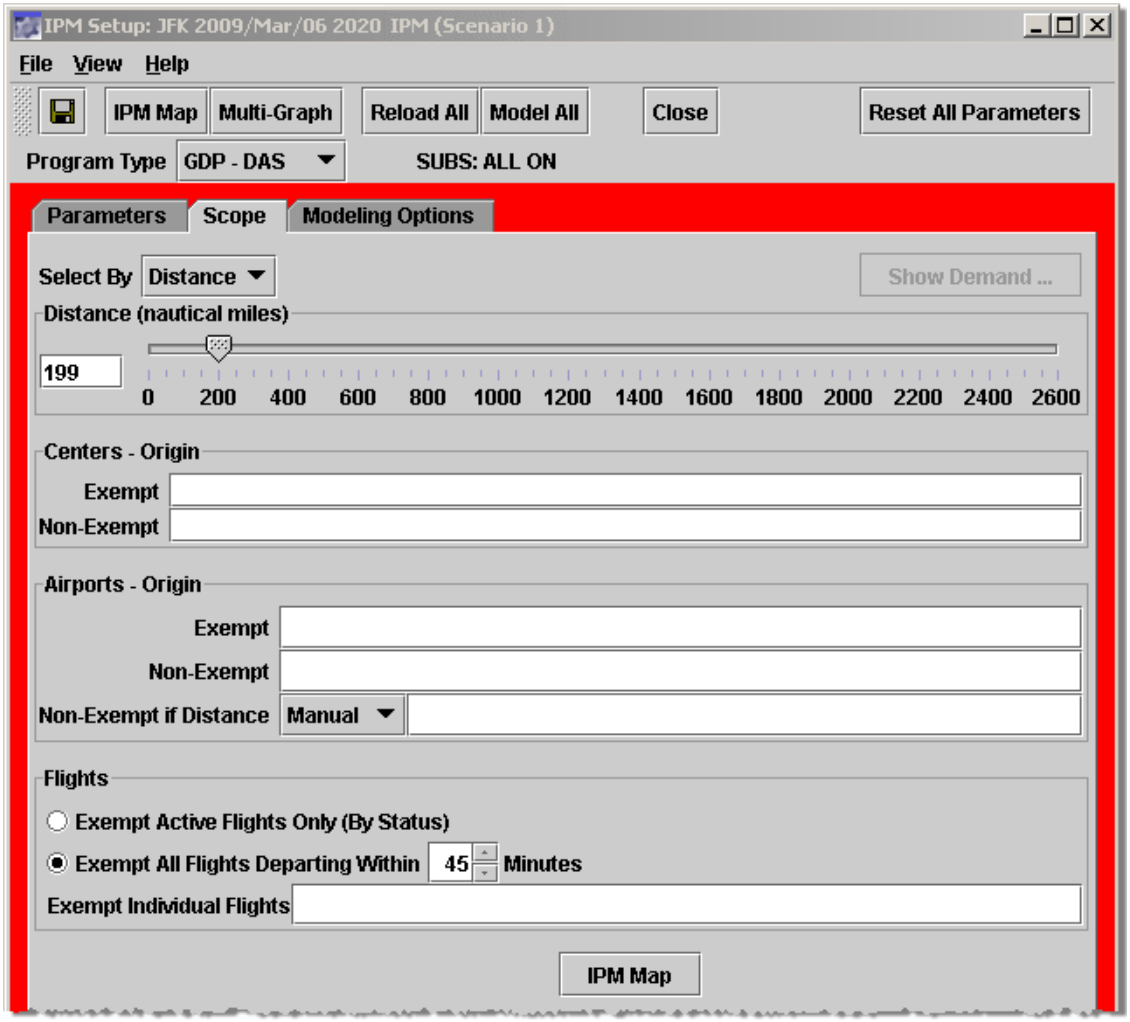


Figure 3 - 107: IPM Setup - Scope Tab Exempt By Distance

Distance: When the Distance Panel first displays, the default distance is 199 nautical miles. You can enter your distance range directly into the Distance text box or click and drag the sliding bar for the desired distance; this automatically fills in the distance. Remember, anything changed in the Setup panel is reflected in the IPM Map. You can change the distance range from the Setup panel and simultaneously view the range ring and what centers/airports are affected on the IPM Map.

Centers - Origin: You can enter centers to be ***Exempt*** (have higher priority than Non-Exempt) or ***Non Exempt***.

- ***Exempt***: You can exempt certain centers from a TMI that were originally partially, or entirely, included based on the Distance criteria. Enter the three or four-letter center

identifier to exempt a particular center. Separate multiple centers with a space or a comma. The maximum number of exempt centers you can enter is 36.

- ***Non-Exempt*:** You can include certain centers from a TMI that were not included originally based on the Distance criteria. Enter the three or four-letter center identifier to include a particular center. Separate multiple centers with a space or a comma. The maximum number of non-exempt centers you can enter is 16.

Airports - Origin: This section of the panel allows you to include and/or exempt airports.

- ***Exempt*:** You can exempt certain departure airports from a TMI. Enter the three or four-letter airport code to exempt that airport. Separate multiple airports with a space or a comma. The maximum number of exempt airports you can enter is 24.
- ***Non-Exempt*:** You can include certain departure airports from a TMI that were not included originally based on the Distance criteria. Enter the three or four-letter airport code to include that airport. Separate multiple airports with a space or a comma. The maximum number of non-exempt airports you can enter is 16.
- ***Non-Exempt if Distance*:** Use this field to include Canadian airports. If you select a Canadian airport, FSM includes that airport if it falls within the selected distance parameter.

Flights: This section of the panel allows you to exempt, i.e., give no delay, to priority flights as well as select Exempt by Departure Status or Time.

- ***Exempt Active Flights Only (By Status)*:** Selecting this option gives exemption status only to active flights, therefore, all flights within the scope of the program that are not active are considered Non-Exempt. This option is selected by default when there is a Ground Stop in place.
- ***Exempt All Flights Departing Within* 'XX' Minutes:** When exempting flights based on departure time, you may adjust the time either manually by clicking in the field and typing in a value enter a value, or by using the spinner controls (the up/down arrows to the right of the field) to change the value in five-minute increments. This value must be greater than or equal to 0. Selecting this option will exempt all flights with ETDs within XX minutes of the Data Time. This option is selected by default when there is no Ground Stop in place.
- ***Exempt Individual Flights*:** Enter a flight's ACID to exempt priority flights.

IPM Map: Click this action button to bring the element's IPM Map to the forefront.

Modeling Options Tab

The Modeling Options tab is available for all program types with the exception of Purge. Once the parameters are set, you may want to determine which parameters run the best TMI. In this case, you can take advantage of FSM's powerful analysis capabilities to view the results of the parameters you have selected before actually running the operation.

You can use the Modeling Options tab in the IPM Setup component as an analysis tool. There are four GDP, three AFP, and three GS operations, which analyze the results for any program. You can select these options from the dropdown menu that displays next to ***Power Run By*** (see Table 3-15). You use the Power Run function to determine whether

you need to modify the parameters. When any Power Run is generated, FSM automatically saves the Power Run to a file.

To view a scenario, select the type of program to model in the ***Power Run By*** dropdown menu and click **Model All**. Model displays the effects of potential operation parameters and how traffic at the airport would be affected by using these parameters for an actual program in all IPM components. Review the program statistics in the Data Graph. To preview the effects of running a Power Run scenario as an actual program, move the black line on the Data Graph component to other options displayed on the X-axis. This is discussed in more detail in the Data Graph Component Section.

With the exception of Power Run for Decision Time, you can preview the proposed parameters and their effect on the airport's traffic.

> **Note:** After you click **Model All**, the Setup Panel no longer has a red border, indicating that all the components reflect the information in the IPM Setup component.

Power Run Options

The different options when using ***Power Run By*** describe what data is displayed on the X-axis of the Data Graph and the headers in the Data Table. The Program Type you select determines which options are displayed in the Power Run By dropdown menu. All GDP functions have "GDP" listed before the Power Run Type, all AFP functions have "AFP" listed before the Power Run Type, and all GS functions have "GS" listed before the Power Run Type.

Table 3-15: Power Run Options by Program Type

Program Type	Power Run By Options
GDP - DAS	GDP Distance/Center Group
	GDP Data Time
	GDP Data Time & Distance/Center Group
GDP - GAAP	GDP Distance/Center Group
	GDP Data Time
	GDP Data Time & Distance/Center Group
AFP - DAS	AFP Percent Demand
	AFP Percent Capacity
	AFP Data Time
AFP - GAAP	AFP Percent Demand
	AFP Percent Capacity
	AFP Data Time
Ground Stop	GS Center Group
	GS Time Period
	GS Center Group & Time Period

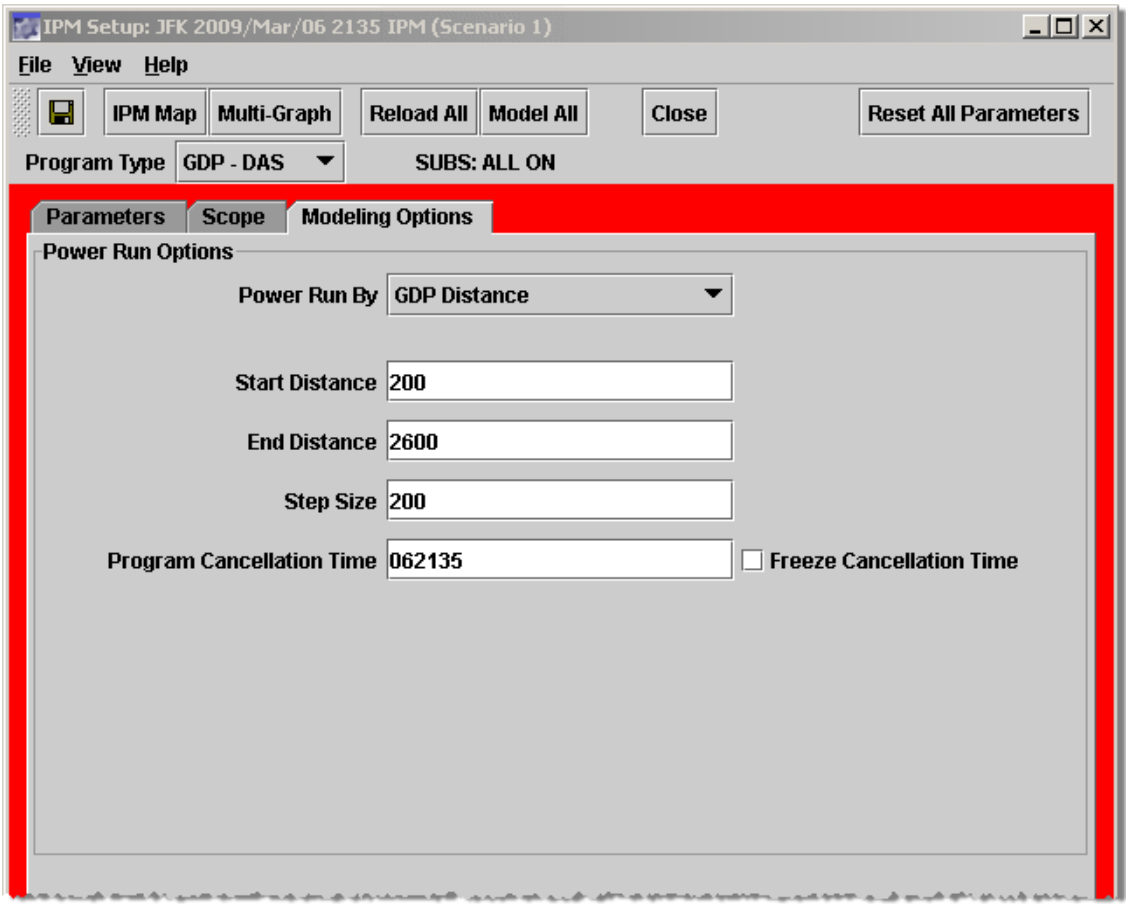


Figure 3 - 108: IPM Setup - Modeling Options Tab

Note: Distance variables are only editable when you model a Distance based Program.

Program Cancellation Time

Using the ***Program Cancellation Time***, you can model unrecoverable delay assuming a program cancellation time other than the program start time. The field defaults to the program start time and uses the ddhhmm format. The ***Program Cancellation Time*** is available for all Power Runs for GDP and AFP program types, but not for the GS program types. The ***Program Cancellation Time*** defaults to the Program's Start time in the IPM Setup panel. If you change the ***Start Time***, it is dynamically reflected in the ***Program Cancellation Time***.

A checkbox labeled ***Freeze Cancellation Time*** displays to the right of the ***Program Cancellation Time***. By default the checkbox is unchecked. When checked, the ***Program Cancellation Time*** does not change with a newly entered ***Start Time*** or when FSM reloads a new ADL.

GDP Power Run Options

- GDP Center Group: This option allows you to view the effect of the “proposed parameters” on the different center groups. The post-operation demand rate for each

hour for a specific group of centers displays in the Data Graph. Other information displayed, includes average delay, number of affected flights, and total delay.

- GDP Data Time: Select **GDP Data Time** in the ***Power Run By*** dropdown menu. This option is available only for GDP program types. This option allows you to view the effects of the proposed GDP according to the time the GDP is issued. Using the display, you can determine how far in advance you need to issue the GDP. Any hour whose demand still exceeds the AAR is highlighted in red.
- GDP Distance: Select **GDP Distance** from the ***Power Run By*** dropdown menu when modeling either a GDP or GS. This function shows you the effect of running a GDP or GS for various distance parameters. When GDP Distance is selected from the ***Power Run By*** dropdown menu, three text fields become active in the Modeling Options tab: ***Start Distance***, ***End Distance***, and ***Step Size*** (distance increment). The default is set to start at 199 nautical miles and end at 2600 nautical miles with a step size of 200 nautical miles. You can manually enter your desired distance and increment range into the appropriate text fields.
- GDP Center Group & Data Time: Select **GDP Center Group & Data Time** from the ***Power Run By*** dropdown menu. This option is available only for GDP program types. This function combines Power Run by Center Group and Power Run by Data Time. When you perform Power Run by Center Group & Data Time, you can view all available options to run a GDP using a particular center group at various data times.
- GDP Data Time & Distance: Select **GDP Data Time & Distance** from the ***Power Run By*** dropdown menu. This option is available only for GDP program types. This function combines Power Run by Data Time and Power Run by Distance. When you perform Power Run by Center Group & Data Time, you can view all available options to run a GDP using a particular distance at various data times. Just as in the Distance set up, three text fields become active in the Modeling Options tab: ***Start Distance***, ***End Distance***, and ***Step Size*** (distance increment). The default is set to start at 199 nautical miles and end at 2600 nautical miles with a step size of 200 nautical miles. You can manually enter your desired distance and increment range into the appropriate text fields.

AFP Power Run Options

- AFP Data Time: This option allows you to view the effects of the modeled AFP according to the time the AFP is issued. Using the display, you can determine how far in advance you need to issue the AFP.
- AFP Percent Demand: This is the default option when you select an AFP RBS program type. An AFP Percent Demand Power Run has three fields: ***Min Percent Demand (%)***, ***Max Percent Demand (%)***, and ***Step Size***. The default is set to start at Min Percent Demand of 50% and Max Percent Demand at 100% with a Step size of 10%. You can change the min and max percent demand and increment range to meet your needs. The AFP Percent Demand Power Run scenario analyzes alternatives by increasing/decreasing average demand for the indicated AFP start/end time. Moving the black vertical line in the Data Graph to adjust the percent of demand automatically adjusts the AFP AAR to meet the adjusted demand.

- AFP Percent Capacity: This Power Run analyzes alternatives by increasing or decreasing the modeled AAR value for the indicated AFP Start and End times. An AFP Percent Capacity Power Run has three fields: ***Min Capacity Reduction (%)***, ***Max Capacity Reduction (%)***, and ***Step Size***. The default value for Min Percent Capacity is 50. The default for Max Percent Capacity is 100. The Step Size default is 10.

Ground Stop Power Run Options

- GS Center Group: This Power run allows you to see different statistics for all center groups. The Data Graph's X-axis and the Data Table's column header display the various center groups. This option is available only for GS program types.
- GS Time Period**:** Select **GS Time Period** from the ***Power Run By*** dropdown menu. This option is available only for GS program types. This function shows you the effect of running a ground stop for various lengths of time. When you select GS Time Period, two text fields become active: ***Number of Start Times*** and ***Number of End Times***. The default for both is set to 2, but you can manually enter in another value to meet your analysis needs.

  Note: If you decide to run a GS for longer than one hour, FSM provides a warning message to ensure you want the ground stop to last for that duration.

- GS Center Group & Time Period: This Power Run allows you to see which combination of center groups and time periods put in the GS parameters would produce the best program. The Data Graph's X-axis and the Data Table's column headers show the various Time Periods and Center Group combinations. This option is available only for GS program types.

IPM Map Component

The IPM Map component is the same as the GDT Map component. Selections made in the IPM Setup component are reflected dynamically in the IPM Map component. Airports that the server is currently monitoring are displayed with the airports' three-letter identifier and a colored dot indicating the GDT status of each airport. FCAs that the server is currently monitoring are displayed with a colored boundary that indicates the AFP status of that FCA. The title bar displays the normal component labeling conventions. IPM is displayed in the title bar to indicate that you are looking at the Map in IPM mode. Adaptive compression status displays in the SUBS section.

The IPM Map component allows you to design a TMI visually by selecting/deselecting airports and/or centers. Selecting/Deselecting airports, centers, and adjusting the distance range interactively updates other IPM components.

IPM Map Zoom Capabilities

IPM Map contains the same zoom capabilities as the Map in Live mode, for more detail refer to Map Component section of this chapter.

Distance Based GDPs

When you select a distance based GDP in the IPM Setup component, a maroon colored "range ring" displays on the IPM Map component. The default distance is set to 199 nautical miles. The range distance is indicated on the IPM Map just outside the top of the ring. In addition to adjusting the range from the IPM Setup component, you can alter the distance directly from the IPM Map. Put your cursor on the edge of the distance ring until the cursor turns into direction arrows, then hold down the left mouse button and drag and drop the edge of the ring to increase or decrease the distance.

All airports within the range limit are included automatically into the program and colored red. To exclude an airport from within the distance range, just click the dot for that particular airport. Clicking an airport within the distance ring turns the dot to green and excludes that airport from program delay.

Any additional airports you select are displayed in the IPM Setup component in the ***Airports: Non Exempt or Exempt field*** in the Scope tab. Likewise you can select/deselect centers to include in a program from the IPM Map. Clicking once on a center includes the center in the program. The color of the selected center changes to maroon and the airports within that center change color indicating that the program includes them as well. The selected center displays in the IPM Setup component in the ***Centers: Non Exempt*** field in the Scope tab. Clicking only once on a center that is already included within the program selection does not reflect any visual difference on the screen.

Table 3-16: Mouse Actions on the IPM Map

Mouse Action	Description
Click Airport	Toggle an airport from Exempt/Non-exempt
Click center once	Includes Center in program
Click center twice	Exempts center from program delay
Click center three times	Default selection by distance

Tier-Based GDPs

The initial default setting when you open IPM Mode components is an internal tier-based GDP. When you select a tier based GDP from the GDP Setup component, FSM colors all centers included in a TMI maroon on the map and colors all airports included red. For example, the next figure illustrates a SFO 1st Tier GDP with user selected airport, PHX, as an additional Non-Exempt airport (see Figure 3 - 109). The method of selecting/deselecting airports and/or centers is the same as described above in the distance based GDP.

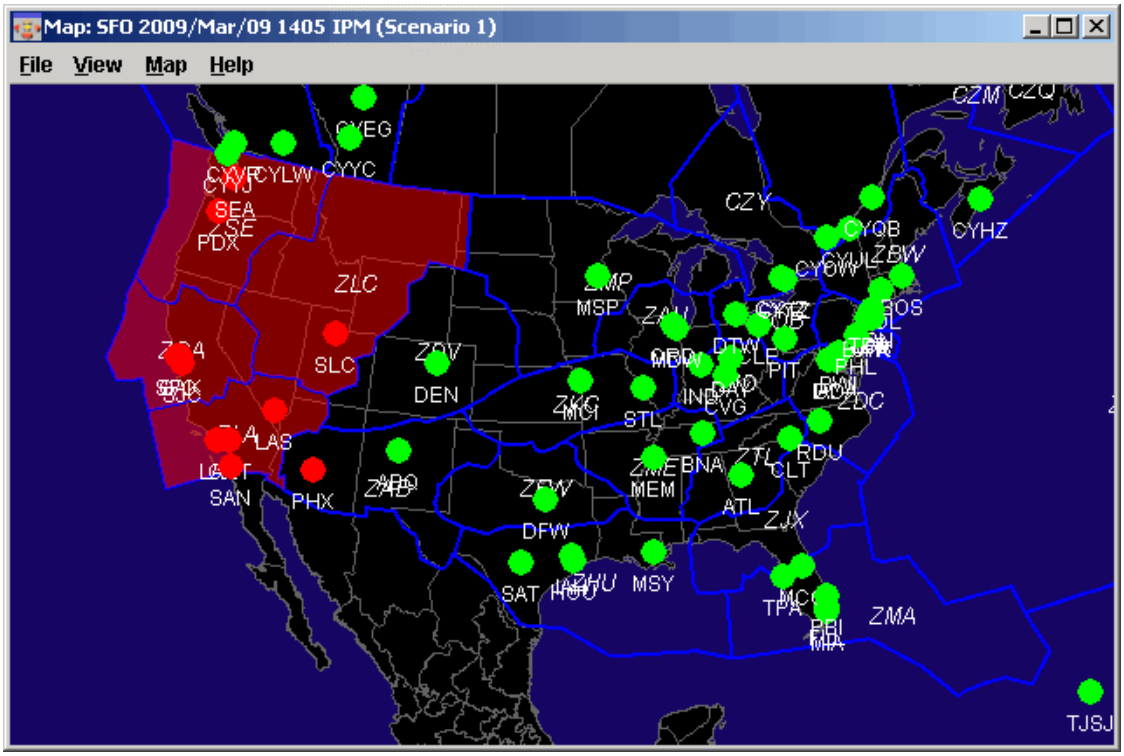


Figure 3 - 109: SFO 1st Tier Program

The following IPM setup component corresponds with the IPM Map component (see Figure 3 - 110).

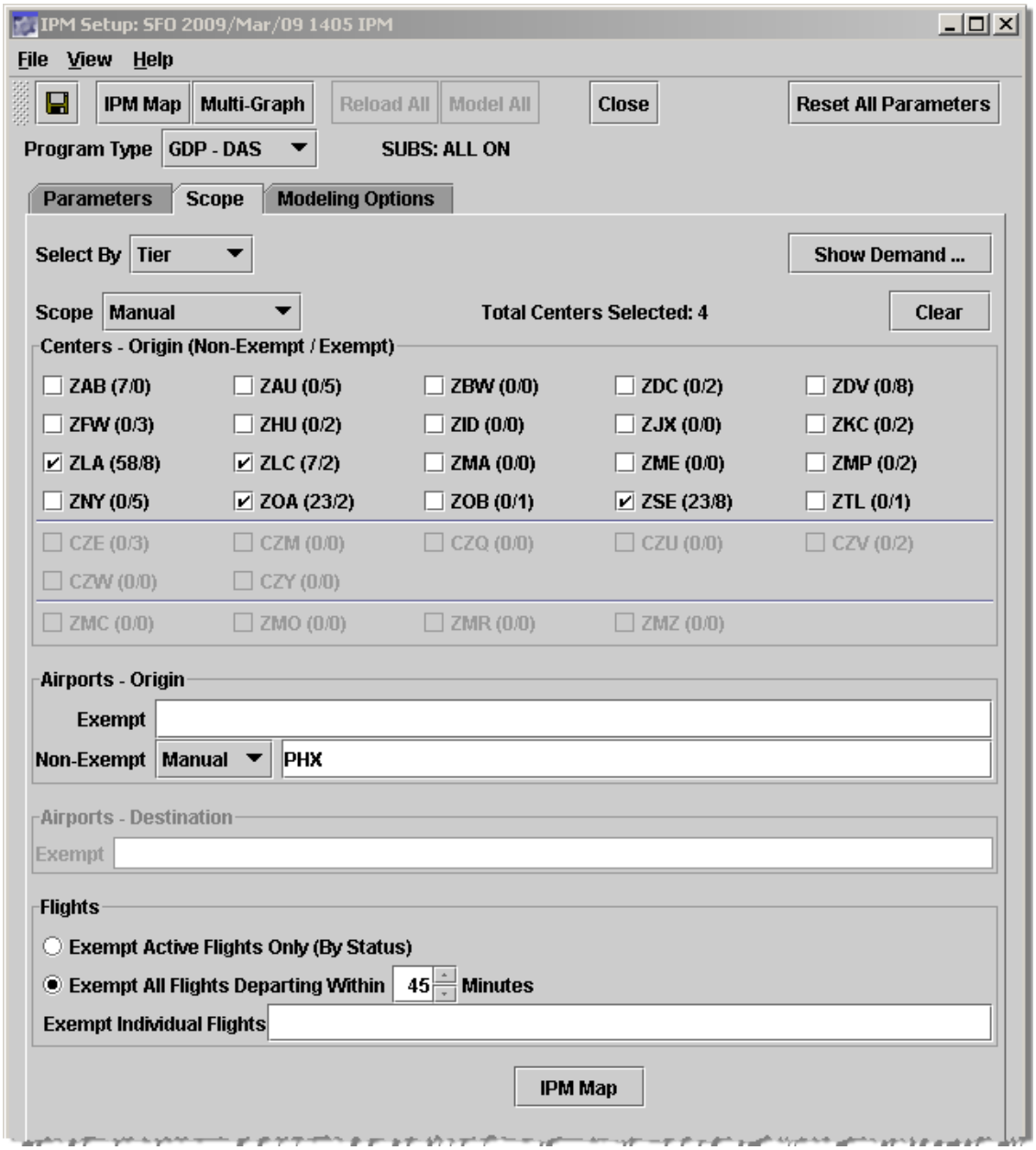


Figure 3 - 110: IPM Setup Component ORD 1st Tier

IPM Map Menu Bar

The IPM Map component menu bar contains four options: File, View, Map, and Help. The menu selections are the same for the IPM Map as they are for the Monitor Live Map—see the Map Component section in this chapter for more information. The Auto-Show menu on the IPM Map is disabled for all data set types.

IPM Bar Graph Component

The IPM Bar Graph component is one of the default components opened in IPM Setup. The Bar Graph allows you to view arrival demand at the airport or FCA being monitored

and compares actual data with proposed parameters. By default, the IPM Bar Graph displays flights based on their ETAs for modeled Airport TMIs or ENTRY times for modeled Airspace TMIs.

Click **Model All** on the IPM Setup component to view the modeled parameter results in the Bar Graph as well as the Data Graph component. The IPM Bar Graph menu and tab options are almost identical to the GDT Bar Graph. Please review the Bar Graph Component section above for more detail.

Like the GDT Bar Graph, the IPM Bar Graph displays both solid and hashed bars. Solid bars represent the original data, while hashed bars represent modeled data (see Figure 3 - 71).

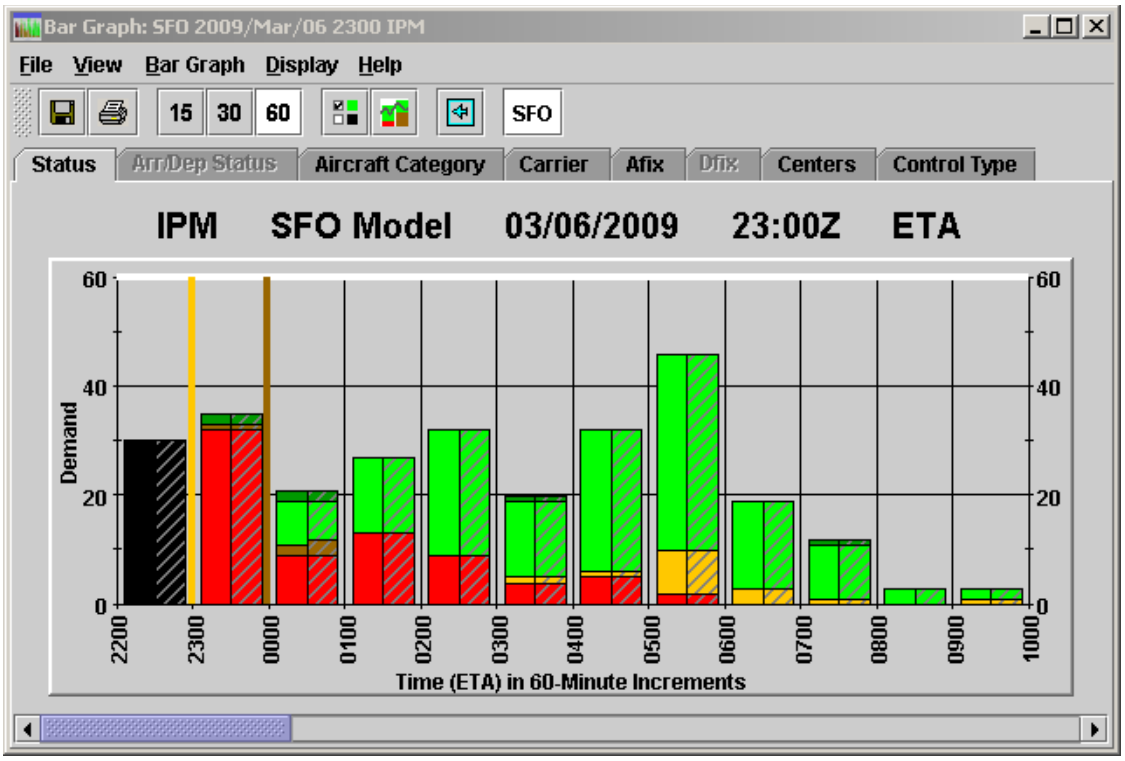


Figure 3 - 111: IPM Bar Graph

Model and Impact Element Buttons

In GDT mode Model and Impact Element buttons are displayed on the GDT Bar Graph. These buttons do not exist on the IPM Bar Graph. Open the Multi Graph component to view the model and impact IPM Bar Graphs.

IPM Data Graph Component

The IPM Data Graph component opens in front of the IPM Map when you click **Reload All** or **Model All** from the IPM Setup component. You have the option to review, or model your ground delay parameters before actually running the program or revising any parameters. Click **Model All** on the IPM Setup component to view the initiative's results with your current parameters in the Data Graph.

From the Modeling Options tab on the IPM Setup component, you can choose the type of data you want to view on the Data Graph's X-axis. When you click **Model All**, you can view the results of various scenarios. You have the option to change your parameters, and analyze the program further.

Selecting Different Scenarios

You can view all the available scenarios based on the Power Run selection from the IPM Setup component. For example, selecting **Power Run By > GDP Center Group** from the Modeling Options tab on the IPM Setup and then clicking **Model All,** displays all the available tiers for the monitored airport on the Data Graph component's X-axis. Your modeled scenario statistics are displayed in the Legend Table. Use your cursor to drag the black vertical line to a center group, or just move the cursor over the desired center group and click to move the line. The delay statistics to the right of the Data Graph reflect the line of scenario delineation. In addition, changing the center option automatically updates all IPM components to reflect the new parameters. The Data Graph component includes a roll-over feature. Rolling your cursor over any line in the Data Graph gives you the delay statistics for the colored line that reflects the results of the center group. From the Data Graph, it is easy to visualize what center groups give the best results.

Delay Statistics

The Legend Table displays the delay statistics. By default the Legend Table displays when you open the Data Graph component. You can hide the legend by un-checking the **View > Show Legend** box from the Data Graph Menu. In the Legend Table, you can view a desired delay statistic several ways. Selecting the ***All*** checkbox selects and displays all the delay statistics. Selecting the ***Default*** checkbox displays the default delay statistics, which are Max Delay, Avg Delay, Max Air Hold, Avg Air Hold, and Delay Var. You can select/deselect any of the delay statistic checkboxes that you want to view in the Data Graph. To view one delay statistic in more detail, select the desired radio button option, located to the left of the checkboxes. The radio button option displays only one delay statistic at a time, but gives a more refined looked at the numbers. The Data Graph includes the following Delay Statistics:

- ***Total # Flts***: The total number of flights included in the TMI (cancelled and exempt flights) for each particular power run scenario. Default color is pink.
- ***Affected Flts***: The total number of flights included in and affected by the TMI for each particular power run scenario (non-exempt and non-cancelled flights only).
- ***Total Delay***: The total amount of delay that would occur if you ran that particular scenario. Default color is maroon.
- ***Max Delay***: The maximum amount of delay (in minutes) that any one flight would receive if you ran that particular scenario. Default color is white.
- ***Avg Delay***: The average amount of delay (in minutes) flights would receive if you ran that particular scenario. Default color is black.
- ***Max Air Hold***: The maximum amount of airborne holding delay (in minutes) that would be placed on any one flight if you ran that particular scenario. Default color is lavender.

- ***Avg Air Hold***: The average amount of airborne holding (in minutes) that would be placed on flights if you ran that particular scenario. Default color is orange.
- ***Stack***: The amount of flights that would be left in the “stack” hour following the end of the initiative if you ran that particular scenario. Default color is hunter green.
- ***Unrec Delay***: Unrecoverable delay is the amount of delay that remains on flights even if you release the TMI right before the start time for the selected scenario. FSM determines this value by setting the time to the TMI start time and performing the release delay function. Default color is lime green.
- ***% Unrec***: Percentage of Unrecoverable delay is a value that FSM calculates by taking the Unrecoverable Delay and dividing it by Total Delay (Unrecoverable Delay/Total Delay). This is the percentage of delay that remains even if you release all delay at the start time for the selected scenario. Default color is yellow.
- ***Delay Var***: Delay Variability is the standard deviation of the carriers’ average delay. FSM determines this value by taking the average delay of all carriers to see if they are similar. If the average delay is similar for all carriers, the delay variability is a small value. Larger deviation, or increased dissimilarity of average delay for all carriers, results in larger delay variability values. Default color is red.
- ***EMA***: The Equity Metric for Airlines (EMA) is a metric that indicates (as a whole) how equitable, or fair, the proposed initiative is for the airlines. Equity is determined by comparing the delay assigned in a proposed initiative to that which results if you use the airborne holding model. You must view any deviation from the airborne holding model as decreased equity. The values shown in this field are integers rounded from the calculated values. A value of 1 indicates that the initiative option results in delays that are exactly the same as those for airborne holding. A value from 2 to 8 indicates an option that still exhibits good equity, though the one with the lower value is still preferred. A value from 9 to 16 indicates an option with increasingly significant deviation from the standard. A value above 16 indicates an option with poor equity. Default color is cyan.
- ***EMF*****:** The Equity Metric for Flights is a metric that indicates (as a whole) how equitable, or fair, the proposed initiative is for all the flights. Equity is determined by comparing the delay assigned in a proposed initiative to that which results from using the airborne holding model. You must view any deviation from the airborne holding model as decreasing equity. The values shown in this field are integers rounded from the calculated values. A value of 1 indicates that the initiative option results in delays that are exactly the same as those for airborne holding. A value from 2 to 8 indicates an option that still exhibits good equity, though the one with the lower value is still preferred. A value from 9 to 16 indicates an option with increasingly significant deviation from the standard. A value above 16 indicates an option with poor equity. Default color is blue.
- ***Avg Dly Diff***: The difference in the calculated average delay prior to and after the program. This is always a negative number and FSM only calculates it for a Compression program.

IPM Data Graph Menu

The menu bar in the IPM *Data Graph* component contains three options: File, View, and Help.

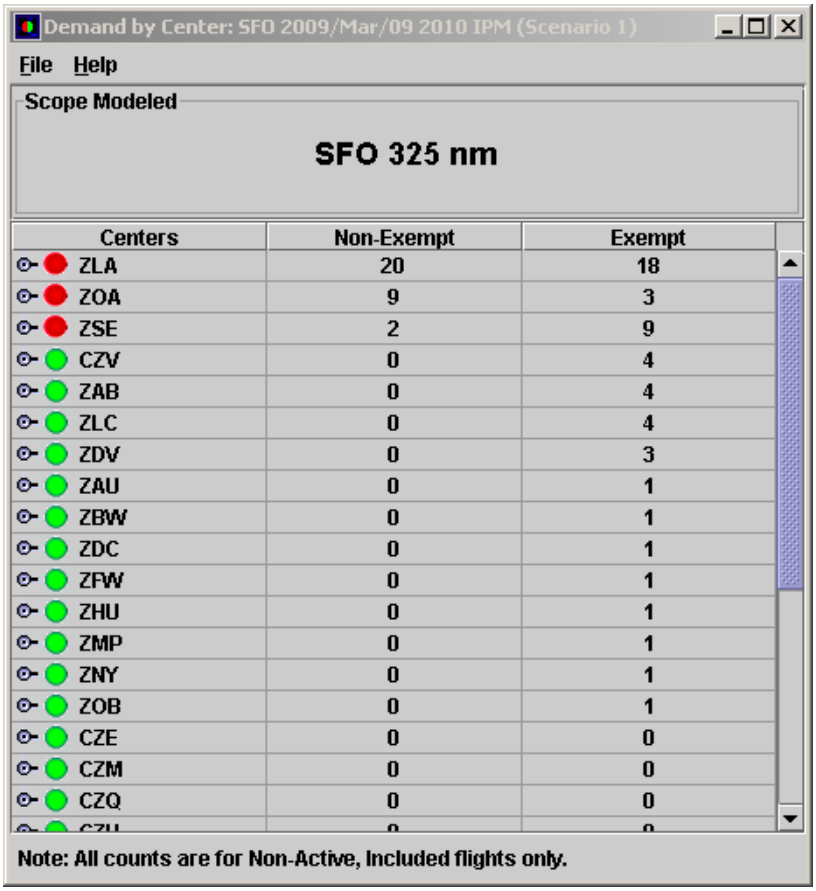
1. File Menu
   - **File > Save As** - Saves the Data Graph as a.jpg image in a directory that you specify.
   - **File > Print** - Prints the Data Graph that is currently active on your screen.
   - **File > Close** - Closes the Data Graph component only.
2. View Menu
   - **View > Show Legend** - By default the checkbox is selected and the color legend of the delay statistics is displayed. Deselect the checkbox to hide the legend and the delay statistics.
3. Help Menu
   - **Help > Data Graph** - Opens the on-line help system.

IPM Demand By Center Component

The IPM Demand by Center component provides you with an additional analysis tool to help with scope decision making for GDPs, AFPs, and Ground Stops. The Demand by Center component functionality is similar to that of the Data Graph, in that there is only data available for display after you model a TMI. After you model a TMI, from the Scope tab of the IPM Setup component, click **Show Demand** or from the IPM Setup component, select **View > Show Demand**.

The Demand by Center component displays the scope of the modeled TMI and has three columns: Centers, Non-Exempt, and Exempt. All centers and the top five airports within each center (based and ordered primarily by the number of Non-Exempt flights and then by the number of Exempt flights) are displayed under the Centers column. The number of Non-Exempt flights displays under the Non-Exempt column and the number of Exempt flights for each center or airport displays under the Exempt column.

A red dot to the left of the center or airport identifier indicates that at least one Non-Exempt flight is present within that center or airport. A green dot indicates that all flights are Exempt within that center or airport (see Figure 3 - 112).



Centers	Non-Exempt	Exempt
ZLA	20	18
ZOA	9	3
ZSE	2	9
CZV	0	4
ZAB	0	4
ZLC	0	4
ZDV	0	3
ZAU	0	1
ZBW	0	1
ZDC	0	1
ZFW	0	1
ZHU	0	1
ZMP	0	1
ZNY	0	1
ZOB	0	1
CZE	0	0
CZM	0	0
CZQ	0	0

Figure 3 - 112: Demand By Center

By default, the Centers are collapsed. Click the key icon next to the center identifier to expand the center and view the top five airports within each Center. If there are more than five airports with included flights in the selected Center an additional “Others” row combines the rest of the flights within the remaining airports. If a center does not contain any flights, that center’s airport list is empty.

Demand By Center Menu Bar

The Demand By Center menu bar contains two options, **File** and **Help**.

1. File Menu
   - **File > Save as** - Saves the Demand By Center window as a .jpg image in a directory that you specify.
   - **File > Print** - Prints the Demand By Center component that is currently active on your screen.
   - **File > Close** - Closes the Demand By Center component only.
2. Help Menu
   - **Help > Center Demand** - Opens the on-line help for the Demand By Center component.

IPM Time Line Component

The IPM Time Line component is an optional component in IPM Mode. To open the IPM Time line, select **View > IPM Time Line** from the IPM Setup component menu bar.

The IPM Time Line Component is the same as the GDT Time Line Component with the exception that the title bar contains IPM and includes the Scenario number (see Figure 3 - 113).

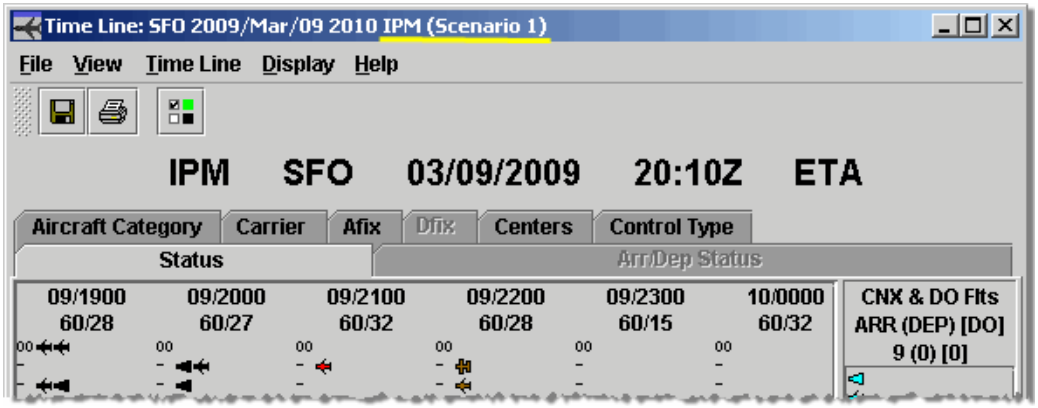


Figure 3 - 113: IPM Time Line Title Bar

IPM Time Line Menu Bar

The menu bar in the IPM Time Line component contains five options: **File, View, Time Line, Display** and **Help**.

1. File Menu
   - **File > Save as** - Saves the IPM Time Line as a .jpg image in a directory that you specify.
   - **File > Print** - Prints the IPM Time Line component that is currently active on your screen.
   - **File > Close** - Closes the IPM Time Line component only.
2. View Menu
   - **View > Rename Window** - Displays the Rename Window dialog box and allows you to change the component name in the title bar. Enter the desired name then click **OK** to change the title bar heading. Click **Cancel** to close the Rename Window dialog box without making any changes.

   There are ten additional display options under the View menu. For items with checkboxes, select the checkbox to view the information.

   - **View > Set Tabs Displayed** - You can dynamically show and hide specific coloring schemes for the Time Line component.
   - **View > Arrival Data** - Displays all arrival data for that data set.
   - **View > Departure Data** - Displays all departure data for that airport.

- **View > Show CNX/DO** - Displays all cancelled and drop out flights under the column marked CNX, to the right of the active flight information.
- **View > Show Legend** - Displays the appropriate color legend associated with the current view. If you click the legend button on the Time Line, FSM dynamically selects the checkbox for Show Legend.
- **View > Open Slots in Carrier Color** - Displays all open slots due to cancelled or delayed flights in the associated carriers color.
- **View > Show Unassigned Slots** - Displays all unassigned slots during a GAAP GDP or AFP.
- **View > Auto Icons** - Displays flights in the TSD icon format. This is the default Time Line view. The TSD format displays different icons based on the flight aircraft weight. When you select Auto Icons, the classic FSM Time Line icons, which display the same icon for all aircraft weights, are displayed.

Table 3-17: Auto Icons

Classic View	New (TSD) Icon	Description
		Jumbo
		Jet
		Heavy
		Prop (Includes Turbo and Piston)

- **View > Flight Info** - Displays the Flight Info window for a quick reference on the flight.
- **View > Flight Detail** - Displays the Flight Detail window for more in-depth information on the flight.
- **View > Flight List** - Displays the FSM Flight List.

Note: **View > Arrival Data**, **Show CNX/DO**, **Open Slots in Carrier Color**, **Show Unassigned Slots**, and **Auto Icons** checkboxes are selected by default.

3. Time Line Menu

- **Time Line > Track Time** - Allows you to turn Track Time on and off. To force the Time Line component to update when the current hour changes, select Track Time. When the hour changes, the Time Line moves forward one hour. If you uncheck the Track Time box, you can scroll forward or back in time and at the next update time the Time Line does not return to the current time.
- **Time Line > Set Time** - This option is enabled only under Historical Data Mode and allows you to choose the time to view within a set of historical data.

- **Time Line > Search By Callsign** - Allows you to find a particular flight by entering the flight's callsign and origin airport. The flight icon in the Time Line is highlighted with a white box.

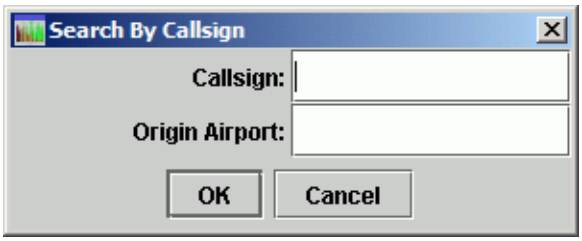


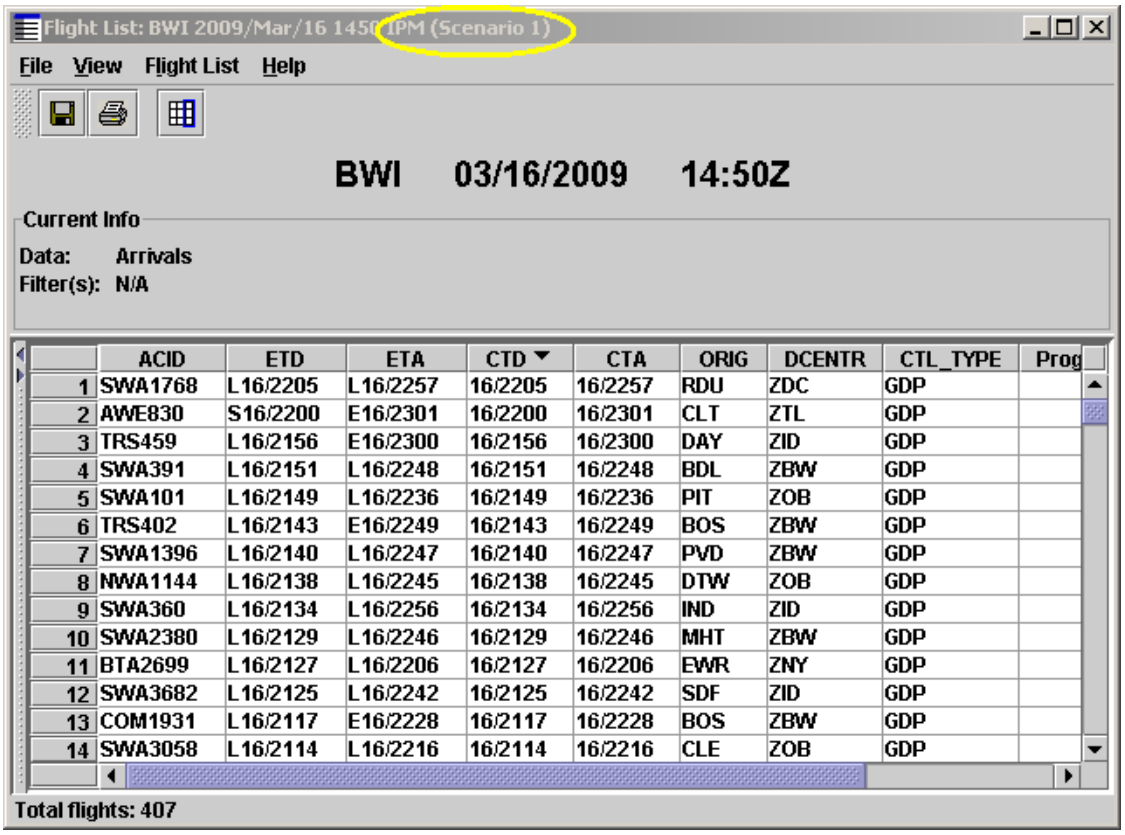
Figure 3 - 114: Search By Call Sign

4. Display Menu
   - **Display > ETA** - Display flights based on their Estimated Time of Arrival (ETA).
   - **Display > BETA** - Displays flights based on their Base Estimated Time of Arrival (BETA). The BETA matches the ETA and is frozen when the flight becomes active or when the flight becomes controlled.
   - **Display > IGTA - taxi** - Displays flights based on their Initial Gate Time of Arrival (IGTA) minus taxi time (IGTA Wheel Time). The IGTA is based on the OAG times or flight plan times and never changes. Taxi time default is 10 minutes, but you can change it in the IPM Control window.
   - **Display > OCTA** - Displays flights based on their Original Controlled Times of Arrival (OCTA), Original ETA, OGTA Wheel Time, or ETA position, depending on the available information. For example, if the Original CTA is not available, FSM uses Original ETA and so on. This time never changes.
   - **Display > EAFT** - Displays flights based on their Estimated Arrival Fix Time (EAFT), which is the time at which the flight crosses its designated arrival fix.
   - **Display > CTA** - Displays flights based on their current Controlled Time of Arrival (CTA).
   - **Display > ENTRY** - Displays flights based on their current Estimated Element Entry Time (Airspace data set only)
   - **Display > BENTRY** - Displays flights based on their current Based Element Entry Time (Airspace data set only)
   - **Display > OENTRY** - Displays flights based on their current Original Element Entry Time (Airspace data set only)
5. Help Menu
   - **Help > Time Line** - Opens the on-line help for the IPM Time Line component.
   - **Help > Legend** - Opens the on-line help for the Time Line icon legend.

IPM Flight List Component

The IPM Flight List component is an optional component in IPM Mode that allows you to view the modeled results for multiple flights. To open the IPM Flight List, select **View > Flight List** from the IPM Setup component.

The IPM Flight List component is the same as the GDT Flight List component with the exception that the title bar contains IPM and includes the Scenario number.



	ACID	ETD	ETA	CTD	CTA	ORIG	DCENTR	CTL_TYPE	Prog
1	SWA1768	L16/2205	L16/2257	16/2205	16/2257	RDU	ZDC	GDP	
2	AWE830	S16/2200	E16/2301	16/2200	16/2301	CLT	ZTL	GDP	
3	TRS459	L16/2156	E16/2300	16/2156	16/2300	DAY	ZID	GDP	
4	SWA391	L16/2151	L16/2248	16/2151	16/2248	BDL	ZBW	GDP	
5	SWA101	L16/2149	L16/2236	16/2149	16/2236	PIT	ZOB	GDP	
6	TRS402	L16/2143	E16/2249	16/2143	16/2249	BOS	ZBW	GDP	
7	SWA1396	L16/2140	L16/2247	16/2140	16/2247	PVD	ZBW	GDP	
8	NWA1144	L16/2138	L16/2245	16/2138	16/2245	DTW	ZOB	GDP	
9	SWA360	L16/2134	L16/2256	16/2134	16/2256	IND	ZID	GDP	
10	SWA2380	L16/2129	L16/2246	16/2129	16/2246	MHT	ZBW	GDP	
11	BTA2699	L16/2127	L16/2206	16/2127	16/2206	EWR	ZNY	GDP	
12	SWA3682	L16/2125	L16/2242	16/2125	16/2242	SDF	ZID	GDP	
13	COM1931	L16/2117	E16/2228	16/2117	16/2228	BOS	ZBW	GDP	
14	SWA3058	L16/2114	L16/2216	16/2114	16/2216	CLE	ZOB	GDP	

Figure 3 - 115 : IPM Flight List View

For more information on the Flight List component, see Chapter 6: Viewing Flight Information.

4: Opening FSM

The Control Panel component, shown below, is the first component displayed when you start the FSM application. You can open FSM in four different data modes:

1. Monitored Live – Monitor airports, FEAs, and FCAs in real-time.
2. Historical – View, recall or analyze previous airport, FEA, and FCA air traffic events.
3. GDT – Model, analyze, and/or create Traffic Management Initiatives (TMIs) for airports, FEAs, and FCAs depending on air traffic variables.
4. IPM – Model and compare multiple TMIs and review their impact on other data sets.

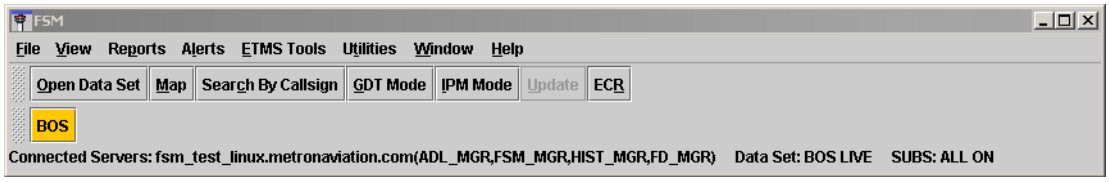


Figure 4 - 1 : Main Control Panel Component

Additionally, you can open various components from various data modes into a User Defined Group.

Opening a Data Set

Click **Open Data Set** on the Control Panel component to open the Open Data Set Component. The Open Data Set component displays four data tabs that you use to access both live and historical data. The four Tabs available in the Open Data Set components are listed below and shown in Figure 4 - 2:

1. Monitored Live – Provides a list of airports, FEAs, and FCAs currently monitored by the FSM server and readily available for viewing by the user. Live data mode runs real-time data and receives ADL updates approximately every five minutes.
2. All Live – Provides a list of airports, FEAs, and FCAs that can be viewed by the user (not on the server but will only take a minute to bring up).
3. Historical – Displays historical data that has been stored in a database. Historical data can be recalled to analyze scenarios or replay a day's air traffic events.
4. Active Historical – Provides a list of historical airport, FEA, and FCA data currently opened and monitored by the user.

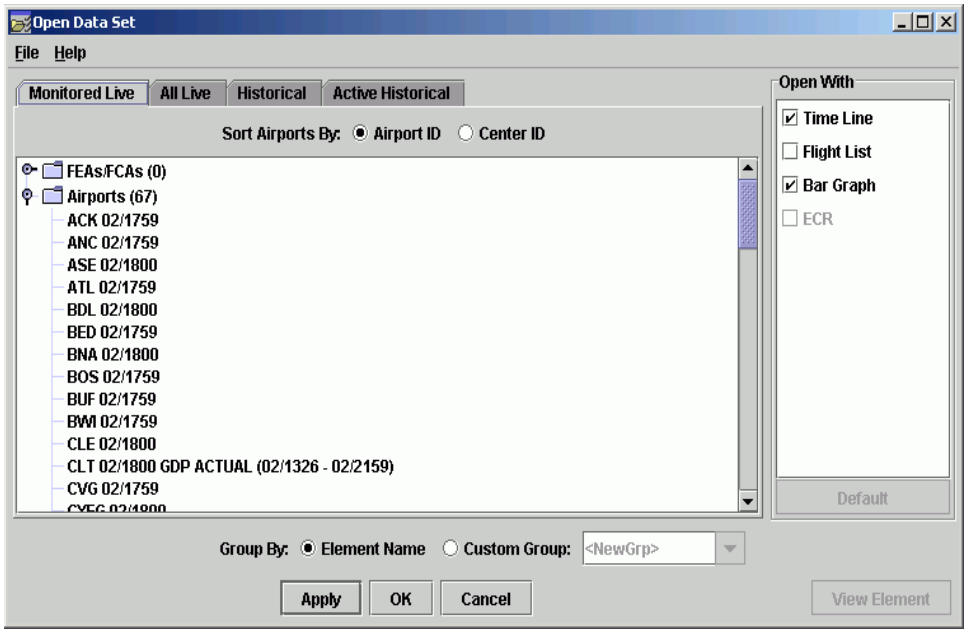


Figure 4 - 2 : Open Data Set Component

To open an airport, FEA, or FCA you must select a Data mode, a Data set, and select the display components from the Open With section to view the information.

- Data Mode – From the Open Data Set component you can open an airport, FEA, or FCA in either Live or Historical Data Modes. To open an airport, FEA, or FCA in Live Data Mode, use either the Monitored Live or All Live data tabs. To open an airport, FEA, or FCA in Historical Data Mode, use either the Historical or Active Historical (if you have already opened an airport, FEA, or FCA in historical mode) data tabs. Once you have selected a data mode, you can access GDT mode by clicking **GDT Mode** on the Control Panel.
- Data Set – The Data Set is the airport, FEA, or FCA you want to view. When opening an airport, FEA, or FCA in Historical data mode, you must select a date from the Historical tab's menu structure and enter a time (optional).
- Display Components – From the Open With selection box you can open data sets in four components: ***Time Line***, ***Flight List***, ***Bar Graph***, and ***ECR*** components. By default, both ***Time Line*** and ***Bar Graph*** components are selected.

Opening FSM in Monitored Live Mode

From the Open Data Set component, you can open FSM in Monitored Live mode. The Monitored Live tab is active when the Open Data Set component initially opens and provides a list of FEAs/FCAs and Airports currently monitored by the FSM server readily available for viewing.

To open a data set in Monitored Live mode

1. Click **Open Data Set**.
2. Select the desired data set (FEA,FCA, or Airport) from the Monitored Live tab.

Note: If an airport currently has a GDP or GS in place, the Open Data Set component displays “GDP ACTUAL” or “GS ACTUAL” followed by the date and times of the TMI next to the airport. If an FEA or FCA currently has an AFP in place, the Open Data Set component displays “AFP ACTUAL” followed by the date and times next to the FEA or FCA name.

3. Select the components you want to view for the data set in the Open With panel.
4. Click **Apply** or **OK** to display the data set in the components that you selected in the Open With box. By default, FSM displays both Time Line and Bar Graph components if you do not change anything in the Open With component selections.

   Note: Double-clicking an airport, FEA, or FCA or selecting the airport, FEA, or FCA and then clicking **Apply** leaves the Open Data Set component open. Selecting the airport, FEA, or FCA and then clicking **OK** opens the airport, FEA, or FCA in the selected components but closes the Open Data Set window.

   Figure 4 - 3 shows ATL airport selected with the ***Time Line*** and ***Bar Graph*** components checkmarked in the Open With selection box. This opens the Time Line and Bar Graph components for ATL in Live data mode.

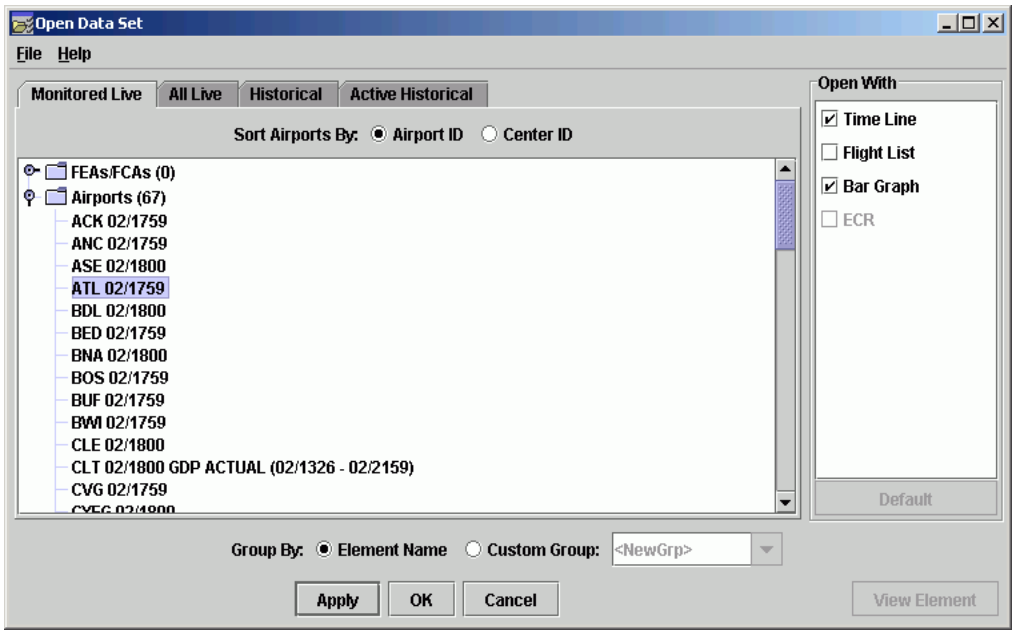


Figure 4 - 3 : Monitored Live Tab

Figure 4 - 4 shows FSM opened in Monitored Live mode for ATL.

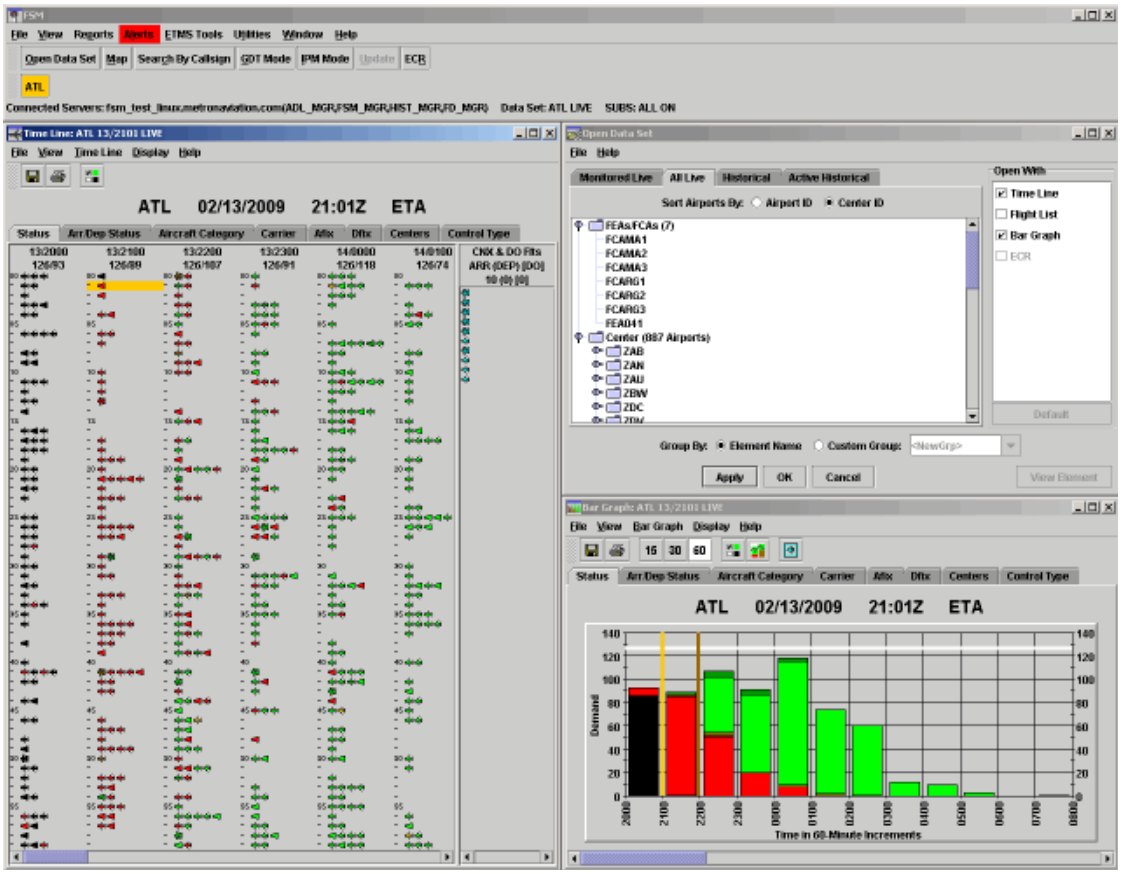


Figure 4 - 4 : ATL Monitored Live Mode

Using the Map to Open Components in Monitored Live

Click **Map** on the Control Panel component to view all the airports, FEAs, or FCAs currently being monitored on the Map (see Figure 4 - 5).

Figure 4 - 5 : Map Button

Figure 4 - 6 shows green FEAs, FCAs, and airports that indicate normal operations, while red FEAs, FCAs, and airports indicate that there is an actual TMI. Yellow indicates there is a proposed TMI for that constraint.

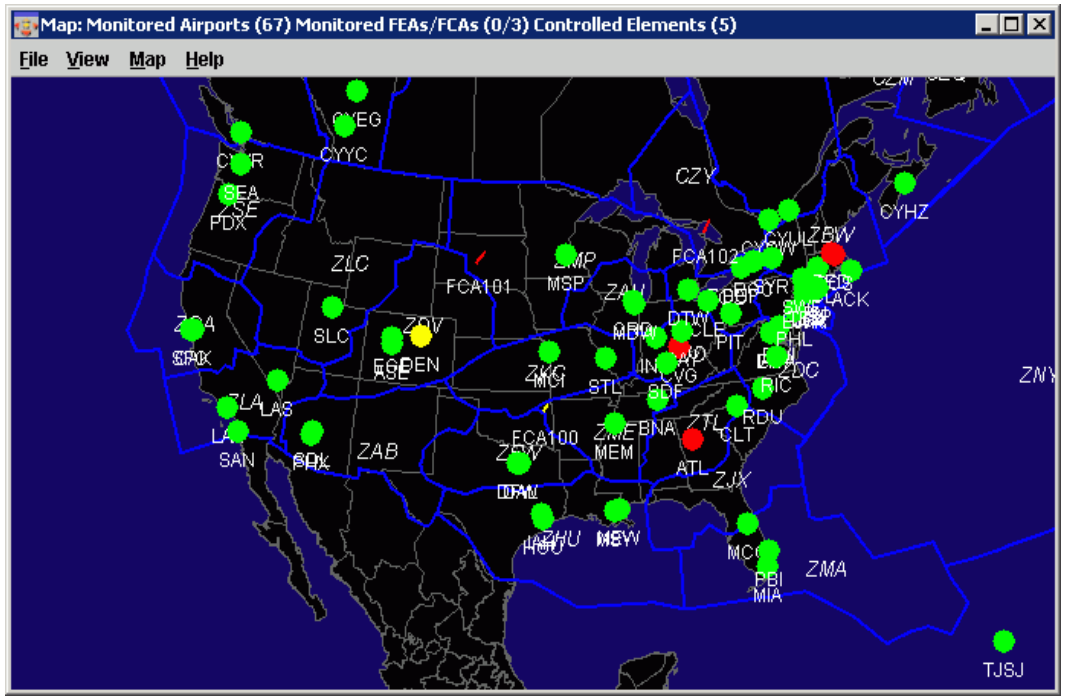


Figure 4 - 6 : Map Component

To open a data set from the Map component

1. Click the airport, FEA boundary, or FCA boundary you want to open.

   The selected airport, FEA, or FCA turns white and displays the three-letter airport ID, FEA name, or FCA name followed by the current ADL time (ddhhmm).

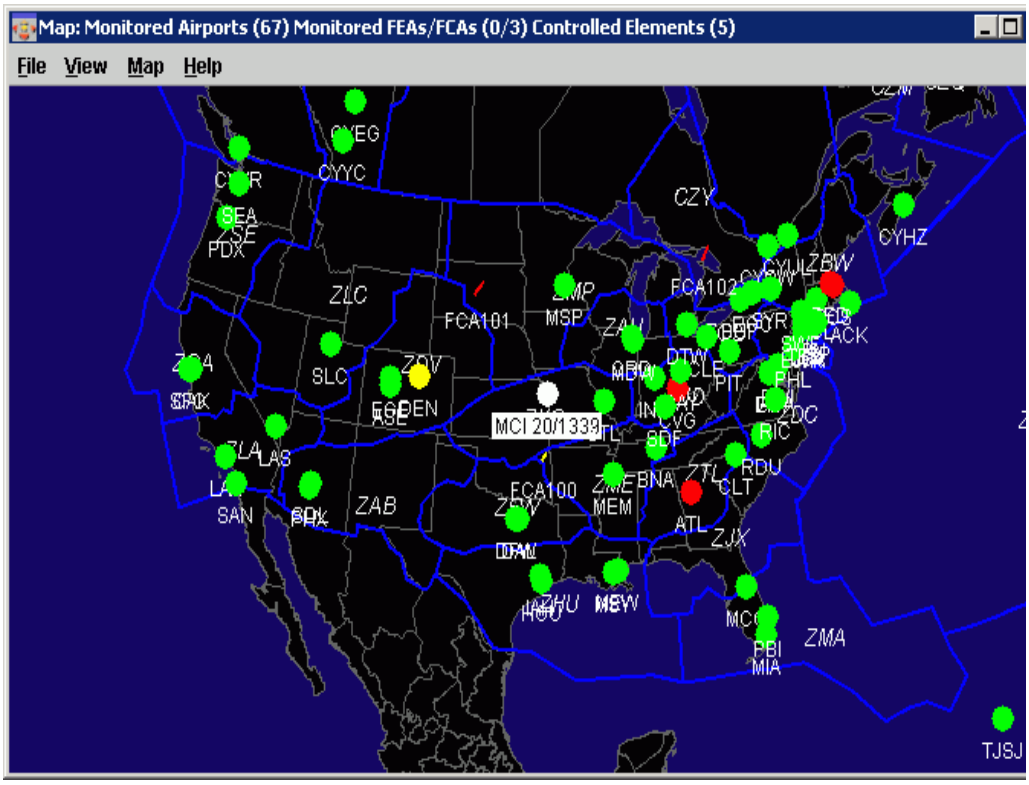


Figure 4 - 7 : Selected Airport turns White

Note: If you select an airport, FEA, or FCA with actual or proposed parameters in place, the parameters are displayed (see Figure 4 - 7).

2. Right-click the selected airport, FEA, or FCA to display a pop-up menu.
3. Select the desired component with which you want to view the airport, FEA, or FCA: Time Line, Bar Graph, Flight List, ECR, or Element Display (FEA and FCA only) component (see Figure 4 - 8). You can open only one component at a time from the Map.

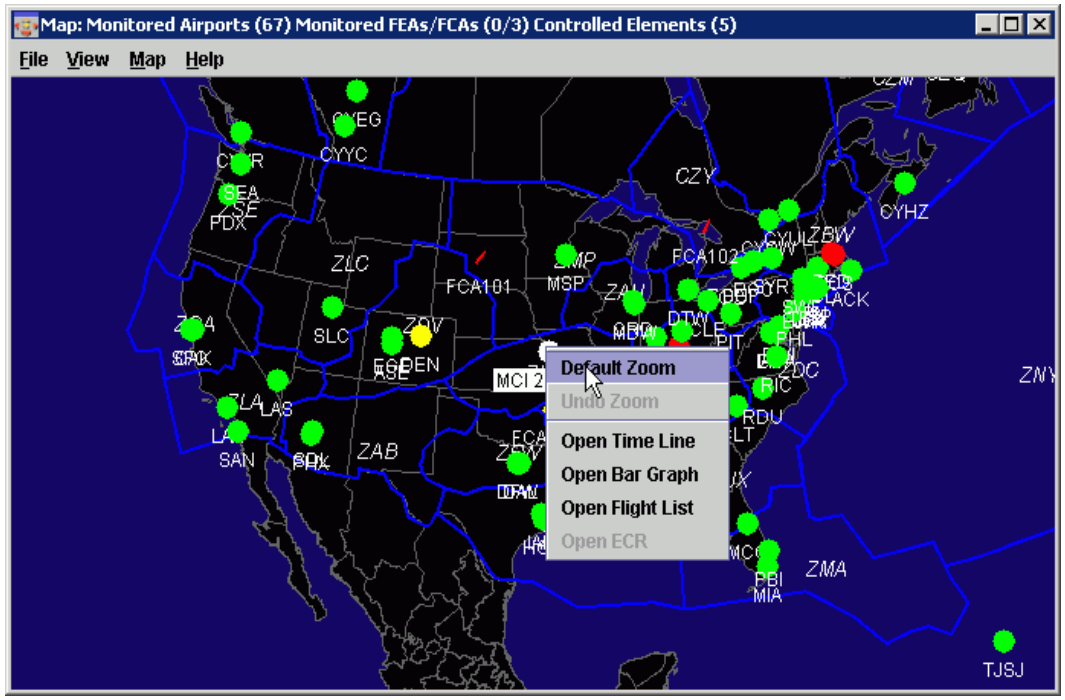


Figure 4 - 8 : Opening Components from the Map

Note: From the Map component you can open Monitored Live mode components only.

Opening FSM in Historical Mode

The Historical tab on the Open Data Set component opens archived data that you can use to review and analyze past airport, FEA, or FCA events. The Open Data Set component defaults to the Monitored Live tab when you first open it. Click the Historical tab to view archived data. You can drill down to the desired data set by clicking the drill down icons or by double-clicking the file name.

Historical file structure is organized as follows: Server, Year, Month, Day, and data set.

Note: If the client connects to multiple servers, both servers are listed.

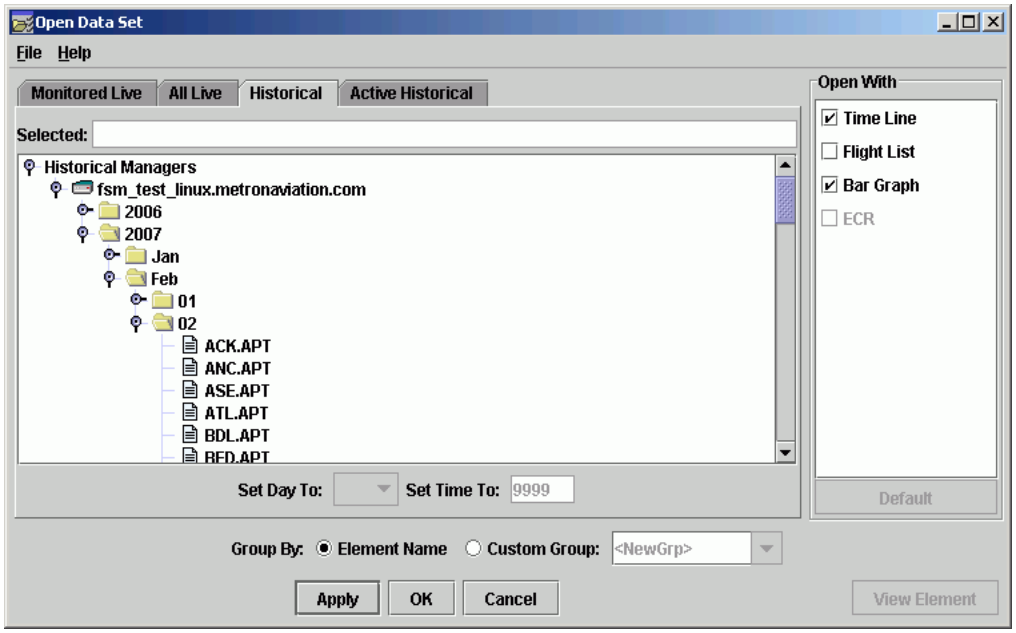


Figure 4 - 9 : Historical Tab

The default settings for Historical mode are the same as in Monitored Live mode; Time Line and Bar Graph components appear to be selected by default for the selected Data set. The Flight List and ECR components do not open unless you select the corresponding checkboxes in the Open With selection box. Once you select the desired data set, you have the option to set the data set time before opening the data set. When you specify a data time, the components open the ADL data time closest to, but not after, the specified time.

> **Note:** FSM displays in and uses Zulu times unless otherwise specified.

You can open the data set in several ways after you select the desired airport, FEA, or FCA components and data time. Double-clicking a desired airport, FEA, or FCA or clicking **Apply** opens the Historical mode data and leaves the Open Data Set component open. Clicking **OK** also opens the Historical mode data in FSM, but closes the Open Data Set component.

Begin Monitoring an Airport, FEA, or FCA

The All Live tab on the Open Data Set component provides a list of airports, FEAs, and FCAs that the server is not currently monitoring but are readily available for viewing (see Figure 4 - 10).

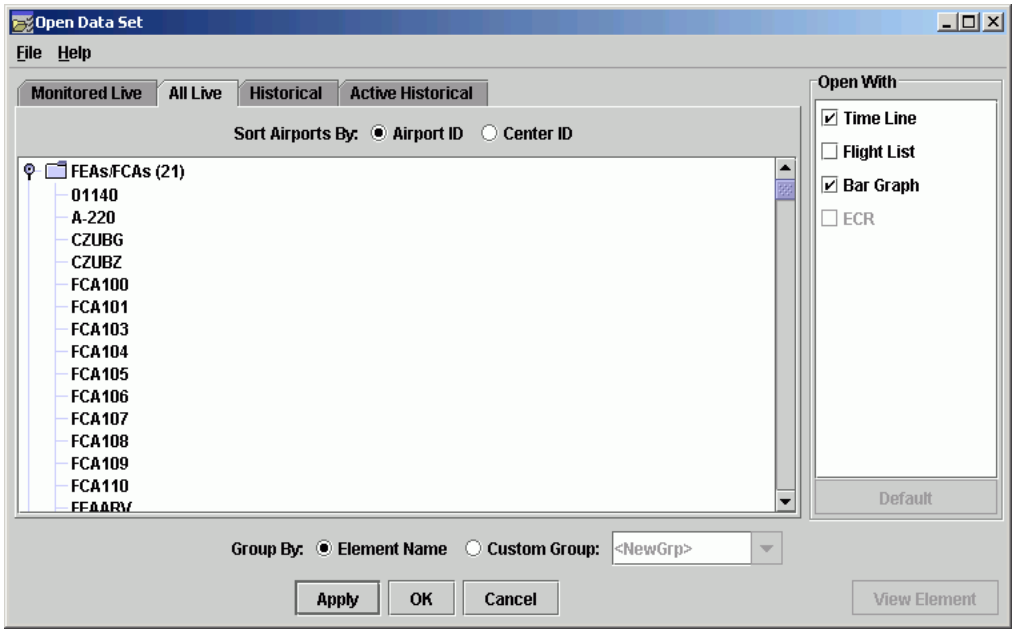


Figure 4 - 10 : All Live Tab

To begin monitoring an airport, FEA, or FCA from the All Live tab

1. Click **Open Data Set**.
2. Select the All Live tab.
3. Select a data set.
4. Select the components you want to view for the data set in the Open With panel.
5. Click **Apply** or **OK** to open the data set.

   Note: The All Live tab opens airports, FEAs, and FCAs in Live mode only. Opening an airport, FEA, or FCA from the All Live tab may take a few moments longer than opening one from the Monitored Live tab. An FSM information message may be displayed indicating that FSM takes a moment to collect the first set of data (see Figure 4 - 11).

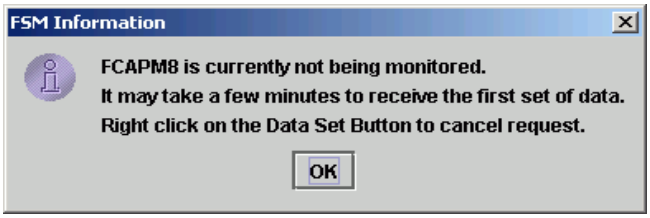


Figure 4 - 11 : FSM information message

6. Click **OK** to close the FSM information message. After opening an airport, FEA, or FCA from the All Live tab, FSM places the airport, FEA, or FCA on the Monitored Live tab.

Managing Historical Data

The Active Historical tab on the Open Data Set component provides a list of opened Historical data you are viewing and monitoring. The Active Historical tab has an empty display window unless you have already opened a data set from the Historical tab.

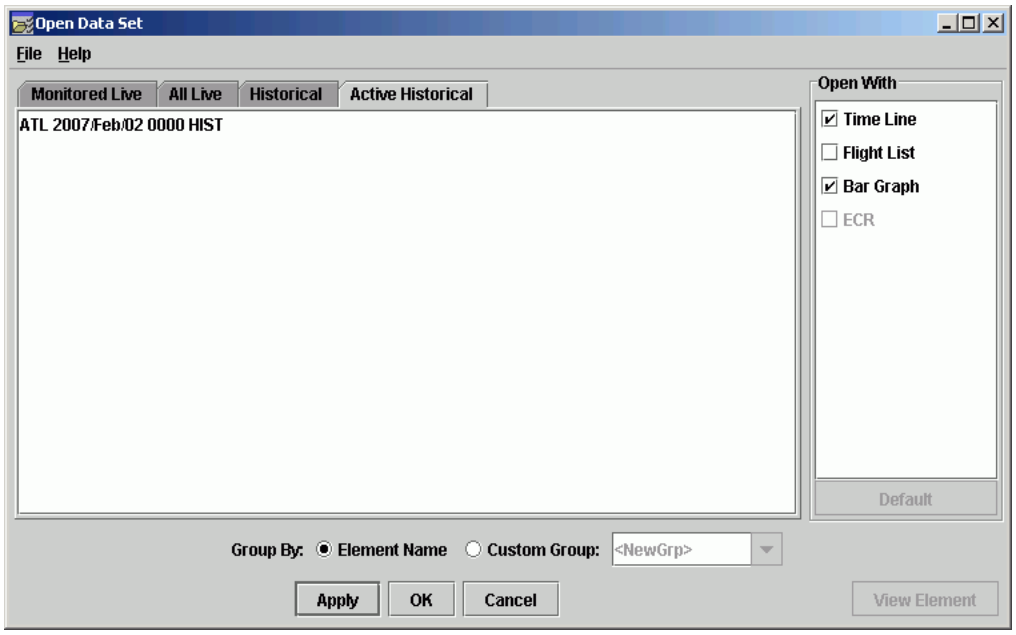


Figure 4 - 12 : Active Historical Tab

To open historical data

1. Click **Open Data Set**.
2. Select the Active Historical tab.
3. Select the desired data set.
4. Click **Apply**. This opens the airport with the components selected in the Open With selection box. The Active Historical tab opens airports, FEAs, and FCAs in Historical mode that you have already opened.

Opening FSM in GDT Mode

When you open GDT mode (see Figure 4 - 13), three GDT components open by default: GDT Setup, GDT Map, and GDT Bar Graph. You can open additional components, such as Flight List, Data Table, Demand by Center, and Time Line components, from the GDT Setup component in GDT mode. See Chapter 3: Understanding Components for more detail.

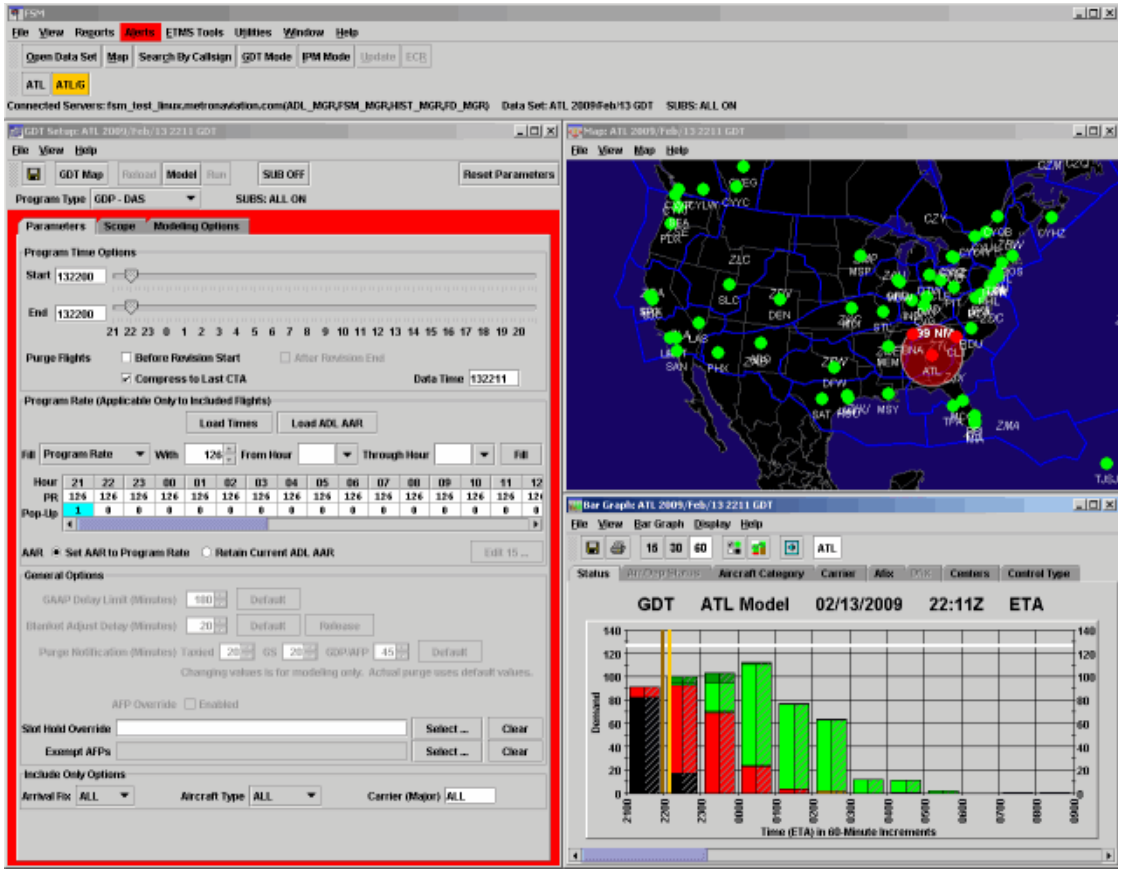


Figure 4 - 13 : GDT Mode

To open a data set in GDT mode

Open FSM in GDT Mode to analyze air traffic management options and implement TMIs.

1. Select a data set that is open in either Live or Historical mode.
2. Click **GDT Mode** on the Control Panel component (see Figure 4 - 14). The GDT Setup panel, GDT Map, and GDT Bar Graph open.

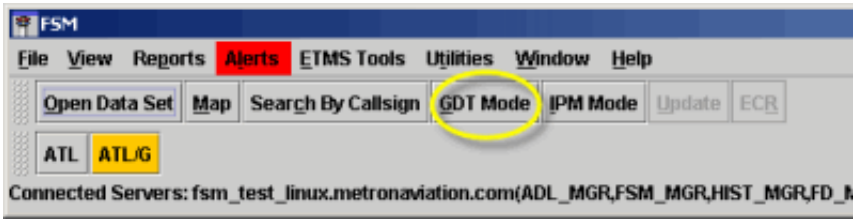


Figure 4 - 14 : GDT Mode Button

Opening Components from the Data Set Button

Each airport and airspace element displays a button on the FSM Control Panel when the data set is open in FSM. Left-clicking the button makes the data set the active data set within the session and right-clicking a button displays a menu.

Right-clicking a data set button in live or historical mode opens a menu with the components listed below.

- Open Time Line
- Open Flight List
- Open Bar Graph
- Open ECR - enabled only for controlled, live data sets
- Open Element Display - enabled only for airspace data sets

Right-clicking a data set button in Ground Delay Tools (GDT) mode opens a menu with the components listed below. GDT mode includes Live GDT and Historical GDT modes.

- Open GDT Time Line
- Open GDT Flight List
- Open GDT Bar Graph
- Open GDT Map
- Open GDT Data Graph

Right-click menu options that do not pertain to the active data set are disabled.

You can open multiple copies of the components listed below. Each click on one of these right-click menu items opens another copy of the component and associates it to the parent data set.

- Bar Graph
- Time Line
- Flight List
- Element Display

You can open only one instance of the following components.

- GDT Bar Graph
- GDT Time Line
- GDT Map
- GDT Flight List
- GDT Data Graph
- ECR

Additional requests to open new instances of these already-open components brings the open component to the front, but does not open a new copy of it.

Note: The right-click menu for User Defined Groups contains only a **Rename User Defined Group** and a **Close Group** menu item. The **Rename User Defined Group** item opens the Rename User Defined Group component.

User Defined Groups

User Defined Groups (UDGs) allow you to create, rename, and save a custom data set grouping in FSM. You can include airport and airspace data set components in the UDG, although airspace components cannot be saved to adaptations at this time. You create UDGs from the Open Data Set component. There is no way to create UDGs automatically. You must create them manually in an FSM session (but you can then save them to an adaptation for future use). You can add elements from all four Open Data Set tabs to a UDG and select one or more elements per tab. You make multiple selections by using the Shift or CTL keys. There is no way to create a multiple selection across more than one tab at this time.

GDT components cannot be added to a UDG. GDT functionality applies only to standard ETMS data sets. You can open GDT mode from one of a UDG's monitored elements, but the GDT Setup components are associated with the related airport/airspace element and not the UDG.

FSM monitors any element added to a UDG. Even if the actual airport or airspace data set is not open in the FSM session, the act of adding it to a UDG causes FSM to monitor that element. The element then counts towards the maximum number of monitored elements supported in the session. FSM continues to monitor an element as long as at least one component for that element is open in the session. The component could be in a UDG or a standard data set. This means that the element's data set button may not always be displayed on the FSM Control Panel when the element is being monitored.

FSM does not limit the number of UDGs in a session. However, since the FSM Client configuration limits the number of monitored data sets per session, all UDGs can use only as many monitored data sets as are supported in the current session. FSM allows as many different combinations of those monitored elements as possible.

FSM Settings and User Defined Groups

Component display settings in ETMS data sets and UDGs are independently configurable. For example, enabling cancelled flights on an ATL Time Line does not affect a copy of the ATL Time Line in a UDG.

Session display settings, such as global or data set settings (for example, flight list column persistence), apply to all components including components contained in a UDG. The rules for the specific setting still apply. For example, for flight list column persistence, only the current Flight List and any Flight List opened after setting the global default will show the new default columns. Adding the flight list to a UDG does not change the way flight list column persistence functions.

Additionally, any changes to the Query Manager filter list are visible and available to all flight list instances, any changes to data set default settings are visible in all component instances, Color Scheme global preferences are visible in all component instances, and AFIX and DFIX coloring configurations are visible in all component instances per element.

FSM Functionality and User Defined Groups

For UDGs, all FSM functionality is determined by the active window regardless of whether the component is assigned to a UDG or not. For example, if you select an historical component window in a UDG the “Update” functionality is enabled. Likewise, if you then select a controlled live component window in the same UDG, the “ECR” functionality is enabled and “Update” is disabled.

The Control Panel menu options are enabled or disabled based on the active component. UDGs do not display as an entry on the **Alerts** menu. Instead, when you select a component within a UDG, FSM updates the **Alerts** menu for that component’s ETMS data set. The **Reports** menu applies only to standard ETMS data sets. UDGs do not have their own reports. When you select a component within a UDG and make it active, that component updates the **Reports** menu and data. The **ETMS Tools**, **Utilities**, and **ECR** menus apply only to standard ETMS data sets. Any selection you make from the these menus applies to the related ETMS data set only and not the UDG.

To Create User Defined Groups

You create a new UDG from the Open Data Set component.

1. Select Custom Group in the Group By section.

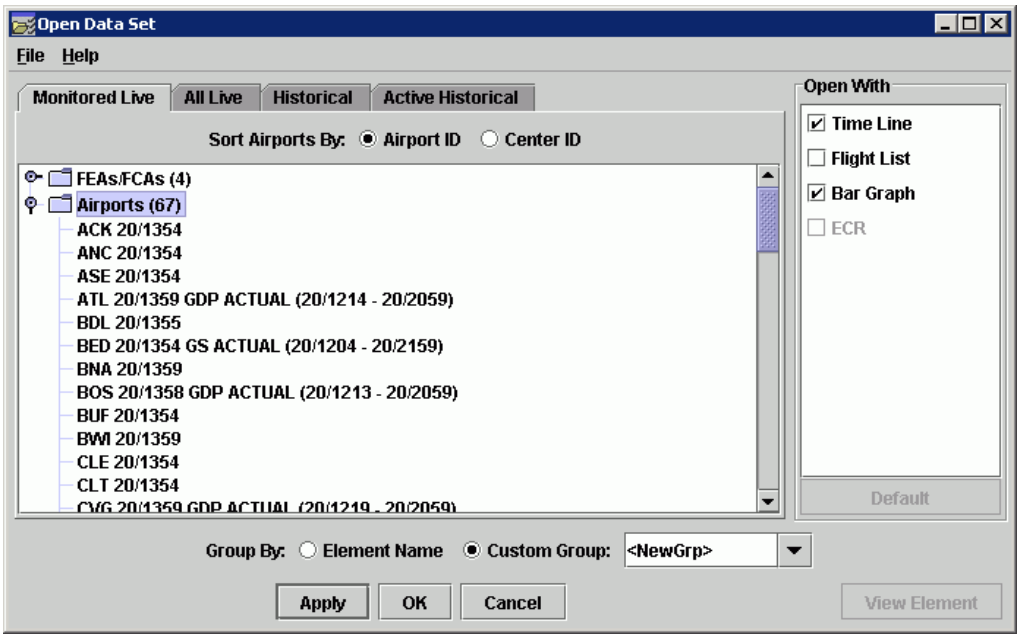


Figure 4 - 15 : Open Data Set With Custom Group: Selected

2. Enter the group name into the Custom Group list. The UDG name must be at least one alphanumeric character long and no longer than six alphanumeric characters. There are no restrictions on what letter and number combinations you use. You can use hyphens and underscores in UDG names but not spaces.

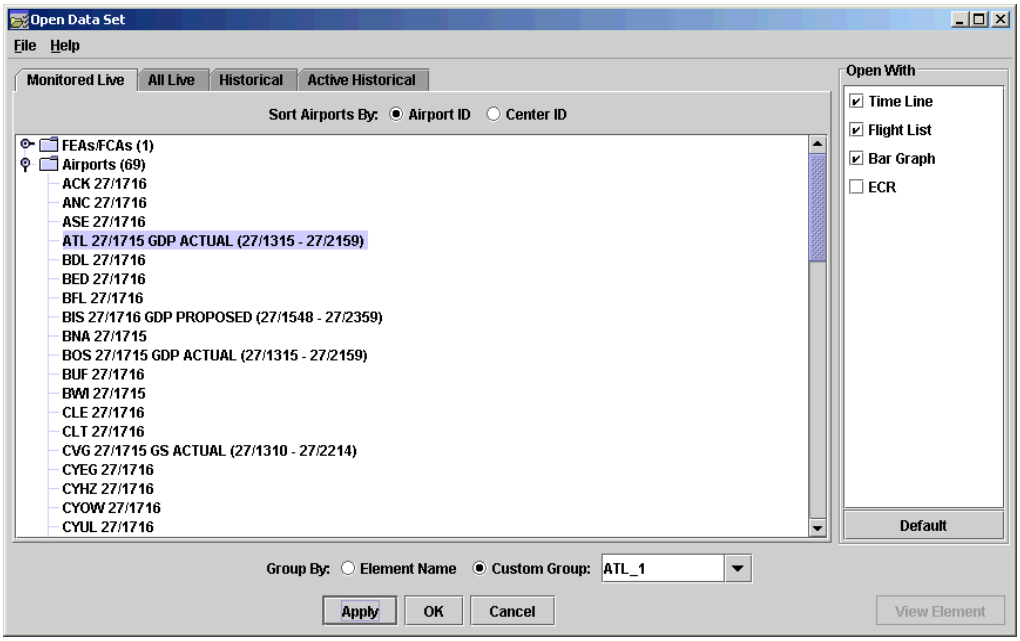


Figure 4 - 16 : Custom Group Name

Note: After creating a UDG, if you want to go back to opening components by airspace or airport ID, you need to select Element in the Group By section of the Open Data Set component.

UDG names are unique within an FSM session. If you try to create a new UDG with the same name as an existing UDG in that session, FSM adds the new components to the existing group.

The Custom Group field on the Open Data Set component lists the existing UDGs for the current session alphabetically.

Note: This list will not show saved UDGs in adaptation files.

3. Use the Open With checkboxes to select the element components that you want FSM to display in the selected UDG. For example, if you select ATL from the Monitored Live tab and select ***Flight List*** in the Open With section, then FSM adds the ATL Flight List to the UDG you selected from ***Custom Group***.

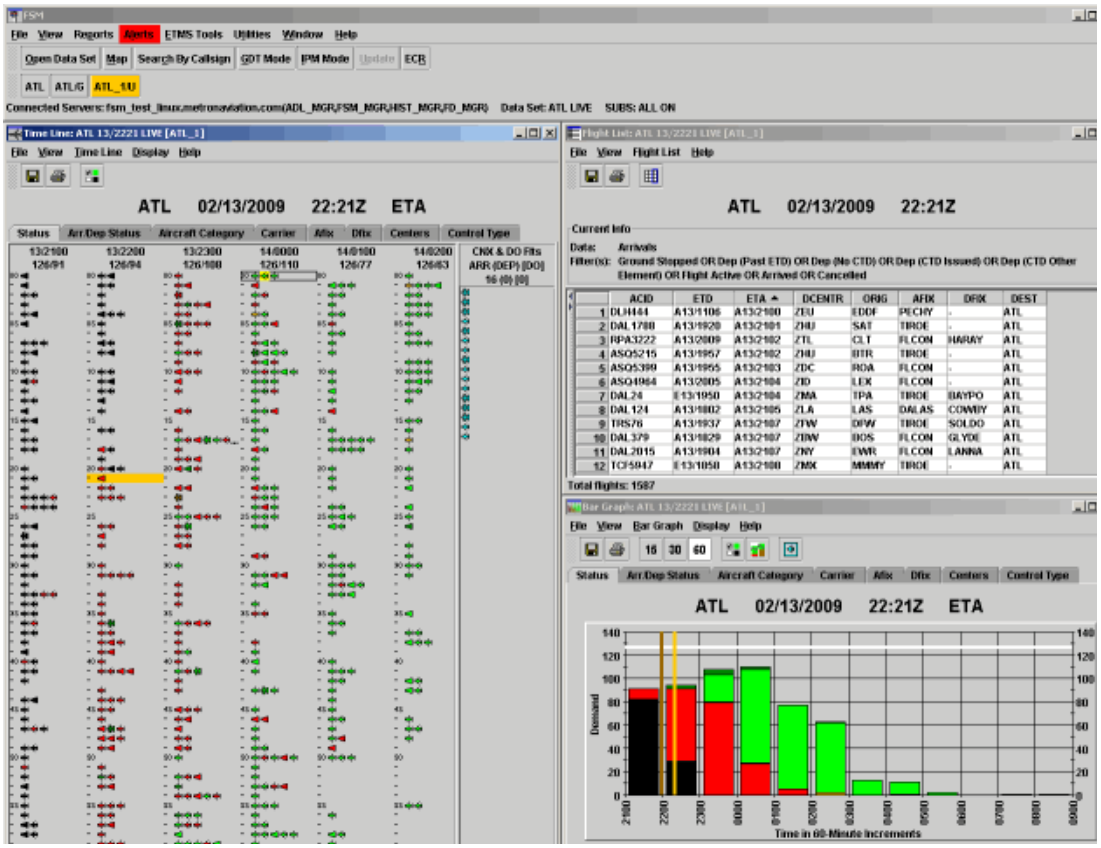


Figure 4 - 17 : UDG With ATL Flight List

4. Once you have selected all of the components you want to include in your UDG, click **OK** or **Apply**.

   If you click **OK**, FSM opens the components for the UDG, creates a data set button with the UDG name on the Control Panel, and closes Open Data Set. If you click **Apply**, FSM opens the components for the UDG, creates a data set button with the UDG name on the Control Panel, and Open Data Set remains available. Clicking **Cancel** causes FSM to close the Open Data Set component without creating the UDG.

The name of the UDG displays in the title bar of each component in that UDG. The title bar format for live components is, <Component Name>: <ELEM> DD/HHMM LIVE [UDG] (e.g., Time Line: ATL 23/1519 LIVE [ATL_1]). The title bar format for historical components is, <Component Name>: <ELEM> YYYY/Mon/DD HHMM HIST [UDG] (e.g., Bar Graph: FCAA08 2006/Oct/19 0815 HIST [NY_CTR]).

The UDG data set button format and appearance is consistent with the airport and airspace data set buttons. UDG data set buttons use "/U" after the group name.

The right-click menu for a UDG data set button has **Rename User Defined Group** and **Close Group** menu items. **Rename User Defined Group** allows you to change the name of the UDG. **Close Group** deletes the UDG and closes all components associated with it.

FSM components are displayed at their configured locations when you add them to a UDG. This means that if you add six Bar Graphs to one UDG, all six Bar Graphs are displayed in the lower right corner of your screen. If you would like to have these components open in a particular arrangement, you can rearrange the display and save it to an adaptation file.

To Add Components to a User Defined Group

You can add components to an existing User Defined Group from Open Data Set.

1. Select the name of the existing UDG from the Custom Group list.
2. Select one or more elements and one or more components for the selected elements.
3. Click **OK** or **Apply**. FSM opens the components and adds them to the UDG.

To Remove Components from a User Defined Group

You can also remove components from an existing UDG simply by closing each component instance you want to remove.

To Close or Delete a User Defined Group

You can delete an existing UDG by selecting **Close Group** from the right-click menu of the UDG's data set button, by closing all of its components individually, or by closing FSM. Deleting a UDG removes the group's data set button from the FSM Control Panel, removes the group's name from the Open Data Set Custom Group list, closes all components associated with the UDG, and removes the associated components from the Control Panel Window menu.

Closing components in one data set does not affect copies of that component in a different data set. In other words, FSM does not close UDG components when the related ETMS element data set is closed and vice versa. For example, if you have ATL open and have added ATL Time Line to a UDG, you can close the ATL data set without closing the ATL Time Line in the UDG. ATL remains monitored since it is still part of a UDG.

To Rename a User Defined Group

You can rename an existing UDG.

1. Right-click the data set button for the UDG on the Control Panel.
2. Select **Rename User Defined Group** from the right-click menu. **Rename User Defined Group** opens the Rename User Defined Group component (see Figure 4 - 18).

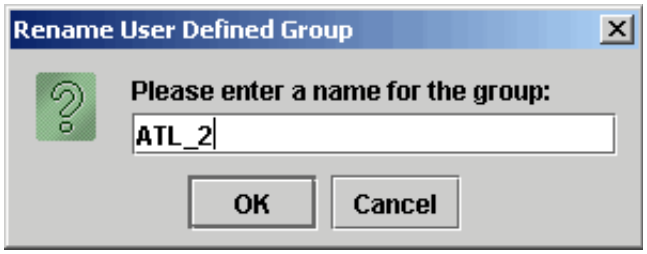


Figure 4 - 18 : Rename User Defined Group

3. Enter a new name for the group in ***Please enter a name for the group:***.
4. Click **OK**. When you change the name of the UDG, that change is reflected in each title bar of the components contained within the UDG, the data set button for the UDG, the Custom Group list on the Open Data Set component and the Windows menu of the Control Panel (see Figure 4 - 19).

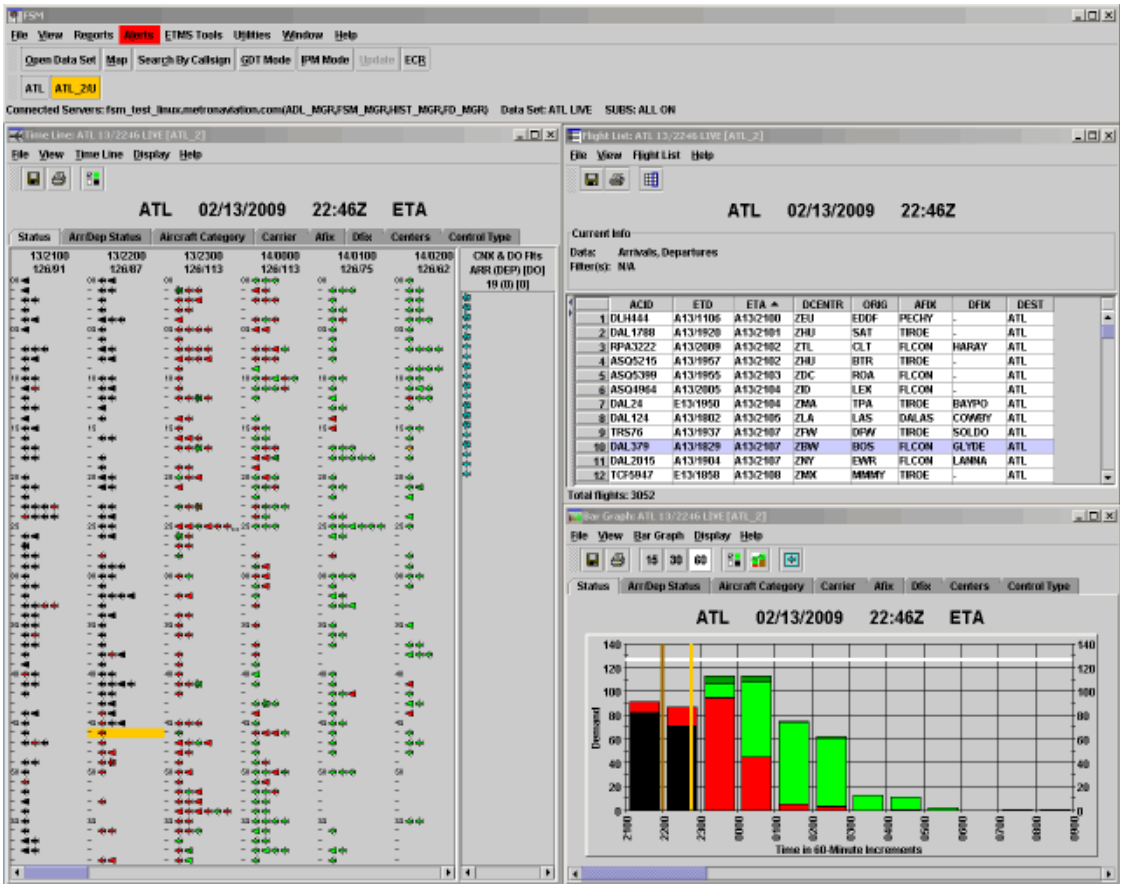


Figure 4 - 19 : Renamed User Defined Group

Note: Click **Cancel** to exit the component without making any changes.

To Save a User Defined Group

You can save and retrieve saved UDGs through the FSM Adaptation functionality.

You save a UDG by saving the FSM session to an adaptation file.

Note: Only airport components are saved. This is a limitation of the existing FSM Adaptation functionality.

1. Select **File > Save Adaptation** from the Control Panel. The Save Adaptation File window displays.

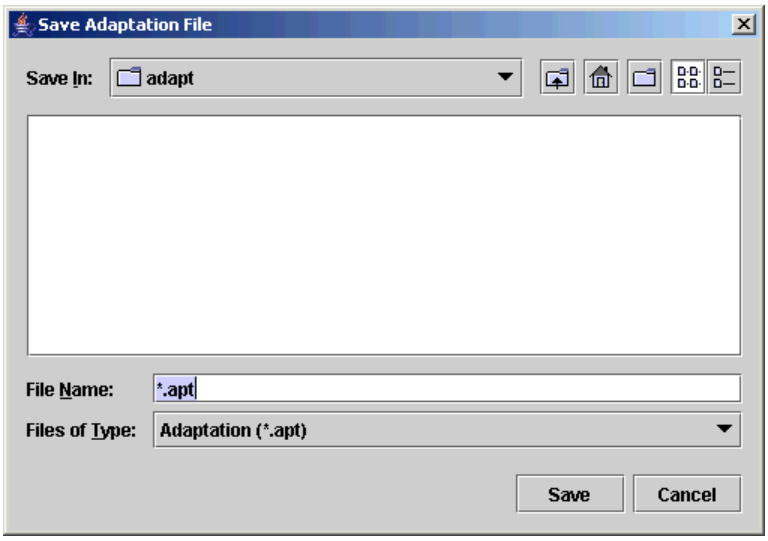


Figure 4 - 20 : Save Adaptation File Window

2. Enter a name for the UDG file in ***File Name***.

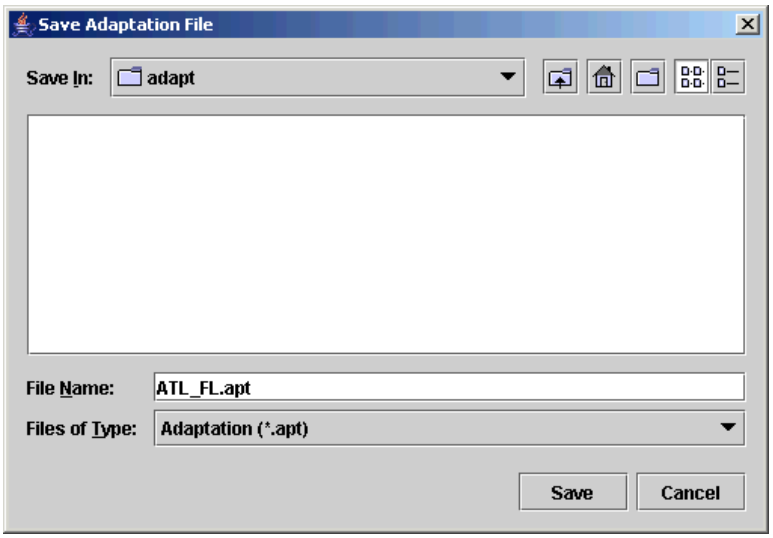


Figure 4 - 21

3. Click **Save**.

FSM saves the following attributes to the adaptation file:

- Component size

- Component location (within the FSM workspace)
- Component layering
- Component defaults (For example, Flight List column persistence)

FSM does not save component display settings (tabs, menu options, legend status, etc.) to the adaptation file.

To Load a UDG Adaptation File

Once you have saved the UDG to an adaptation file, you can retrieve it in a later session.

1. Select **File > Load Adaptation** from the Control Panel. The Load Adaptation File window displays.

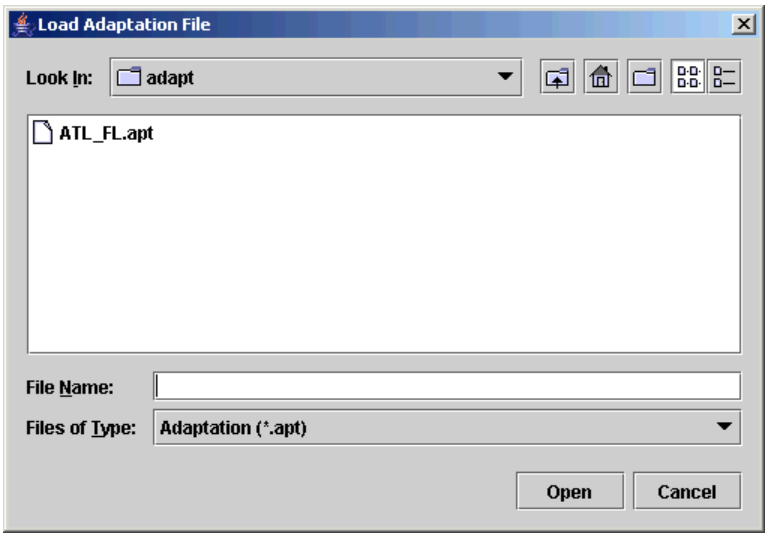


Figure 4 - 22 : Load Adaptation File Window

2. Select the adaptation file you want to view.
3. Click **Open**. FSM opens the UDG components and creates a data set button for the group on the Control Panel. Note that the data set button displays the name of the UDG, not the name of the adaptation file.

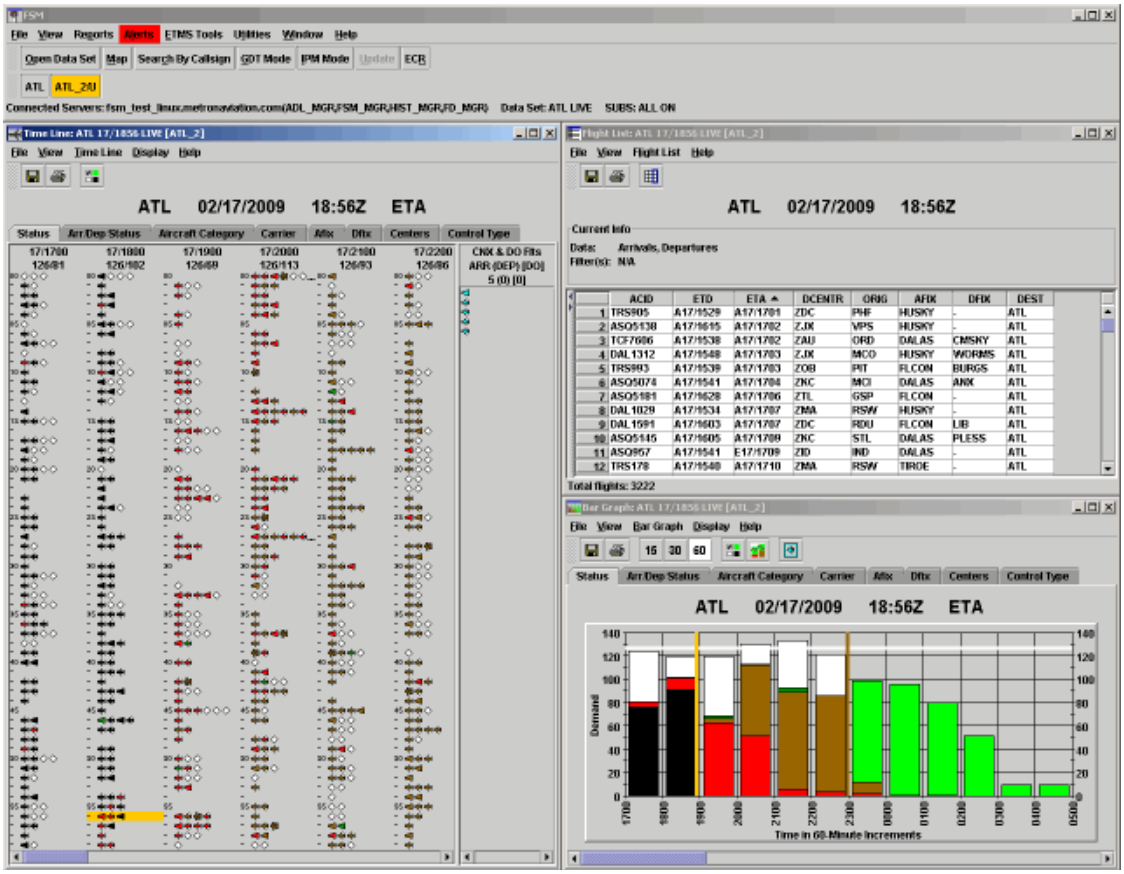


Figure 4 - 23 : UDG Loaded into FSM from an Adaptation File

Note: FSM closes all open data sets before opening an adaptation file. This affects all ETMS elements and any UDGs in the session. FSM also purges all system preferences before opening an adaptation file. This means that any user-configured global preferences (like AFIX/DFIX coloring/order, Color Tabs and Flight List columns) are purged.

When an adaptation file is open, you can add new elements or components to the session. If you would like for these components to be available the next time you load the adaptation, you will need to save a new adaptation file (or overwrite the existing one) to add new components.

5: Viewing Demand

You already know that FSM displays flight information in several ways. But to make traffic management decisions, you must also be able to view the overall demand on an airport, FEA, or FCA. Airport demand is made up of the total flights using the airport for arrival and departure. FEA and FCA demand is made up of flights moving through the FEA or FCA. The main utilities to view total demand are the FSM Bar Graph components and Count List Reports. The FSM Bar Graphs constantly display demand information as FSM receives it through ADLs. The Count List Reports are broken down into seven different options, depending on your needs.

Bar Graphs

The Current Demand "stacks" its data according to the coloring tab currently displayed. For example, if the tab option opened is Status, the bars in the graph are colored according to the percentage of flights that represent each respective status. If half of the flights for one time period have not departed (light green), while the other half are in the air (red), the bar for that hour is half red/half green. If every flight for the hour has landed, the bar for that hour is black.

The graph is dynamic and changes according to the information in each ADL update. The graph also automatically updates itself when you choose a different color tab option.

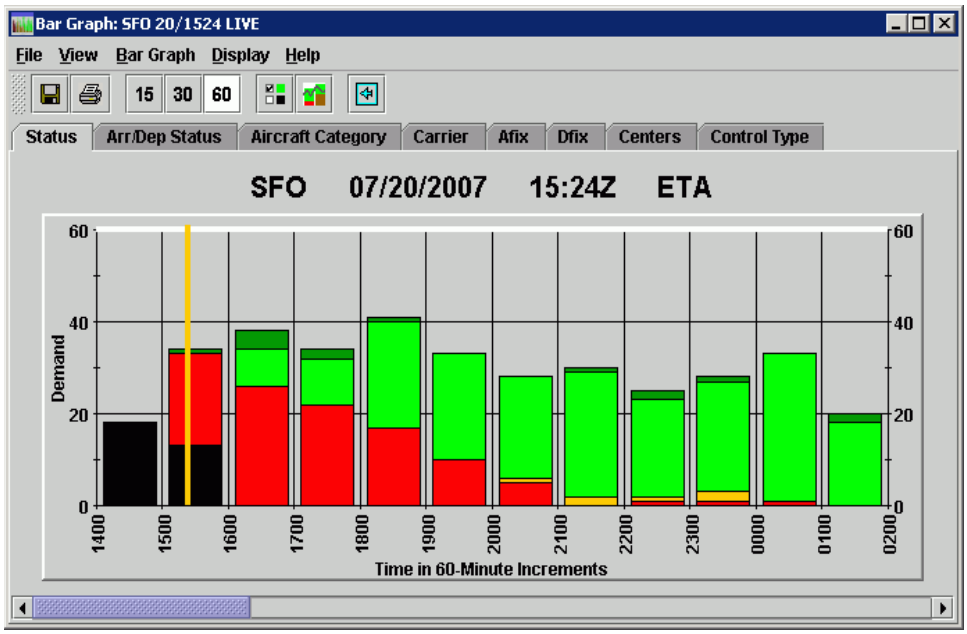


Figure 5 - 1 : Bar Graph displaying Color by Status Tab

In Monitor Live mode only, if there is an 11-minute gap between the ADL update time and your local machine time, the ADL Date and Time will turn red until the next update is received. Note that the components will remain active even though the data has expired.

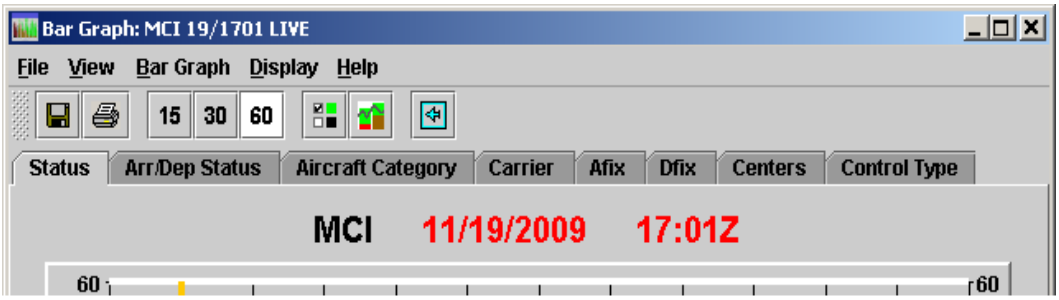


Figure 5 - 2 : Red Text Warns that ADL Update Time is Behind

About the Display

There are 16 different coloring options to view the demand. When you first open a Bar Graph component, the Status tab is the default view. The component name, airport, FEA, or FCA, day, time, data mode and UDG name (when applicable) are displayed in the title bar. The airport, FEA, or FCA, date, and last ADL update time also are displayed just below the color tabs. Flight color is a feature in FSM that assists the user in distinguishing between the varying statuses of each displayed flight. You can select **View>Arrival Flow Rate** to see the arrival flow rate. This thin, gray line represents the airport, FEA, or FCA arrival flow independent of the time-bin convention. For more information on the Bar Graph component, see Chapter 3: Understanding Components.

Arrival vs. Departure Bars on the Graph

The Bar Graph defaults to arrival data in Monitored Live mode. When you are viewing arrival data in FSM, the bars on the graphs are solid. You can toggle both Arrival and Departure data on and off using the Arrival Data and Departure Data options from the Bar Graph **View** menu. To view Departure Data select **View > Departure Data** checkbox (see Figure 5 - 3).

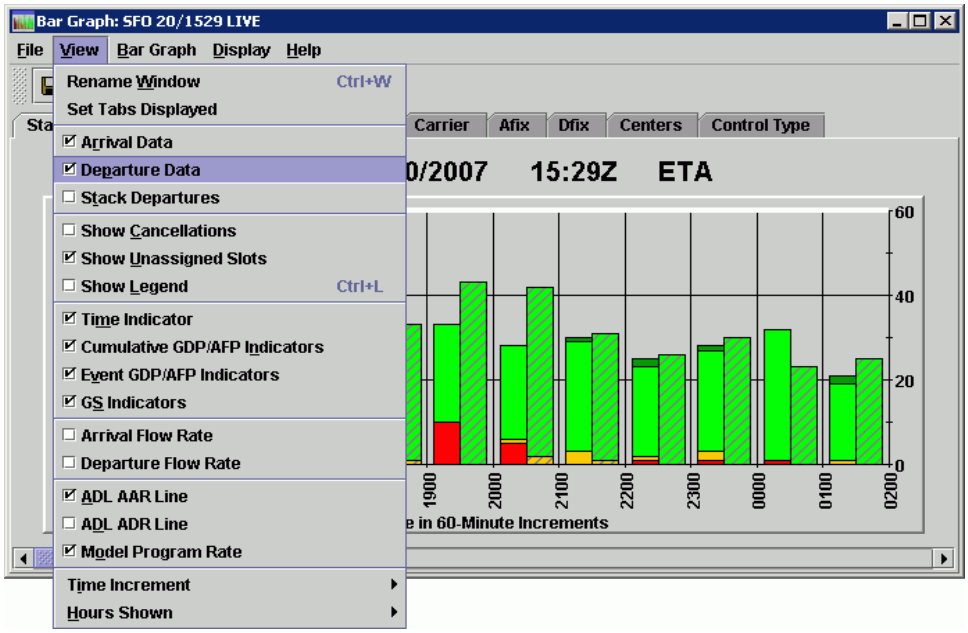


Figure 5 - 3 : Toggle Arrival and Departure Data on/off

When you select both the ***Arrival Data*** and ***Departure Data*** checkboxes from the **View** menu, the Bar Graph displays arrival and departure data simultaneously. When viewing both arrival and departure data, you see two bars for each time increment. Bars that represent arrival data are solid, while bars that represent departure data are hashed.

Note: Airspace data sets contain no departure information to display.

Selecting **View > Stack Departures** stacks departure data on top of the arrival data. The Stack Departures option creates one bar on the graph for each time increment that represents the sum of both the arriving and departing flights. The departing flights are hashed while the arriving flights are solid in color, as shown in Figure 5 - 4 below.

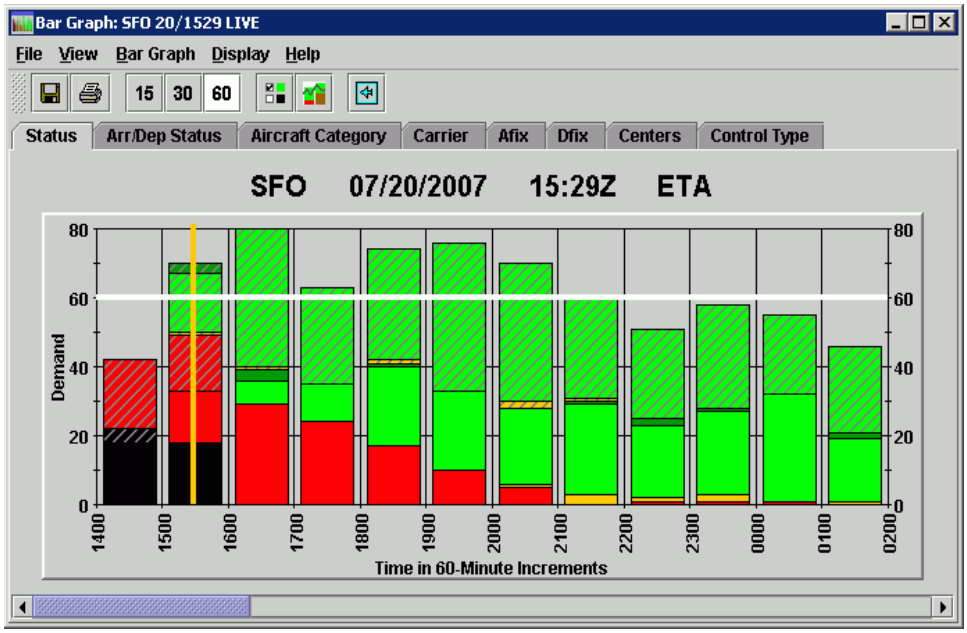


Figure 5 - 4 : Stacked Arrival/Departure Information

Original vs. Modeled Data Bars on the GDT Bar Graph

In GDT Mode the Bar Graph by default displays both solid and hashed bars. Solid bars represent the original data, while hashed bars represent modeled data. To view modeled data only, uncheck the **View > Current Data** checkbox.

Show Cancelled Flights

Cancelled flights are not displayed by default in the Bar Graph. To view cancelled flights, select the **View > Show Cancellations** checkbox. Cancelled flights are displayed in cyan at the top of each hour bar. Showing cancelled flights is useful to compare the original demand with the demand after cancellations. To hide cancelled flights, uncheck the **View > Show Cancellations** checkbox or click the Show Cancellations shortcut button.

Drop Out Flights

It is essential to understand the difference between cancelled flights that have their DO flag set to true and flights that have been rerouted and have their DO flag set to true. All cancelled flights that are included in an FCA also have their DO flag set to true. Rerouted flights have their DO flag set to true, but are not cancelled. Table 5-1 lists the differences between a cancelled flight and flight that has been rerouted out of an FCA.

Table 5-1: Cancelled and Drop Out Flights

		Flag Set	Description
Non-Controlled FCA	Cancelled (no longer operating)	The CNX flag is true (cancellation type is also set) DO flag is set to true	The flight is treated as a normal CNX. If an AFP is run, the flight would receive an ASLOT for the cancelled flight.
	Rerouted out of FCA, but still operating	DO flag is set to true	Flight is no longer considered demand at the FCA. If an AFP is run, the flight would not receive an ASLOT for the reroute flight.
Controlled FCA	Cancelled (no longer operating)	The CNX flag is true (cancellation type is also set) DO flag is set to true	The flight retains its control times and can sub into its cancelled ASLOT. Cancelled ASLOT can also be utilized during a compression.
	Rerouted out of FCA, but still operating	DO flag is set to true	The flight's control times are dropped. Therefore, the flight's previous ASLOT is not available for substitution or compression. Adaptive Compression compressed the flight to the end of the program before removing from the demand list.

For an ATCSCC TMS it is important to view how many rerouted flights, or pure Drop Outs (DO), there are during an AFP if you are considering revising or compressing the program. The number of DO flights is indicated by the salmon colored flight icons under the CNX column of the Time Line. You can also open a Flight List and add the DO and CNX fields to the List and then sort by the DO field.

Note: If an included flight is cancelled, has the DO flag, and has no control times during an AFP, this could indicate that the flight was first rerouted out of the AFP and then cancelled. The

flight's control times are removed and the DO flag is set when the flight is rerouted and then later cancelled, thus setting the CNX flag as well.

Show Unassigned Slots

Unassigned Slots are displayed by default in the Bar Graph. Unassigned Slots are displayed in white at the top of each hour bar. Unassigned Slots can only be viewed from the Arrival Status tab. To hide unassigned slots, uncheck the **View > Show Unassigned Slots** checkbox.

Show Legend

The Bar Graph Legend indicates the color key according to each respective flight status for each color tab. To view/hide the legend, click the legend button located to the right of the time-bin buttons or select **View > Show Legend** checkbox.

Changing the Time Increments Display

When the Bar Graph component opens, the default time increment to display capacity and demand information is 60-minutes. To view this information in 15-minute or 30-minute time increments, click the associated button from the Bar Graph (see Figure 5 - 5).

When you change the time increment on the Bar Graph, the demand numbers listed on the Y-axis of the graph change accordingly. For example, if the AAR of 32 displays for 60-minute time increments, a 30-minute time increment for the same information displays an AAR of 16.

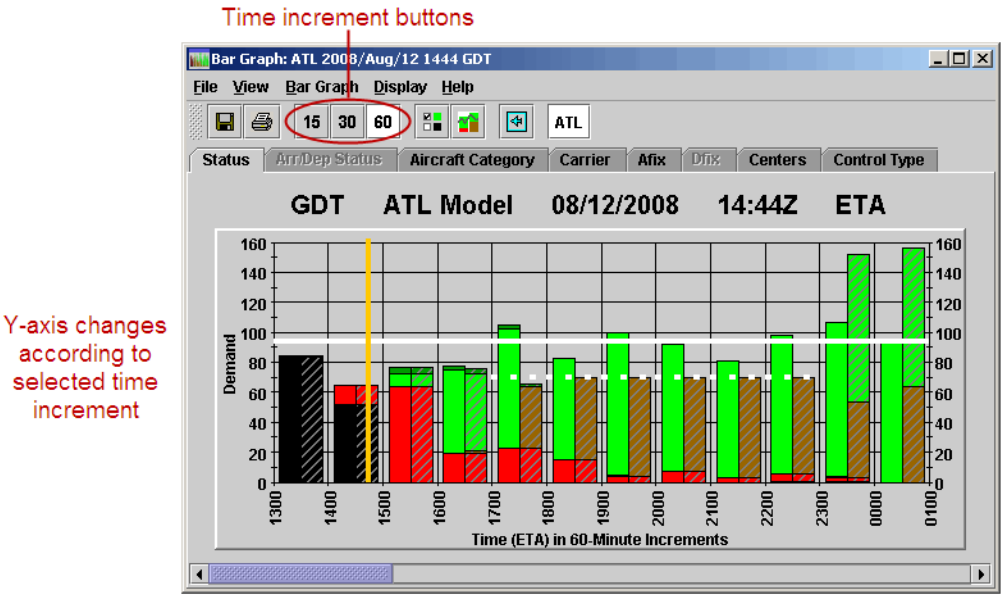


Figure 5 - 5 : Time Increment Buttons

Tracking Time

Like the FSM Time Line, the Bar Graph component also tracks time. The Time Indicator is an orange vertical line that remains fixed at the current time. To show/hide the time indicator click the **View > Time Indicator** checkbox.

By default, the Bar Graph updates with each hour. Keeping the **Bar Graph > Track Time** checkbox checked moves the bar at the turn of each hour. When you do not check the box, the bars do not move, but the orange Time Indicator still displays the current time on the graph.

Track GDP/AFP/GS Hours

You can view the hours of a GDP, AFP, or GS in effect at the data set you are monitoring by using the Bar Graph. The Bar Graph has optional program indicators that work like the Time Indicator to show the start and end times of a current GDP, AFP, or Ground Stop. The GDP (AFP) Time indicators are colored brown and the GS Time indicators are colored yellow. The program time indicators are displayed automatically when a program goes into effect at the monitored data set. To view or remove the program indicators, select **View > GDP/AFP Indicators** or **> GS Indicators**.

> **Note:** When you revise an existing program, the new start time displays as a vertical, brown, dotted line.

Arrival/Departure Flow Rate

The flow rates operate independently of the time-bin convention, enabling users to visualize arrival and departure demand as dynamic flow rates. A gray line represents the Arrival Flow Rate and a cyan line represents the Departure Flow Rate. To view or remove the arrival or departure flow rate from the Bar Graph toggle the **View > Arrival Flow Rate** or **View > Departure Flow Rate** checkboxes. The Arrival Flow Rate is displayed by default.

> **Note:** Departure Flow Rate is not applicable to Airspace data sets.

Show More/Less Hours

The FSM default displays 12 hours of data in the Bar Graph. You can specify the number of hours displayed in the bar graph to view more or less flight data. For example, you may want to view the demand in 15-minute time increments, which is difficult to see on a graph with 12 hours worth of data. To change the number of hours in the Bar Graph, select **View > Hours Shown > X** (where X = number of hours). The graph automatically updates itself to show the amount of hours you specify. Use the scroll bars at the bottom of the component to view more hours.

View the AAR and ADR

The white horizontal line that runs through the graph represents the Airport Arrival Rate (AAR) for the monitored data set. The ADL AAR, which displays by default, is a fixed AAR sent by the FAA Air Traffic Control System Command Center (ATCSCC) to advise of the number of arriving aircraft a data set can accommodate at any given interval of time. The AAR changes according to the interval of time displayed. For example, an AAR of 60 per hour is equal to an AAR of 15 per quarter hour. To toggle the ADL AAR Line on/off select the **View > ADL AAR Line** checkbox.

A cyan horizontal line runs through the Bar Graph representing the Airport Departure Rate (ADR) for the monitored airport. The ADL ADR is a fixed value sent by the FAA ATCSCC to specify the number of departing aircraft an airport can accommodate at any given interval of time (not available for FEAs and FCAs). FSM does not display the ADL ADR by default. To view the ADL ADR Line, select the **View > ADL ADR Line** checkbox. The ADR also changes according to the time increment used in the graph display. For example, an ADR of 60 per hour is equal to an ADR of 15 per quarter hour.

> **Note:** Departure information is not available in GDT Mode; therefore, ADR options are removed from the GDT Bar Graph. Also, ADR is not applicable to FEAs and FCAs and is disabled on the Bar Graph for those data sets.

Viewing the Model Program Rate

The Model Program Rate is a dashed white line that represents the current program rate for a data set currently under a TMI or the Program Rate you enter in the Specify Model Program Rate window. To toggle the Model Program Rate on/off select the **View > Model Program Rate** checkbox.

Changing the Program Rate

Only ATCSCC users can change the actual ADL AAR or ADL ADR (the rate used in Volpe ADLs which reflects real operational data). For ATCSCC users, see Chapter 3: Control Panel Component for details on how to modify AAR/ADR rates. Other users can *model* the effects of various Program Rates by using the Model function.

Before modeling the Program Rate, ensure that you select the **View > Model Program Rate** checkbox, otherwise your modeled rates are hidden from view. If the ADL AAR/ADR displays on the Bar Graph, the dashed line (for modeling) may be displayed in the same position as the ADL AAR.

> **Note:** ADL ADR is not applicable to FEAs and FCAs and is therefore disabled.

There are two methods to change your modeled Program Rate:

1. Use your cursor to drag the dashed line in the graph to the desired rate. The dashed line moves to the Program Rate you specified. Only the portion of the line to the

right of the cursor moves. Any portion of the line to the left of your cursor should remain in the same position as you drag the line to a new Program Rate. Moving the Program Rate from the graph also automatically fills in the Specify Model Program Rate window.

2. Select **Bar Graph > Model Program Rate > Specify**. The Specify Model Program Rate window displays with the current Program Rate filled in for any existing program. Enter the new Program Rate and click **OK**. The new rates are displayed on the Bar Graph.

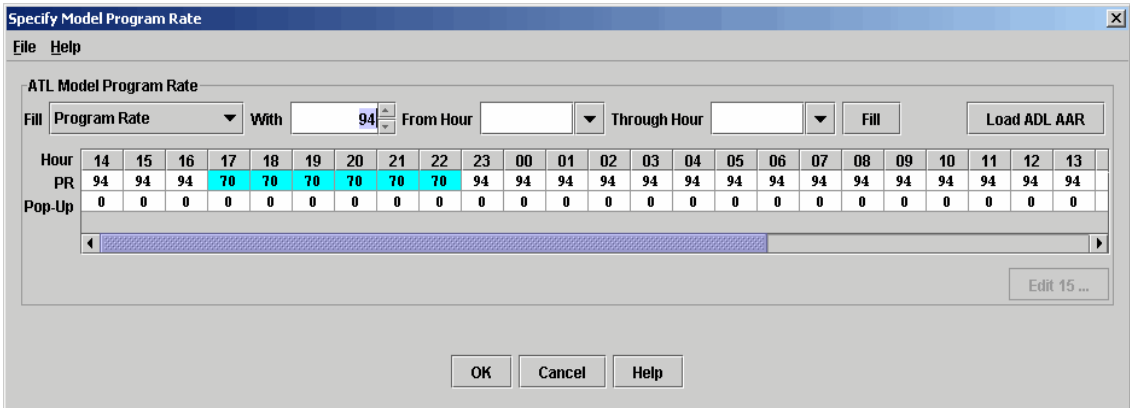


Figure 5 - 6 : Specify Model Program Rate Window

To restore the Model Program Rate to its original values, select **Bar Graph > Model Program Rate > Reset**. You can also click **ADL AAR** from the Specify Model Program Rate window to reset the rates to the current ADL value. The Model line should no longer be displayed behind the ADL AAR rates.

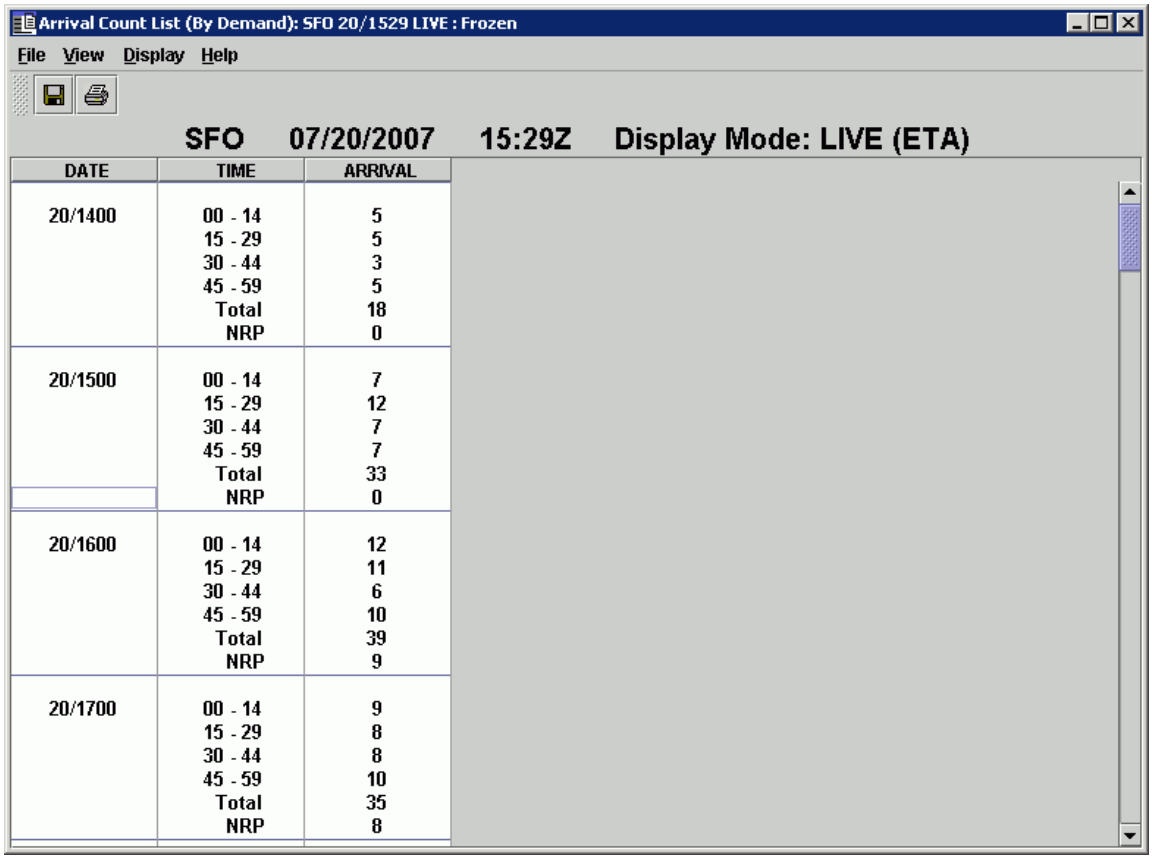
Demand Counts

Count Lists give you the option to check the flights that make up arrival and/or departure demand for each hour. You can open all Count Lists from the FSM Control Panel component. There are eight count list reports:

- By Demand
- By Center
- By Aircraft Category
- By Aircraft Class
- By Arrival Fix
- By Departure Fix
- By User
- By Unassigned Slot

To view a demand count for a particular monitored airport, FEA, or FCA from the active data set select **Reports > Counts >** [By report type] (see Figure 5 - 7). If you have not selected a data set, FSM displays an error message that indicates “No Current Data Set” is

selected. For more information on Count List reports see Chapter 21: Understanding and Using FSM Reports.



DATE	TIME	ARRIVAL
20/1400	00 - 14	5
	15 - 29	5
	30 - 44	3
	45 - 59	5
	Total	18
	NRP	0
20/1500	00 - 14	7
	15 - 29	12
	30 - 44	7
	45 - 59	7
	Total	33
	NRP	0
20/1600	00 - 14	12
	15 - 29	11
	30 - 44	6
	45 - 59	10
	Total	39
	NRP	9
20/1700	00 - 14	9
	15 - 29	8
	30 - 44	8
	45 - 59	10
	Total	35
	NRP	8

Figure 5 - 7 : Count List By Demand

6: Viewing Flight Information

FSM allows you to monitor traffic flow arriving at and departing from an airport and flights through an FEA or FCA, using several different components. The most obvious sources to view general traffic flow are the FSM Time Line and Bar Graph components. In addition to viewing the overall traffic flow of an airport, FEA, or FCA, you can access individual flight information using FSM. This chapter describes various ways that FSM allows you to view general traffic flow and flight information when making traffic management and operational decisions.

The FSM Time Line and Bar Graph components open by default to the Status tab for the monitored data set. The Status tab shows flights colored by arrival status. To view departure information, select the Arr/Dep Status tab in Time Line and Bar Graph components. FSM displays arrival and departure information depending on whether you select the Arrival and/or Departure Data checkboxes from the **View** menu.

> **Note:** Departure data is not available for Airspace data sets.

Roll-Over Events

The roll-over feature is active in the Monitored Live mode Time Line and Bar Graph components, and the GDT mode Data Graph component. Where available, rolling your cursor over various features, gives you additional pop-up information.

1. Time Line – Rolling your cursor over a flight icon, causes a pop-up window to display the flight's ACID, ORIG, DEST, ETD, and ETA or ENTRY (see Figure 6 - 1).

Figure 6 - 1 : Rollover Flight Icons in the Time Line Component

2. Bar Graph – To view a flight count for any hour, roll your cursor over any bar within the Bar Graph and the respective number of flights displays for the status color your cursor is over (see Figure 6 - 2). When you bring the cursor to the top of each column, the total number of flights for that column or hour displays in the Bar Graph. If you roll the cursor near the top of a bar, the total number of flights for that hour displays. You can use the same method to find the Airport Arrival Rate (AAR). Roll the cursor over the AAR line and the rate displays.

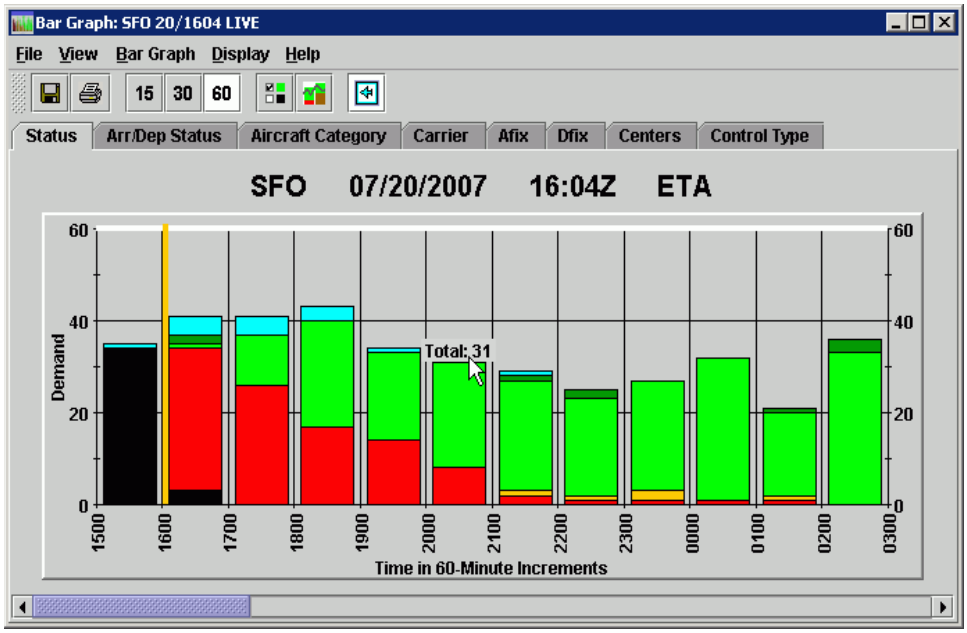


Figure 6 - 2 : Bar Graph Count Rollover

3. GDT Data Graph – Rolling your cursor over any line in the Data Graph shows you the delay statistic count for the colored line. This line reflects the selected criteria of the scenario being monitored or modeled. Figure 6 - 3 illustrates the 1st tier option selected with all the corresponding delay statistics in the legend. The roll-over shows a maximum delay of 210 minutes.

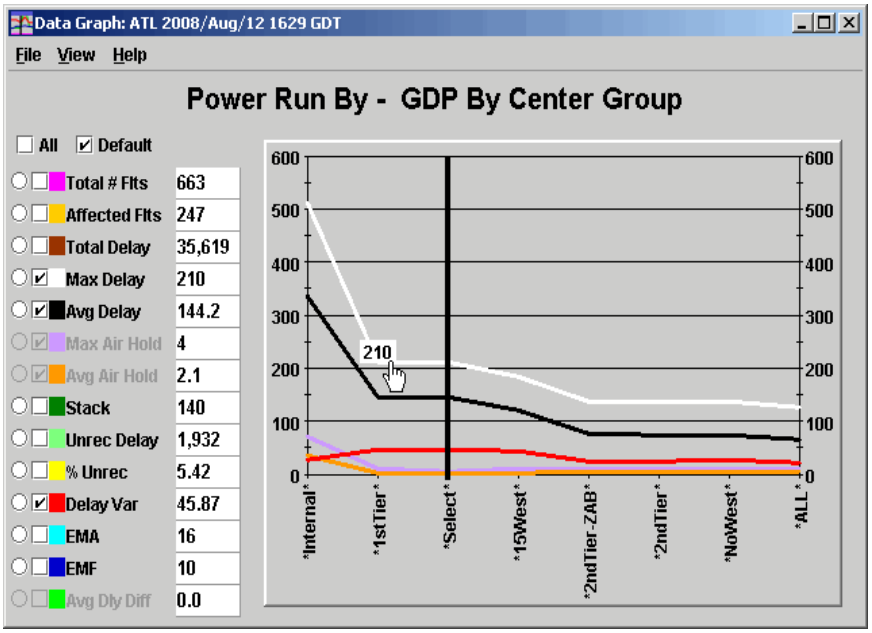


Figure 6 - 3 : Data Graph Delay Statistic Rollover

Right-Click Capabilities

The right-click feature is active in Time Line, Map, Flight List, GDT Data Graph, and GDT Setup components.

1. Time Line – Right-clicking a flight icon in the Time Line shows you five additional options for that flight: **Flight Info**, **Flight Detail**, **EDCT Check**, **EDCT Update**, and **ECR**.

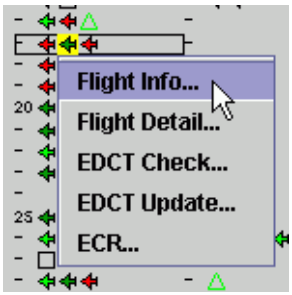


Figure 6 - 4 : Time Line Right-Click Feature

- Selecting **Flight Info** displays the Flight Info window (see Figure 6 - 5), which contains some general ADL information for a flight, including Flight ID, Aircraft Type, origin airport, destination airport, ETD, ENTRY (FEA, FCA only), EXIT (FEA, FCA only), ETE, ETA, Ctl Element, CTD, CTA, Delay Flag, Cancel Flag, and DO indicator when applicable. Double-clicking a flight icon in the Time Line also opens the flight's Flight Info window.

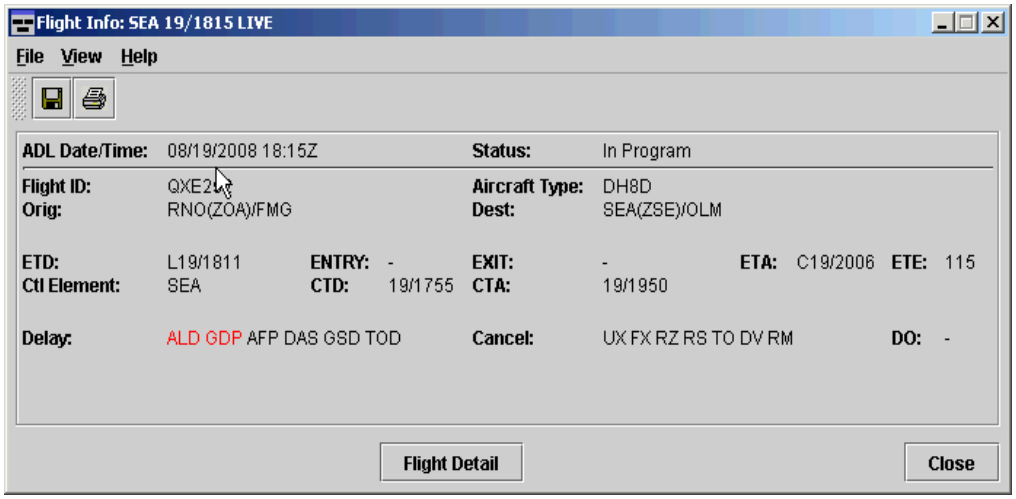


Figure 6 - 5 : Flight Info Window

- Selecting **Flight Detail** opens the Flight Detail window as shown in Figure 6 - 6. The Flight Detail window contains all the ADL information for that flight.

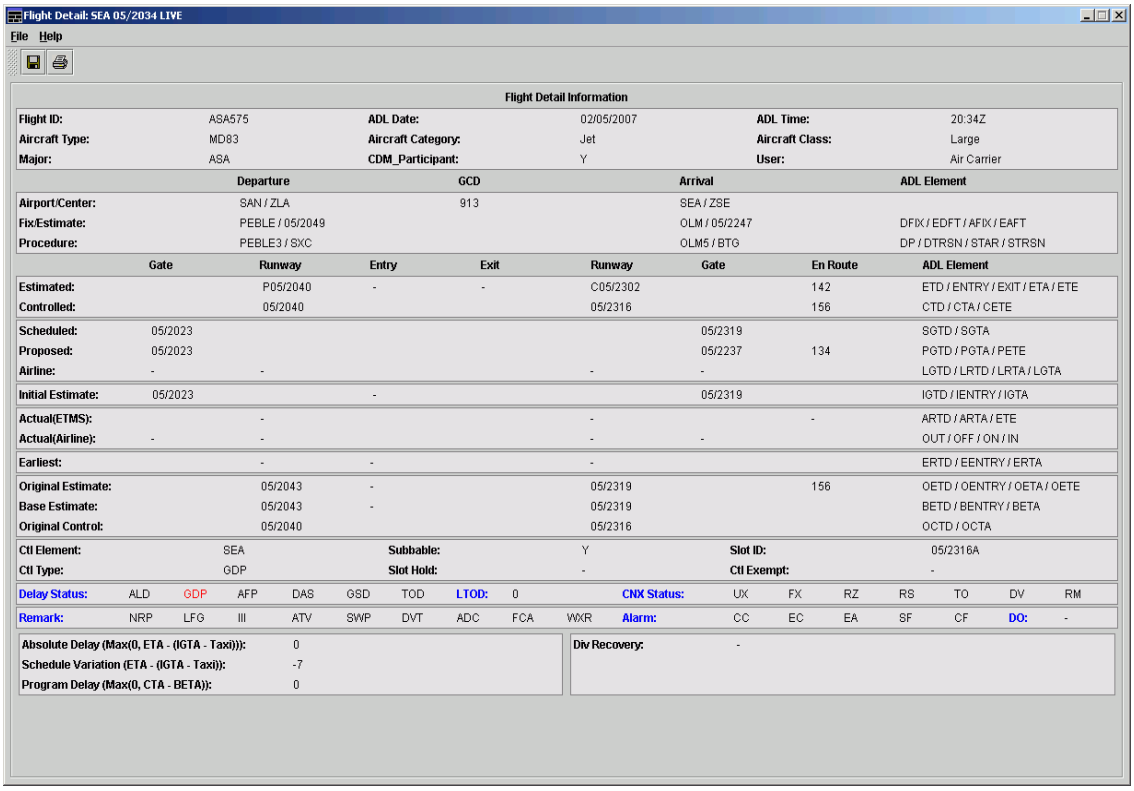


Figure 6 - 6 : Flight Detail Window

- Selecting **EDCT Check** or **EDCT Update** opens the EDCT Check or EDCT Update windows. These EDCT widows allow you to check a flight's EDCT or Update a flight's EDCT.

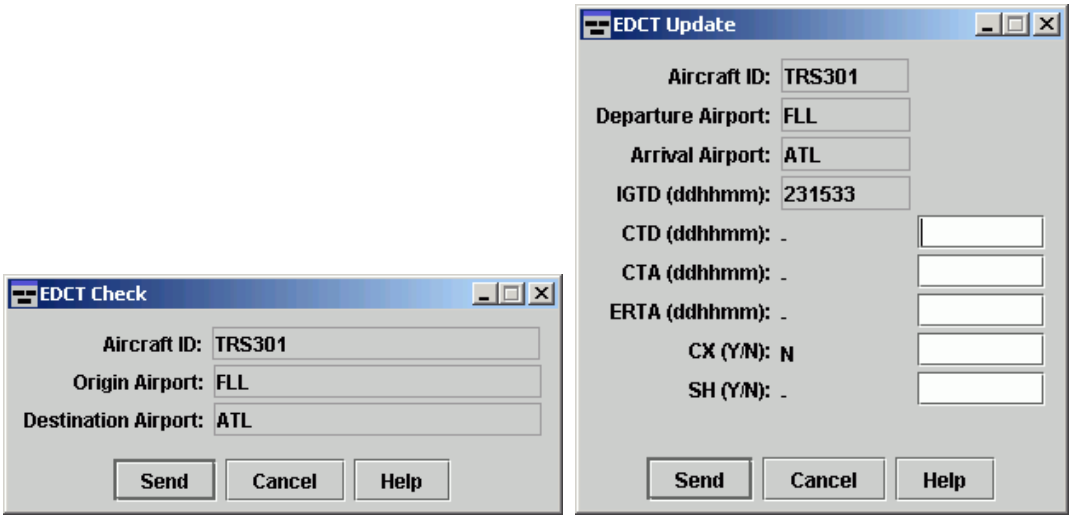


Figure 6 - 7 : EDCT Check and Update Windows

Note: The EDCT Check and EDCT Update options are available only for specialists at the ATCSCC.

- Selecting **ECR** opens the EDCT Change Request (ECR) component. If the selected flight from the time is a controlled flight, the flight information automatically fills in the ECR window. Refer to Chapter 13 for more information.

2. Bar Graph – Right-clicking a bar within the Bar Graph component gives you a menu with the appropriate selections from the legend for that tab. When you select **Open Flight List For** and an option from the menu, FSM creates a flight list filtered to show the flights that meet those criteria. For tabs with dynamic legends (legend options that change when data changes) like the Carriers tab, the right-click menu reflects the options available at that moment on the legend.

   Note: Selecting an option that has no flights associated with it opens an empty flight list. If you uncheck a checkbox on the legend, that option will not be displayed in the right-click menu.

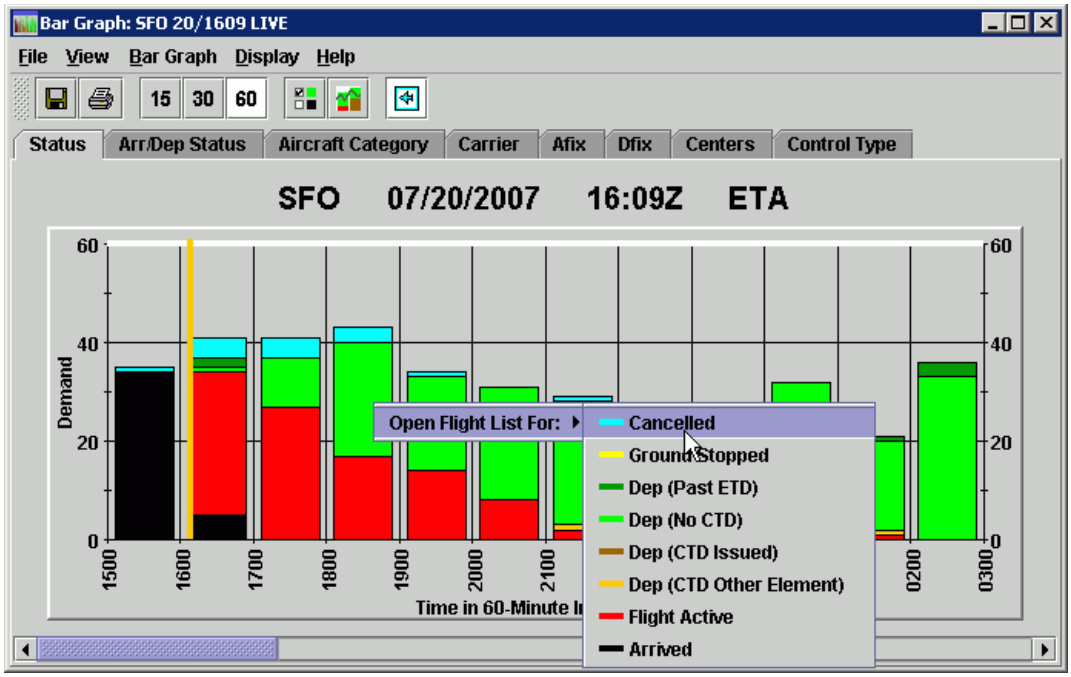


Figure 6 - 8 : Example of Bar Graph Right-Click Menu

3. Map – Right-clicking anywhere within the Map component gives you two options: **Default Zoom** or **Undo Zoom**.

   - **Default Zoom** takes you back to the initial or default zoom setting for the Map. **Undo Zoom**, undoes the last zoom command. The GDT Map right-click functionality is the same as the Map.

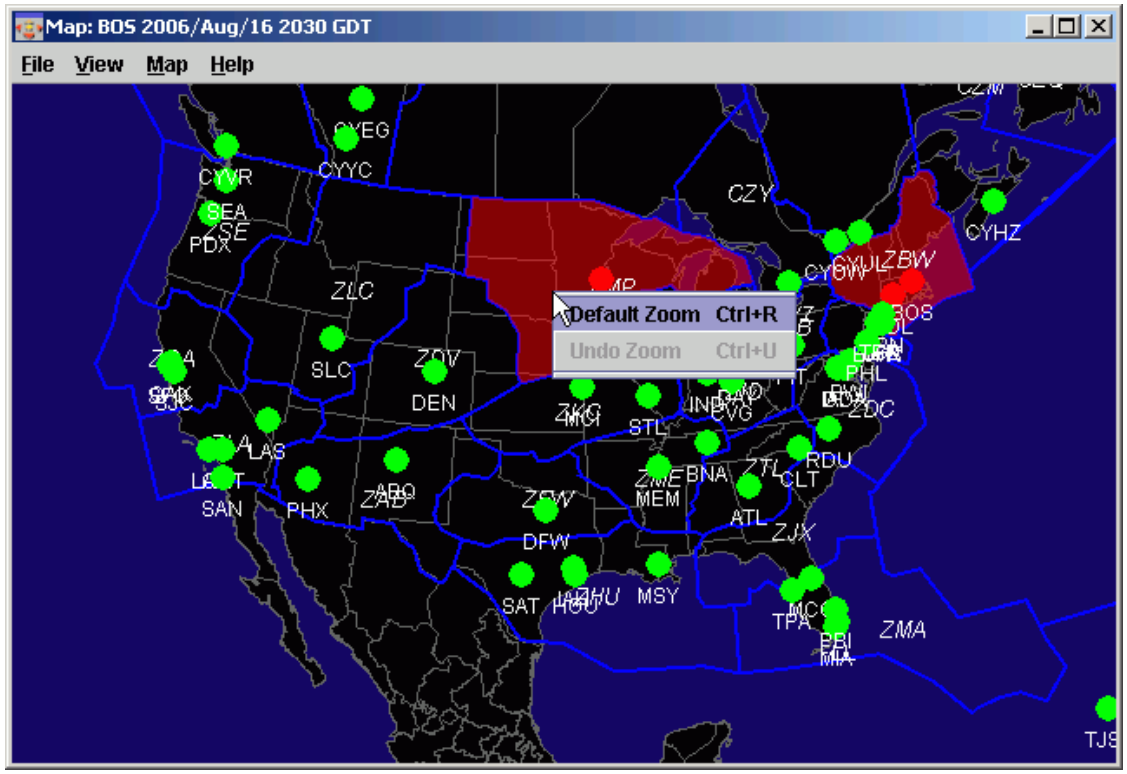


Figure 6 - 9 : GDT Map Right-Click Zoom Pop-Up Menu

- In addition, after you select an airport, FEA, or FCA on the Map, you can right-click the selected airport, FEA, or FCA to view more options to open the airport in other components. You have the option of showing flights in the Time Line, Bar Graph, Flight List, or View Element (FEA, FCA only) components (see Figure 6 - 10). You can open only one component at a time from the Map component.

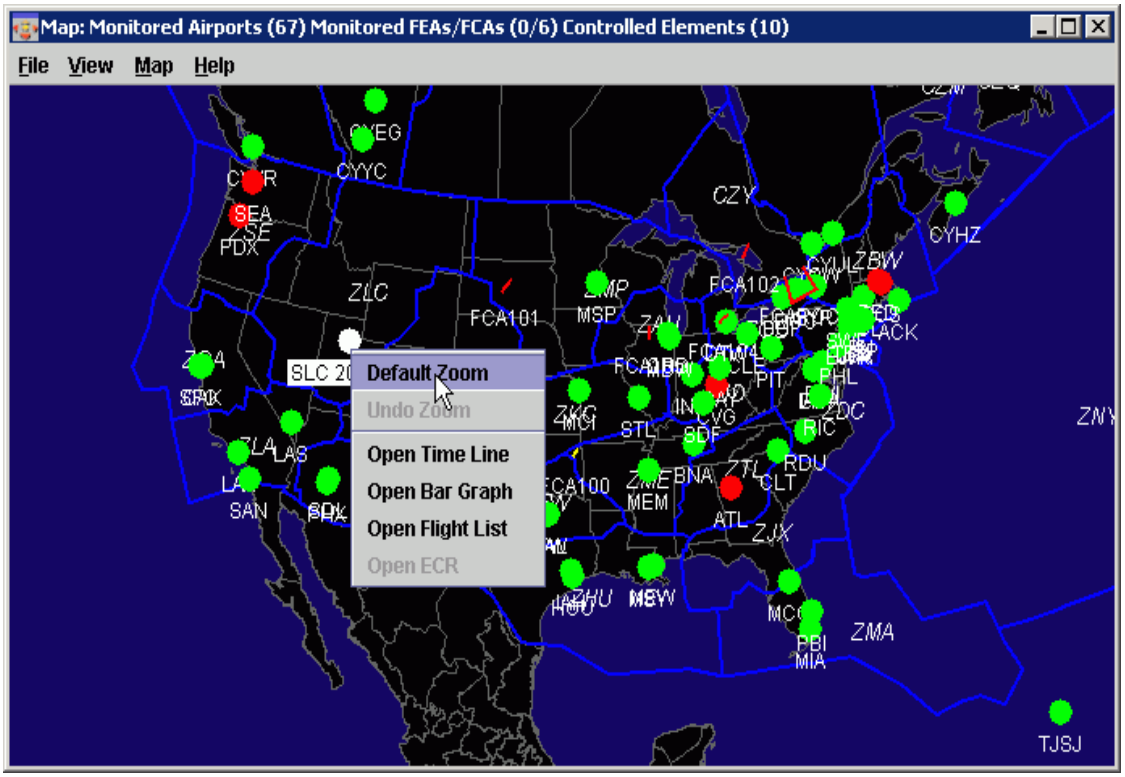


Figure 6 - 10 : Map Right-Click Selected Airport, FEA, or FCA

FSM Flight Coloring

Displaying information by flight color is a feature in FSM that assists the user in distinguishing between the varying statuses of multiple flights. Flight color options are displayed as tabs on the Time Line and Bar Graph components in all data modes. The following 16 coloring options are available in FSM:

1. Status
2. Arrival/Departure Status
3. Aircraft Category
4. Aircraft Class
5. Carrier
6. Arrival Fix
7. Departure Fix
8. Exemption
9. User
10. Alarm Status
11. Centers

12. Distance
13. Substitution Status
14. CDM Participation
15. Program Delay
16. Control Type

The following sections provide a brief description of the 16 coloring options. For more information on tab options see Chapter 3: Understanding Components. The coloring schemes are documented based on FSM's default settings. You can configure all coloring schemes. Within the components you can select **View > Show Legend** at any time to display the color legend associated with the active color tab (see Figure 6 - 11).

You can view cancelled flights and dropped out flights by selecting **View > Show Cancellations**. Cancelled flights are colored cyan, dropped out flights are colored salmon. The examples below show the Bar Graph component, but the Time Line component works in the same manner.

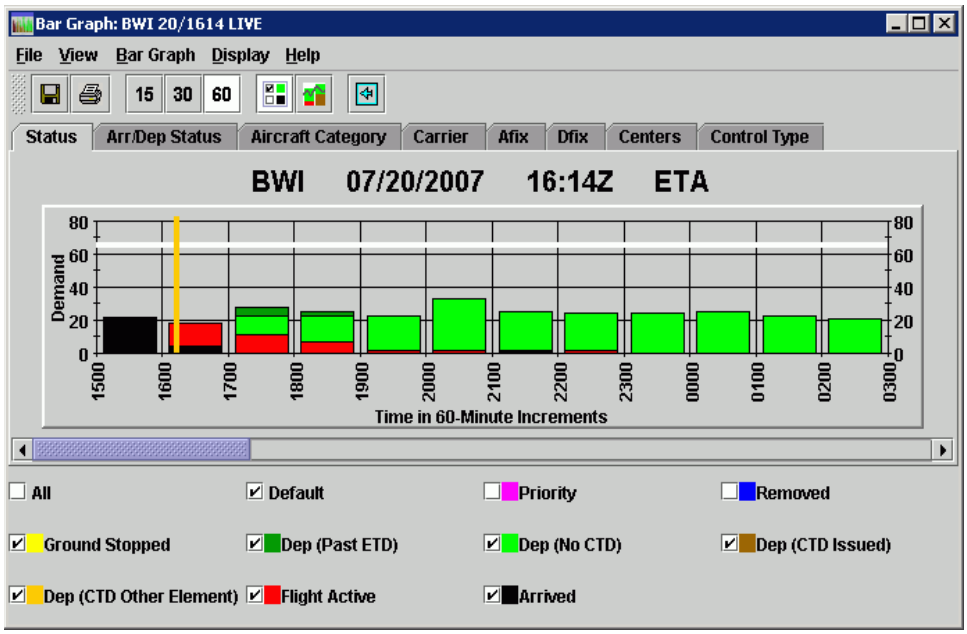


Figure 6 - 11 : Bar Graph with Legend

Color By Status

The *Status* tab colors flights in the Time Line and Bar Graph according to their arrival status at their destination airport, FEA, or FCA. To remove a color associated with a flight status in the Time Line or Bar Graph uncheck that status color checkbox in the component legend. The status data remains grayed-out until you select the checkbox again to restore the status color back to the graph (see Figure 6 - 12).

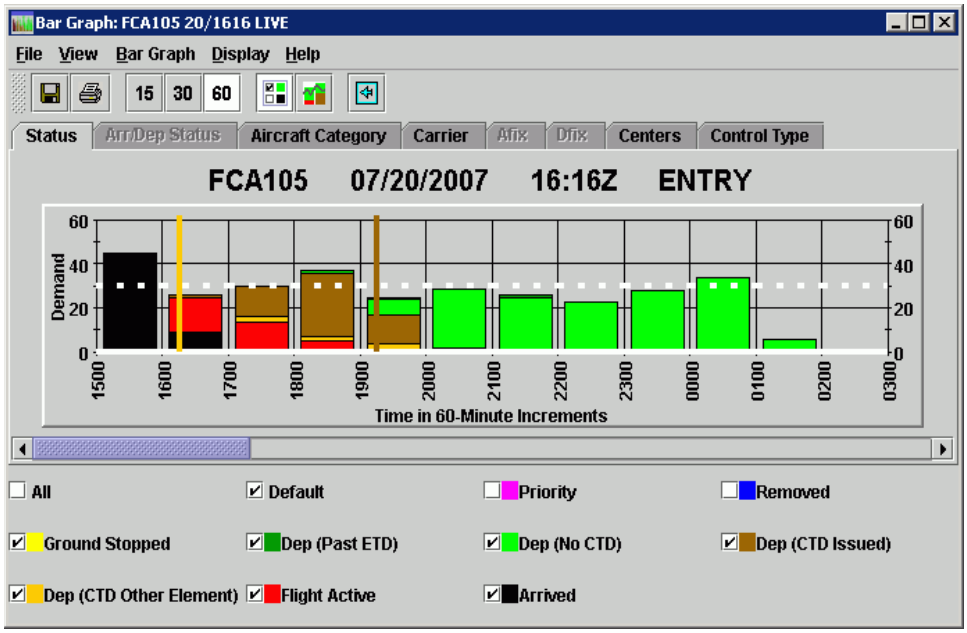


Figure 6 - 12 : Bar Graph with Departing Flights not Displayed

Table 6-1 displays FSM default coloring for Status.

Table 6-1: Status Tab Coloring

Flight Status	Definition	Default Color
Dep (No CTD)	Flights waiting to take off without delay. No Estimated Departure Clearance Time issued.	Light Green
Dep (CTD Issued)	Waiting to take off without delay. Estimated Departure Clearance Time issued.	Brown
Dep (Past ETD)	Flights which have passed their Estimated Departure Time and remain on the ground.	Dark Green
Arrived	Flights have arrived at their destination airport.	Black
Flight Active	Flights currently en route to their destination airport	Red
Cancelled	Flights that do not fly because they are cancelled.	Cyan
Ground Stopped	The flight is currently in a Ground Stop program.	Yellow
Removed	The ATCSCC CSA removed the flights.	Blue
Priority	Flights designated as Lifeguard (LFG) or Diversion Recovery (DVT) flight. This coloring applies only to flights that are not active and overrides all other colors when selected.	Pink
Unassigned Slots	Unassigned slots allocated by ETMS during a GAAP GDP.	White
Dep (CTD Other Element)	Flights that are controlled by another Control Element and have not departed	Orange

You can view the removed flights in the Bar Graph by Selecting **View >Show Cancellations**, clicking the legend button, and selecting ***Removed***. The dark blue segment displays in the Bar Graph. You can deselect the other checkboxes to see the removed flights more clearly.

Note: If you do not select ***Removed*** after selecting **View >Show Cancellations**, the RM cancelled flights display cyan like all other cancelled flights.

Color By Arrival/Departure

The Arr/Dep Status tab allows you to quickly view flights that are arriving at the monitored airport versus flights that are departing the monitored airport. This tab is disabled for FEAs and FCAs. Arriving flights are colored light green while departing flights are blue.

Color By Aircraft Category

The Aircraft Category tab colors flights according to their equipment classification. Table 6-2 displays FSM default coloring for Aircraft Category.

Table 6-2: Aircraft Category Coloring

Equipment Type	Default Color
Propeller	Black
Turbo	Green
Jet	Red
Unknown	White

Note: FSM colors flights based on their equipment types. FSM does not classify equipment types.

Color By Aircraft Class

The Aircraft Class tab colors flights according to their standardized weight class, determined by the FAA. Table 6-3 shows FSM default coloring for Aircraft Class.

Table 6-3: Aircraft Class Coloring

Equipment Type	Color
Small	Black
Large	Green
Heavy	Red
Jumbo	Yellow
Unknown	White

Color By Carrier

The Carrier tab colors flights by airline carrier. In the Carrier tab, select **View > Show Legend** to show the color assigned to each carrier.

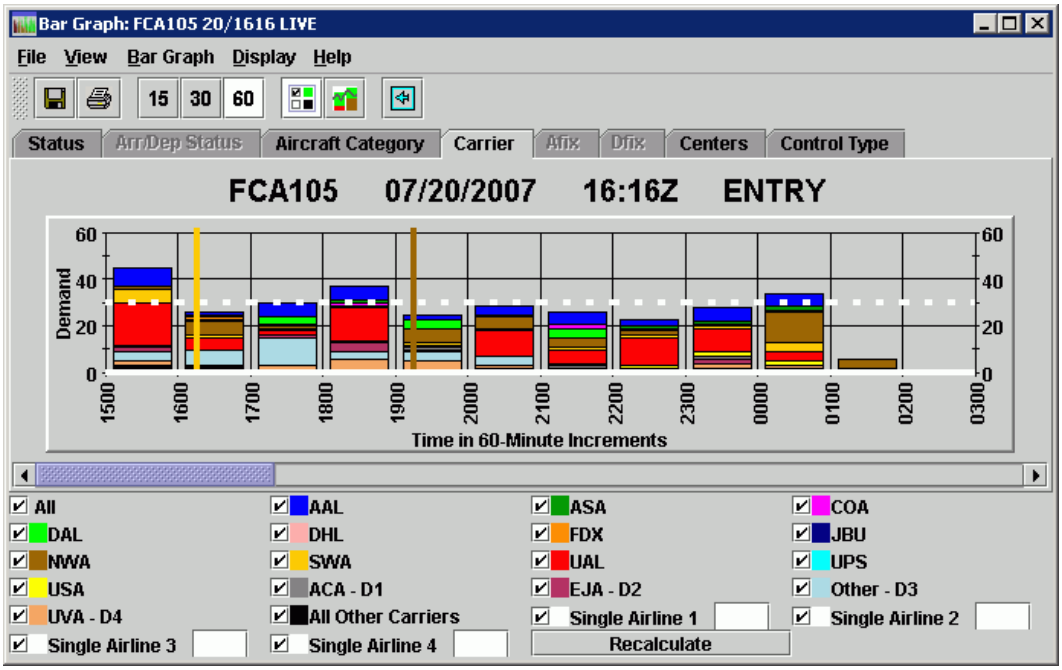


Figure 6 - 13 : Bar Graph Color by Carrier

Uncheck the carrier checkbox in the color legend if you do not want to view a particular carrier in the component. The carrier data remains grayed-out until you select the checkbox again to restore the carrier color back to the component.

Typing a single airline identifier into one of the Single Airline text boxes lets you view the flights of a major carrier without viewing its sub-carrier flights. Selecting ***All*** displays all listed carriers.

The list of static carriers displayed in the Carrier tab is based on the opened data set. See Table 6-4 for a list of static carriers and predefined colors for each country. For all FEA/FCAs, regardless of their location, the US color scheme is displayed. For example, if you open a US airport or FEA/FCA, the Carrier tab displays the US scheme by default. If you open a Canadian airport, the Carrier tab displays the Canadian scheme by default. Note that the Carrier tab has replaced the Carrier_NC tab. If you open a Mexican airport, the

Carrier tab displays the Mexican scheme by default. The static carriers are listed below with the predefined colors.

Table 6-4: Static Carrier Coloring

US Defaults		Canadian Defaults		Mexican Defaults	
Carrier	**Default Color**	**Carrier**	**Default Color**	**Carrier**	**Default Color**
AAL	Royal Blue	AAL	Orange	AAL	Royal Blue
ASA	Dark Green	ACA	Dark Green	AMX	Dark Green
COA	Magenta	CJA	Royal Blue	COA	Magenta
DAL	Light Green	COA	Brown	DAL	Light Green
DHL	Pink	GGN	Light Green	MXA	Pink
FDX	Orange	GLR	Pink	CHP	Orange
JBU	Navy Blue	JZA	Red	SER	Navy Blue
NWA	Brown	PCO	Magenta	TAO	Brown
SWA	Light Orange	SSV	Light Orange	UAL	Red
UAL	Red	UAL	Yellow	USA	Yellow
UPS	Cyan	WJA	Cyan	AIJ	Cyan
USA	Yellow				

In addition, FSM dynamically determines a list of additional top majors displaying in the current data set being viewed. FSM calculates the top four dynamic carriers based on the total number of flights at the time of processing for that data set. If there are more than four dynamic carriers, FSM assigns the top four a dynamic carrier color and groups all others under the “Other” label. Based on the configuration file, a carrier must have at least five flights in the data set to qualify for the dynamic carrier coloring. If a data set has less than four dynamic carriers, FSM does not display the dynamic colors that it cannot assign. Similar to the static carriers display, FSM lists the dynamic carriers in alphabetical order beginning after USA.

Table 6-5: Dynamic Carrier Coloring

Carrier	Default Color
D1	Dark Gray
D2	Maroon
D3	Light Blue
D4	Sand

Figure 6 - 14 illustrates the Carrier tab for BOS. The four dynamic carriers for BOS when the data set was opened were BSY, EJA, KAP, and TRS.

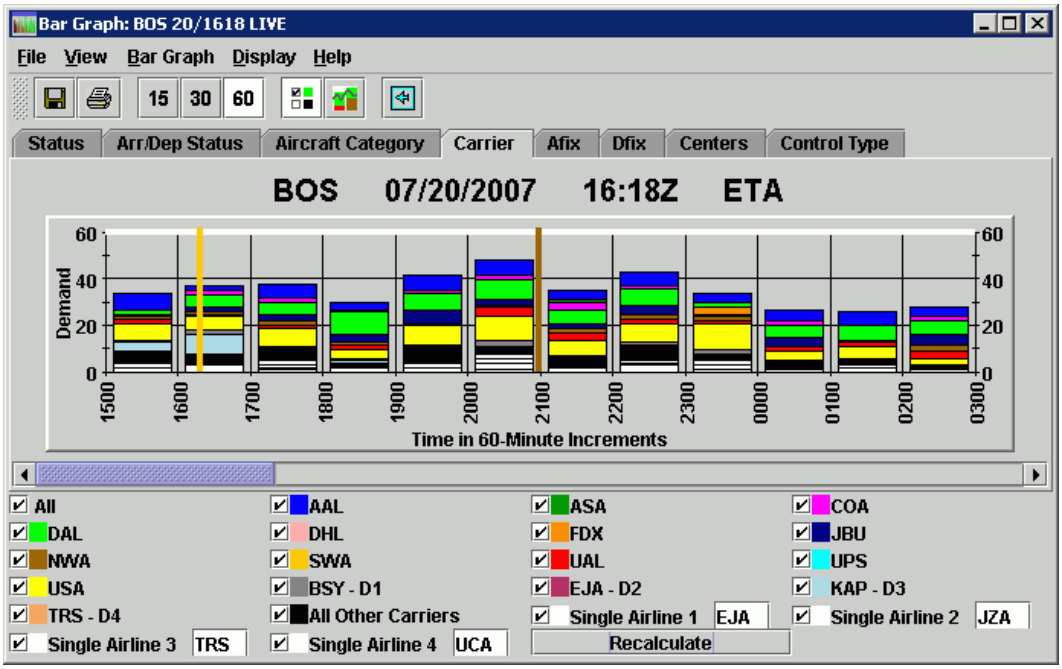


Figure 6 - 14 : Dynamic Carriers Display

If you are an airline user, when you select the Carrier tab, the FSM default color is for the flights of your carrier. Your carrier abbreviation displays in the Single Airline text box so that you immediately view your carrier's flights. For major carriers, the box next to the carrier name is selected and the carrier abbreviation displays in the Single Airline box. This allows you to differentiate between the major and any of your sub-carriers. Because of flight filtering, non-FAA operators cannot view any other carriers' flights. They can only view those flights belonging to their own major or sub-carriers. All other flights are colored black.

If you are an FAA user, the FSM default is to have all carriers selected for coloring. You can add additional carrier or sub-carrier codes in one of the ***Single Airline*** text boxes in the Carrier legend. When you select a major carrier to color, the major carrier and its sub-carriers are all the color of its Major.

Recalculate Dynamic Carriers

FSM calculates dynamic carriers based on the total number of flights at the time of processing when you first open the Bar Graph. FSM does not update the dynamic list of carriers with each ADL update. Therefore, if you would like to get an updated dynamic carrier list for the Bar Graph, you must click **Recalculate** from the Carrier's tab color legend. FSM updates the list of dynamic carriers based on the current data.

Color By Centers

The Centers tab allows you to quickly locate flights that departed from one or several centers. By default, FSM shows all centers. To color flights departing from a specific group of centers, you can either select a tier level from the legend's dropdown menu or you can select a center or group of centers. When you select one of the options from the dropdown menu, the centers not associated with that particular group are disabled, leaving only the selected centers colored in red. You can also enter a center in the ***Manual*** text box if it is not already a center choice. Selecting the All option in the dropdown menu restores all centers back to the graph. The figure below in an example of 1st Tier centers plus ATL selected for BOS.

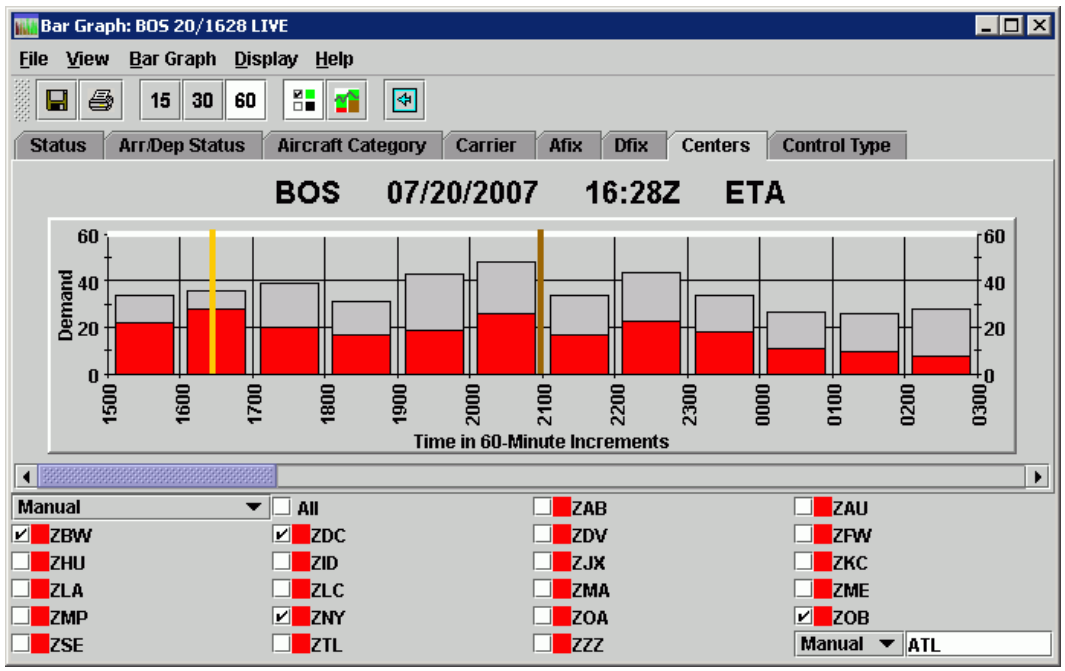


Figure 6 - 15 : Bar Graph Colored by Centers

The ***All*** checkbox is selected by default. Uncheck ***All*** to deselect all the centers for the Bar Graph display. If you uncheck one center from the legend, FSM also unchecks ***All***.

Color by Arrival Fix

The Arrival Fix (AFIX) tab colors flights according to which arrival fix the flight is approaching for the arrival airport. Arrival Fix names vary for each airport. FSM automatically generates the monitored airport's arrival fix names and assigns a color to each fix in the legend. These colors are configurable as is the order in which the fixes are displayed. For more information on fix coloring and fix order, see Chapter 3: Understanding Components. For those flights with an unknown arrival fix, FSM assigns that fix a value of "Other." This tab is disabled for FEAs and FCAs.

> **Note:** All flights departing the monitored airport are colored as "Other" because their arrival fix is at another airport.

Color by Departure Fix

The Departure Fix (DFIX) tab colors flights according to which departure fix the flight has departed over at its origin airport. Departure fix names vary for each airport. FSM automatically generates the monitored airport's top departure fix names and assigns a color to each fix in the legend. These colors are configurable as is the order in which the fixes are displayed. For more information on fix coloring and fix order, see Chapter 3: Understanding Components. For those flights with a departure fix that is other than the top departure fix names listed or that is unknown, FSM assigns that flight a value of “Other.”This tab is disabled for FEAs and FCAs.

Color by Exemption

The Exemption tab colors flights according to their exemption status in a TMI (see Table 6-6).

Table 6-6: Color by Exemption Status

Color	Exemption Status	Description
Black	Flts Excluded	Flights that are not controlled by the element and not subject to EDCT compliance.
Green	Flts Exempted	Included flights that have a priority over Non Exempted flights of available arrival slots.
Red	Flts Not Exempted	Included flights that are subject to departure delay.

Color By User

The User tab colors flights according to their user status. User status describes the primary function of that flight. This information is sometimes masked from airline users because of flight filtering. For example, military flights are not listed as such. Table 6-7shows FSM default coloring for User status.

Table 6-7: User Coloring

User Status	Color
Air Cargo (F)	Blue
Carrier (C)	Magenta
General Aviation (G/A)	Green
Military (M)	Brown
Air Taxi (T)	Orange
Other (O)	Cyan
Unknown (U)	Red

Color by Alarm Status

The Alarm Status tab allows you to distinguish between compliant flights and those that have at least one non-compliant alarm set (CC, EC, EA, SP, and CF). Flights that have at least one non-compliant alarm triggered are colored in red; compliant flights are colored in black (see Table 6-8).

Table 6-8: Alarm Status

Color	Alarm Status
Red	Flight with alarm set
Black	Other flights (no alarm set)

Color by Distance

The Distance tab allows you to display flights based on their distance from the airport. By default, all flights are displayed in the Distance tab. You may select from 200-mile increments up to 2,400 miles from the airport or FEA/FCA. You may also choose to display flights with a distance greater than 2,400 miles. Flights that are within the selected distance are displayed in red.This tab is disabled for FEAs and FCAs.

Color by Substitution Status

The Substitution Status tab distinguishes between flights that may be substituted and those that may not. Flights that may have their slot substituted with that of another flight are colored in green. Flights that may not be substituted are colored in red (see Table 6-9).

Table 6-9: Color by Substitution Status

Color	Program Delay
Green	Subbing Flights
Red	Non-Subbing Flights

Color by CDM Participation

The CDM Participation tab colors flights based on whether they are CDM participants. CDM participants are colored in green while those that do not participate in CDM are colored in red (see Table 6-10). This information may be useful in determining how accurate the flight data is that you are viewing.

Table 6-10: Color by CDM Participation

Color	CDM Participation Status
Green	Participant
Red	Non-participant

Color by Program Delay

The Program Delay tab colors flights based on the number of minutes that they are delayed by a program (see Table 6-11). Flights that are not controlled are colored in white. Flights controlled by an element other than the displayed element are colored orange.

Table 6-11: Color by Program Delay

Color	Program Delay
White	Not Controlled
Orange	Controlled Other Element
Green	0-29 minutes
Blue	30-59 minutes
Cyan	60-89 minutes
Gray	90-119 minutes
Pink	120-149 minutes
Yellow	150-179 minutes
Maroon	180-209 minutes
Magenta	210-239 minutes
Red	More than 240 minutes

Color by Control Type

The Control Type tab helps you monitor TMIs by showing you the control types that flights are receiving. For example, when flights receive a Control Type of DAS, formerly FA, during a GAAP GDP this is because there were no Unassigned Slots available and the flights were given CTAs equal to each flight's ETA + Delay Limit. Monitoring the number of flights receiving a control type of DAS can help with decision making when considering if a revision, extension, or transition to a traditional GDP is needed. There are nine different control types displayed in the Control Type tab (see Table 6-12).

Table 6-12: Control Type Tab Coloring

Control Type	Definition	Color
ETMS-Others	Flights that have a control type of DAS or RCTL. During a GAAP GDP, a DAS control type indicates that a pop-up flight was assigned the Delay Limit because there were no available Unassigned Slots.	Orange
Bridge	Flights that have a control type of BRG, ABRG and SBRG. Flights that were bridges due to a successful SCS request	Purple

Control Type	Definition	Color
GAAP	Flights that have a control type of GAAP, which means that the flight was pop-up flight that was given an Unassigned Slot during a GAAP GDP or AFP.	Pink
Not Controlled	Flights that are not active AND not controlled.	Green
FAA	Flights that have a control type of UPD or ECR. Flights that have had a change in their control times due to an EDCT Update or SCS request (FAA initiated).	Dark Green
Flight Active	Flights that are airborne.	Red
Program (GDP/GS)	Flights that have a control type of GDP, GS, AFP, COMP, or BLKT. Flights that are controlled by the Element you are currently viewing	Brown
NAS User	Flights that have a control type of SUB or SCS. Flights that have had any change of control times due to an Airline or GA User substitution or a SCS request (airline initiated).	Light Blue
Arrived	Flights that have already arrived at the monitored element coloring takes precedence over other control type coloring.	Black
ETMS-ADPT	All flights affected by the ETMS Adaptive Compression process	Dark Blue

Viewing Information in the Time Line Component

From the Time Line, you can view flights arriving at and departing from the monitored airport, as well as open arrival slots, unassigned slots, cancellations and drop outs. The selected tab in the Time Line indicates the type of data displayed. The tab coloring options are the same as described above for the Bar Graph in Flight Coloring options. Directly above the tab options, the Time Line lists the airport, FEA, or FCA being monitored, as well as the date and ADL time as shown in Figure 6 - 16. For more information on the Time Line component, see Chapter 3: Understanding Components.

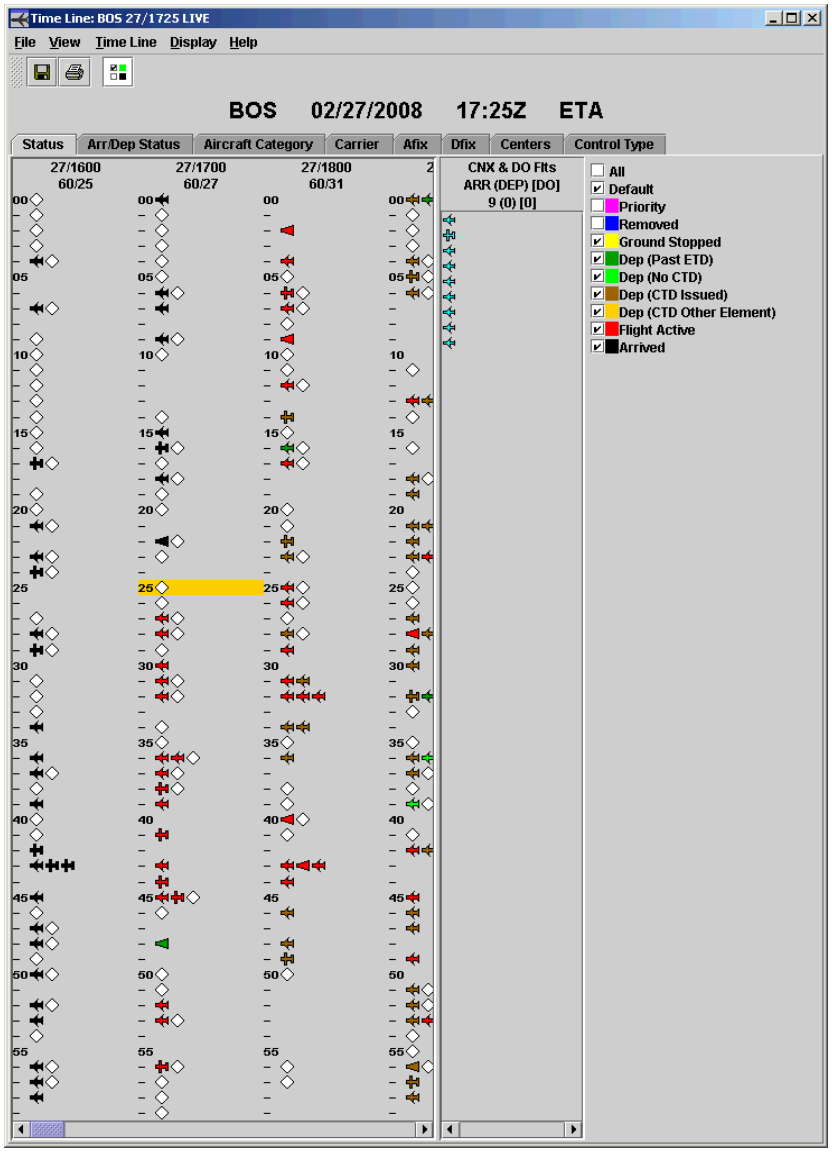


Figure 6 - 16 : Time Line Component with Color Legend Displayed

The AAR and/or ADR (airport only) versus the demand on the airport, FEA, or FCA (the number of flights projected to arrive at an airport or enter into an FEA or FCA) for that hour displays directly below the date/hour information. The Airport Departure Rate versus demand displays in parentheses when you select **View > Departure Data**. For example, if the Time Line displayed (90/85), this would indicate that 90 is the Airport Departure Rate and 85 flights are projected to depart for that hour.

Each flight arriving at the monitored airport, FEA, or FCA displays beside the minute hash mark, which corresponds to the ETA or ENTRY time of the flight. Cancelled and dropped out flights are listed under the CNX & DO Flts column. You can show or hide icons for cancelled and dropped out flights by selecting **View > Show Cancellations** from the Time Line component. FSM keeps and displays flight data compiled by Volpe

National Transportation Systems Center, which includes data for up to 24 hours after the current time.

View Open Arrival Slots

To view open arrival slots that resulted from delayed or cancelled flights, select the **View > Open Slots in Carrier Color** checkbox from the Time Line. Slots are displayed on the Time Line as square (cancelled) or triangle (delayed) icons.

> **Note:** Airline users see only their own slots in the color that FSM designates for their airline.

Any slot left open from another carrier's cancelled or delayed flight is colored black.

Time Line Flight Count

If you need to determine a flight count for a particular time span, you can use the Time Line to retrieve the information quickly.

1. Select the hour number for the beginning time.
2. Press and hold **Ctrl** as you select the last hour number for the time span. This counts all flights in the selected area that are colored according to a “Color By” criterion.

   A message box opens.

   Note: You must select at least two minutes worth of flight data.

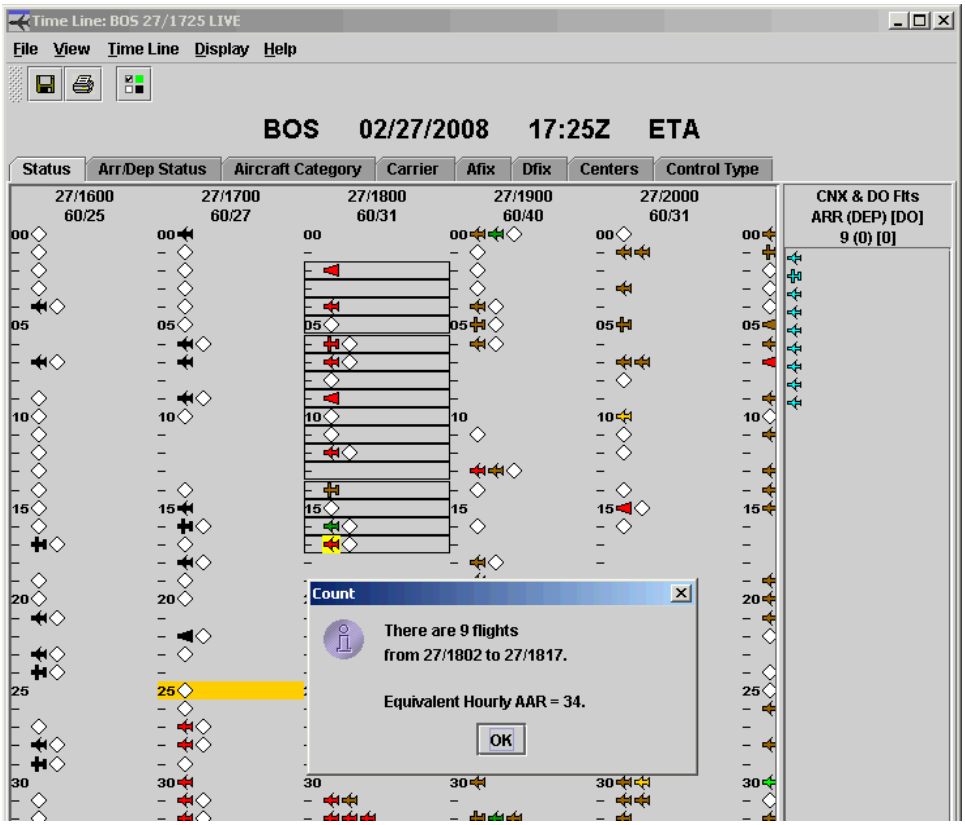


Figure 6 - 17 : Flight Count List

3. When you select a group of flights to count on the Time Line, FSM returns information about the count. This information includes the total number of flights, the time period and the equivalent AAR and/or ADR. FSM derives the AAR and ADR values using: AAR = (#flts/#minutes) x 60.

4. Click **OK** to close the message box.

Time Line Flight List

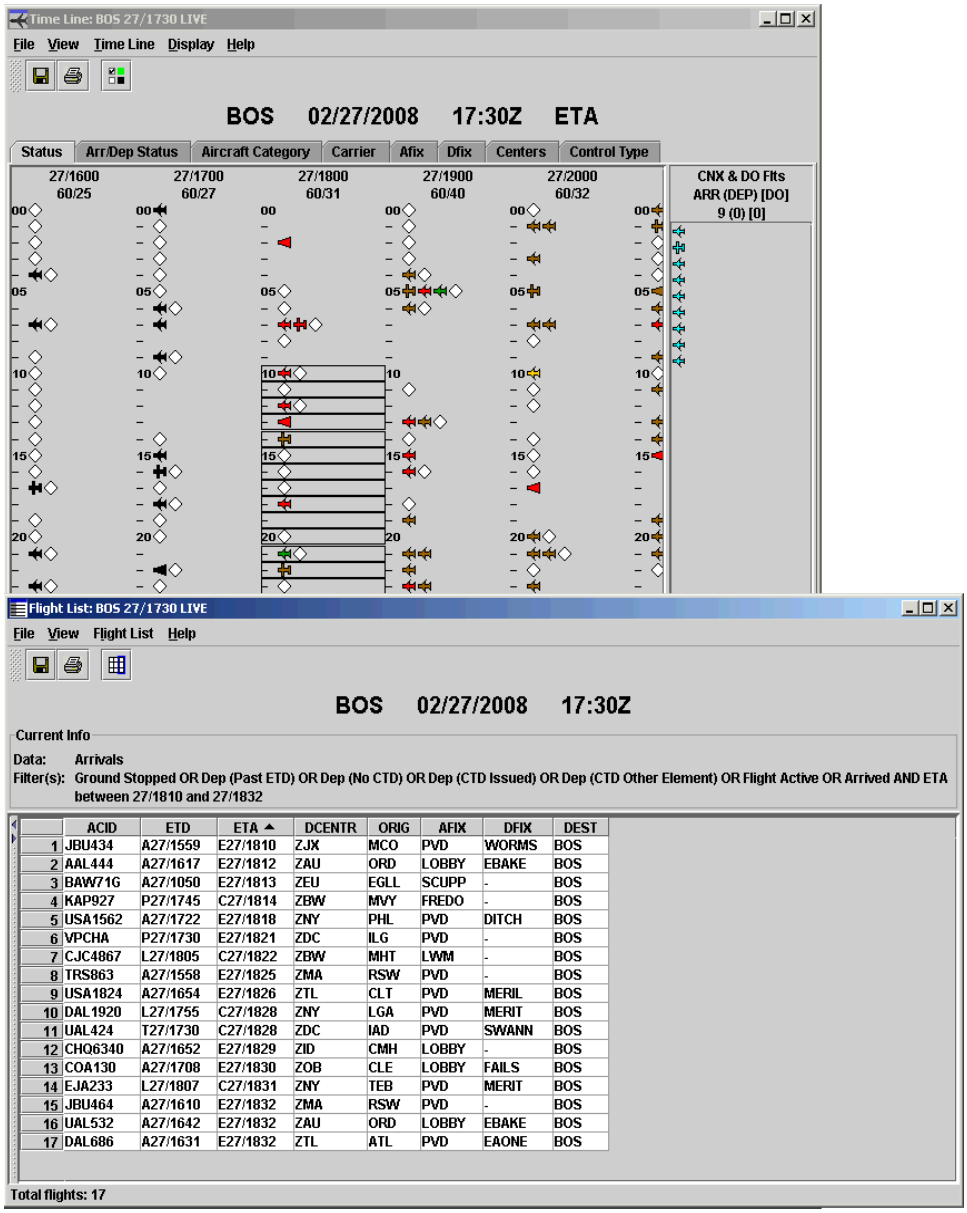
If you need to determine a flight list for a particular time span, you can use the Time Line to retrieve the list quickly.

1. Select the first flight icon.

2. Press **Shift** as you select the last flight icon. This creates a flight list in the selected area that is colored according to a “Color By” criterion (see Figure 6 - 18).

   Note: You must select at least two minutes worth of flight data.

   The Flight List window opens.



	ACID	ETD	ETA	DCENTR	ORIG	AFIX	DFIX	DEST
1	JBU434	A27/1559	E27/1810	ZJX	MCO	PVD	WORMS	BOS
2	AAL444	A27/1617	E27/1812	ZAU	ORD	LOBBY	EBAKE	BOS
3	BAW71G	A27/1050	E27/1813	ZEU	EGLL	SCUPP	-	BOS
4	KAP927	P27/1745	C27/1814	ZBW	MVY	FREDO	-	BOS
5	USA1562	A27/1722	E27/1818	ZNY	PHL	PVD	DITCH	BOS
6	VPCHA	P27/1730	E27/1821	ZDC	ILG	PVD	-	BOS
7	CJC4867	L27/1805	C27/1822	ZBW	MHT	LWM	-	BOS
8	TRS863	A27/1558	E27/1825	ZMA	RSW	PVD	-	BOS
9	USA1824	A27/1654	E27/1826	ZTL	CLT	PVD	MERIL	BOS
10	DAL1920	L27/1755	C27/1828	ZNY	LGA	PVD	MERIT	BOS
11	UAL424	T27/1730	C27/1828	ZDC	IAD	PVD	SWANN	BOS
12	CHQ6340	A27/1652	E27/1829	ZID	CMH	LOBBY	-	BOS
13	COA130	A27/1708	E27/1830	ZOB	CLE	LOBBY	FAILS	BOS
14	EJA233	L27/1807	C27/1831	ZNY	TEB	PVD	MERIT	BOS
15	JBU464	A27/1610	E27/1832	ZMA	RSW	PVD	-	BOS
16	UAL532	A27/1642	E27/1832	ZAU	ORD	LOBBY	EBAKE	BOS
17	DAL686	A27/1631	E27/1832	ZTL	ATL	PVD	EAONE	BOS

Figure 6 - 18 : Flight List

3. Select **File > Close** from the Flight List window to close the flight list.

Time Line Display Options

The Time Line gives you the option to display flights according to different flight data in Live, Historical, or GDT mode. When you choose different criteria to use in the FSM Flight display, your changes affect only the component you have selected to change. For a description of each menu option on the Time Line **Display** menu, see Chapter 3: Understanding Components.

To Change the Time Line Flight Display

To change the display in the Time Line, use the Display menu options. For a description of each menu item, see Chapter 3: Understanding Components. For example, you want to see all flights by their Controlled Time of Arrival (CTA) and colored by Carrier.

1. Select **Display > CTA** in the GDT Time Line component.

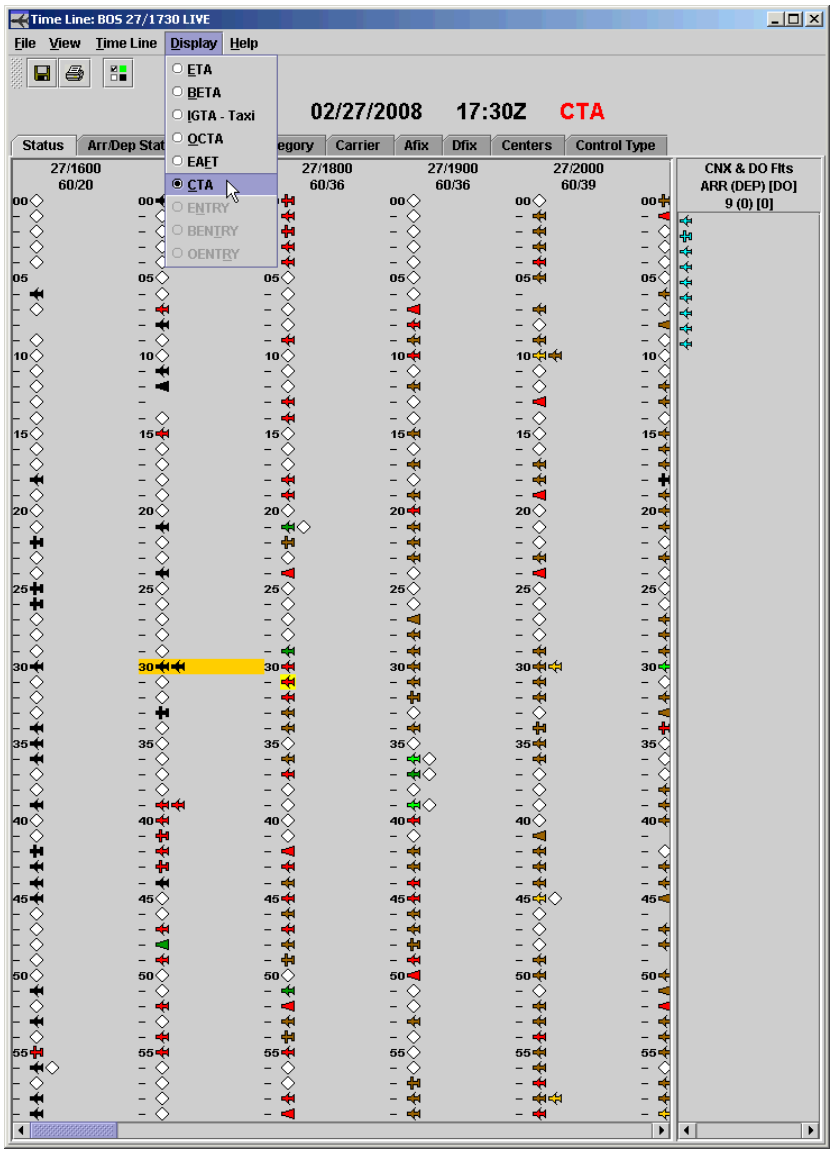


Figure 6 - 19 : GDT Time Line Display by CTA

2. Select the Carrier tab.

   The Carrier tab shows all flights colored by Carrier and by their CTA.

3. Select **Display > ETA** to return the flight display to its default appearance.

Flight Lists

FSM generates Flight Lists automatically when it performs certain functions. You can generate one for a specific group of flights that you select. Flight Lists allow you to view what flights contribute to the arrival demand at an airport, or contribute to the demand in an FEA/FCA, and how many flights fall into specific categories. You can open an FSM Flight List in a variety of ways from all FSM modes and several FSM components. You can obtain Flight Lists from the Bar Graph, Time Line, Status Map, Open Data Set, Query Manager, and GDT Setup components.

The way FSM generates a Flight List differs depending upon the type of information you need.

> **Note:** Report Flight Lists vary in the initial default information displayed, but the functionality described below is the same. For more information on Report Lists, see Chapter 21: Understanding and Using FSM Reports.

When you want to see flights that meet only certain criteria, you can generate a Flight List from the Query Manager component. From a Flight List, you can also select a single flight and view the Flight Info or Flight Details for that flight by right-clicking the selected flight, or by highlighting the flight and using the **View** menu options (see Figure 6 - 20). All Flight Lists are dynamic and are updated along with every ADL update.

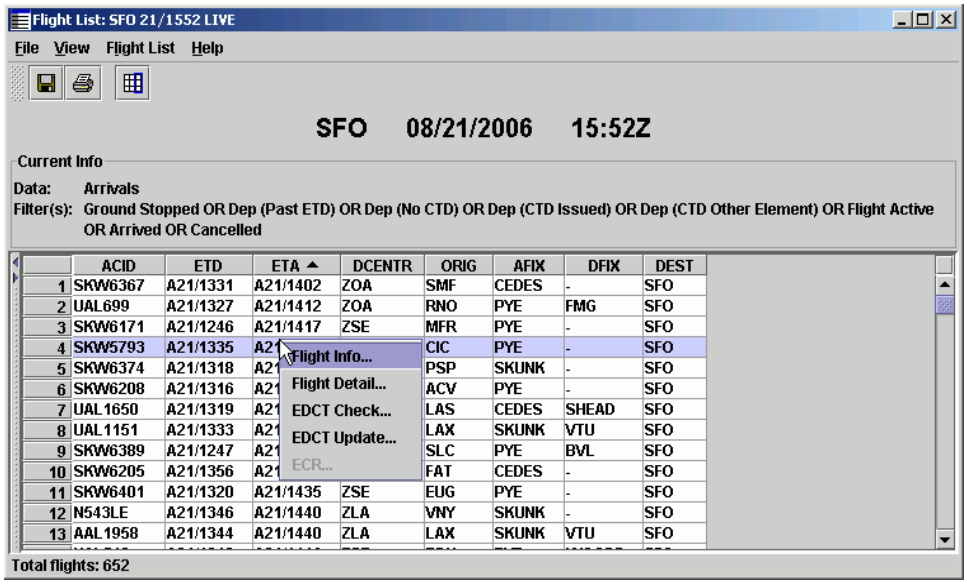


Figure 6 - 20 : Flight List

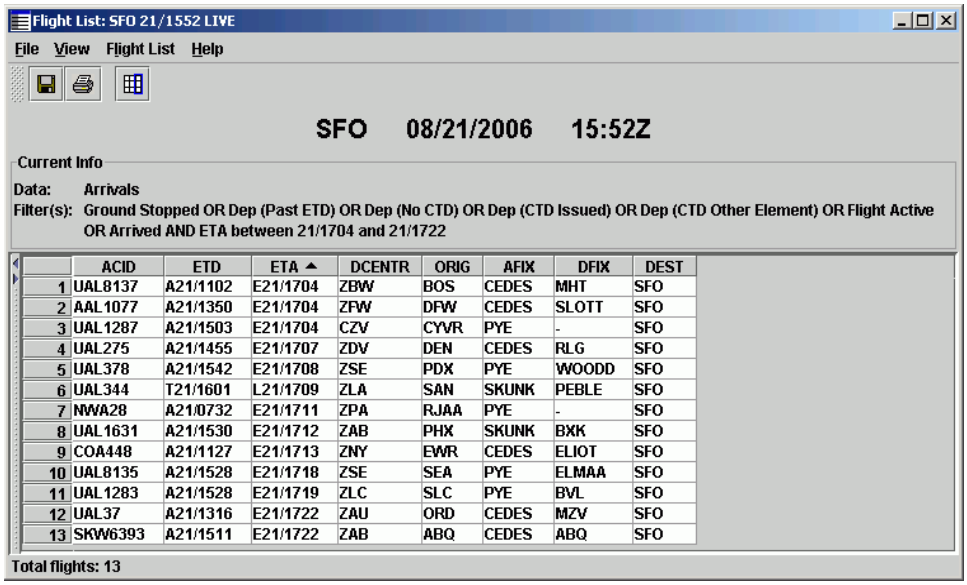
Flight List Filters

The Flight List display differs depending on how you open each Flight list. The data and filter information being passed by components generating each Flight List are displayed in the Current Info section on the Flight List. The Current Info section, located below the

data set information, helps users identify what ***Data*** and ***Filter(s)*** are applied to the Flight List (see Table 6-13).

Table 6-13: Data and Filter Descriptions

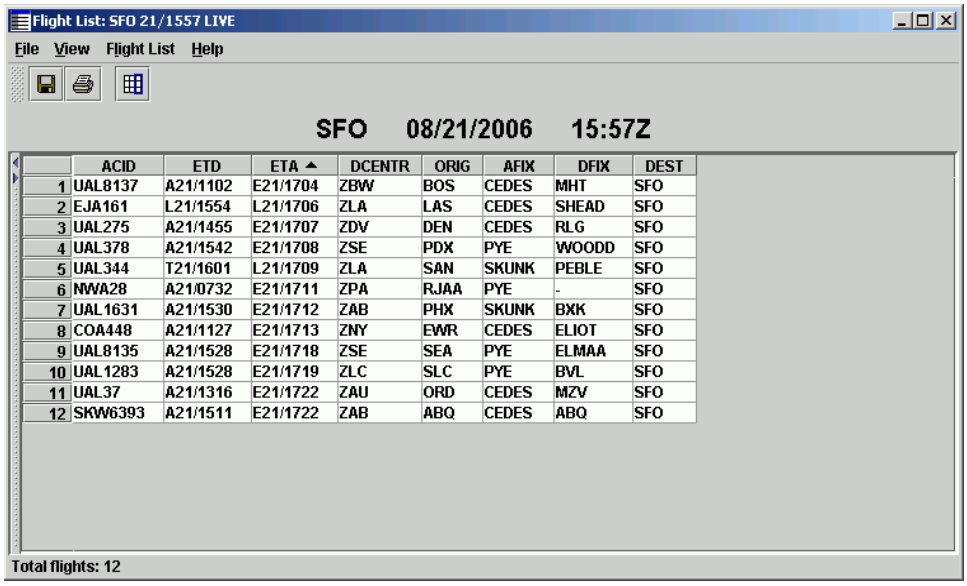
Field Label	Description
Data	Indicates what type of data displays in the Flight List. You cannot change the type of data displayed from the Flight List.
Filter(s)	Indicates what filters are applied to the data. Filters are separated with either an AND or OR logical operator. •AND displays between filters when an intersection of data is used. This means the flights in the list mach each of the filter criteria. •OR displays between filters when a union of data is used. This means that each flight in the list meets at least one of the filter criteria.



	ACID	ETD	ETA ▲	DCENTR	ORIG	AFIX	DFIX	DEST
1	UAL8137	A21/1102	E21/1704	ZBW	BOS	CEDES	MHT	SFO
2	AAL1077	A21/1350	E21/1704	ZFW	DFW	CEDES	SLOTT	SFO
3	UAL1287	A21/1503	E21/1704	CZV	CYVR	PYE	-	SFO
4	UAL275	A21/1455	E21/1707	ZDV	DEN	CEDES	RLG	SFO
5	UAL378	A21/1542	E21/1708	ZSE	PDX	PYE	WOODD	SFO
6	UAL344	T21/1601	L21/1709	ZLA	SAN	SKUNK	PEBLE	SFO
7	NWA28	A21/0732	E21/1711	ZPA	RJAA	PYE	-	SFO
8	UAL1631	A21/1530	E21/1712	ZAB	PHX	SKUNK	BXK	SFO
9	COA448	A21/1127	E21/1713	ZNY	EWR	CEDES	ELIOT	SFO
10	UAL8135	A21/1528	E21/1718	ZSE	SEA	PYE	ELMAA	SFO
11	UAL1283	A21/1528	E21/1719	ZLC	SLC	PYE	BVL	SFO
12	UAL37	A21/1316	E21/1722	ZAU	ORD	CEDES	MZV	SFO
13	SKW6393	A21/1511	E21/1722	ZAB	ABQ	CEDES	ABQ	SFO

Figure 6 - 21 : Flight List with Filters Displayed

To conserve space on the Flight List, you can turn off the Current Info display by selecting **Flight List > Data/Filter Display**. This collapses the Current Info section (see Figure 6 - 22).



	ACID	ETD	ETA	DCENTR	ORIG	AFIX	DFIX	DEST
1	UAL8137	A21/1102	E21/1704	ZBW	BOS	CEDES	MHT	SFO
2	EJA161	L21/1554	L21/1706	ZLA	LAS	CEDES	SHEAD	SFO
3	UAL275	A21/1455	E21/1707	ZDV	DEN	CEDES	RLG	SFO
4	UAL378	A21/1542	E21/1708	ZSE	PDX	PYE	WOODD	SFO
5	UAL344	T21/1601	L21/1709	ZLA	SAN	SKUNK	PEBLE	SFO
6	NWA28	A21/0732	E21/1711	ZPA	RJAA	PYE	-	SFO
7	UAL1631	A21/1530	E21/1712	ZAB	PHX	SKUNK	BXK	SFO
8	COA448	A21/1127	E21/1713	ZNY	EWR	CEDES	ELIOT	SFO
9	UAL8135	A21/1528	E21/1718	ZSE	SEA	PYE	ELMAA	SFO
10	UAL1283	A21/1528	E21/1719	ZLC	SLC	PYE	BVL	SFO
11	UAL37	A21/1316	E21/1722	ZAU	ORD	CEDES	MZV	SFO
12	SKW6393	A21/1511	E21/1722	ZAB	ABQ	CEDES	ABQ	SFO

Figure 6 - 22 : Flight List with Current Info Display Turned Off

Flight List Menu

The menu bar in the Flight List component contains four menu options: **File, View, Flight List,** and **Help.**

1. File Menu
   - **File > Save As** - Saves the Flight List to a spreadsheet or text file, which can be opened later and used again.
   - **File > Print** – Prints the Flight List information viewed on the monitor screen.
   - **File > Close Group** – Closes the all the data set components associated with the Flight List component.
   - **File > Close** - Closes the Flight List component.
2. View Menu
   - **View > Rename Window** – Displays the Rename Window dialog box and allows you to change the title bar name.
   - **View > Add/Remove Columns** – Allows you to add or delete ADL data fields as columns to the Flight List.
   - **View > Group Flights** – Allows you to group ADL data fields to the Flight List in ascending or descending order.
   - **View > Sort Flights** – Allows you to sort ADL data fields to the Flight List in ascending or descending order.
   - **View > Apply Filter** – Allows you to apply a filter to the data fields in the Flight List component.

- **View > Clear Filter** – Allows you to clear a filter from the data fields in the Flight List component.
- **View > Flight Info** - Opens the Flight Info window.
- **View > Flight Detail** - Opens the Flight Detail window.

3. Flight List Menu
   - **Flight List > Freeze Data** – When checked, prevents the Flight List from updating when new ADLs arrive.
   - **Data/Filter Display** – When checked, displays the Current Info section with the Data and Filter information for the flight list.
   - **Flight List > Set Time** – Sets the time for the Flight List component in Historical mode only.
   - **Flight List > Search By Callsign** – Opens the Search by Callsign component.
4. Help Menu
   - **Help > Flight List** – Opens on-line help for Flight Lists.

Flight List Buttons

Three buttons are displayed on the Flight List component. Table 6-14 explains the purpose of each button.

Table 6-14: Flight List Buttons

Button	Purpose
	Saves the flight list to a spreadsheet or text file
	Prints the flight list
	Opens the Add/Remove Columns component

Opening Flight Lists

You can open flight lists from multiple components in FSM. This section explains how to open Flight Lists from the following components:

- Open Data Set
- Bar Graph
- Time Line
- Map

To open a Flight List from the Open Data Set component

You can open Flight Lists directly from the Open Data Set component. For example, you want to see the flight list for ORD, as well as the Time Line and Bar Graph components, that FSM is currently monitoring.

1. Click **Open Data Set** from the Control Panel.
2. Select the ORD data set in the Monitored Live tab.
3. Select ***Flight List*** in the Open With section of the screen (***Time Line*** and ***Bar Graph*** are selected by default).
4. Click **Apply** or **OK**.

   The Time Line, Bar Graph, and current Flight List for ORD are displayed.

To open a Flight List from the Bar Graph component

You can open Flight Lists directly from the Bar Graph component. For example, you want to see a flight list for the Arrival Status of all flights, including cancelled flights, between the 1700 and 1800 hours for BOS.

1. Click **Open Data Set** from the Control Panel.
2. Select the BOS data set in the Monitored Live tab.

   The Time Line and Bar Graph for BOS are displayed.
3. Select **View > Show Cancellations** from the Bar Graph to include cancelled flights in the flight list.
4. Ensure the Bar Graph displays in 60 minute increments. If it is not, click **60**.

   Note: If the Bar Graph displays in 15 or 30 minute increments, clicking a bar gives you only the flights for that increment.
5. Double-click the bar between 1700 and 1800 to generate the Flight List (For more information on Bar Graphs, see Chapter 3: Understanding Components).

To open a Flight List from the Time Line component

See the Time Line Flight List section above for information on how to open a flight list from the Time Line.

To open a Flight List from the Map component

You can open Flight Lists for a monitored airport, FEA, or FCA directly from the Map component. For example, you want to view a flight list for FCA009.

1. Click **Map** on the Control Panel.
2. Select ***FCA009***.

   The boundary for the FCA turns white in color when selected. In addition to turning white, the FCA's last ADL time also displays-day then time.

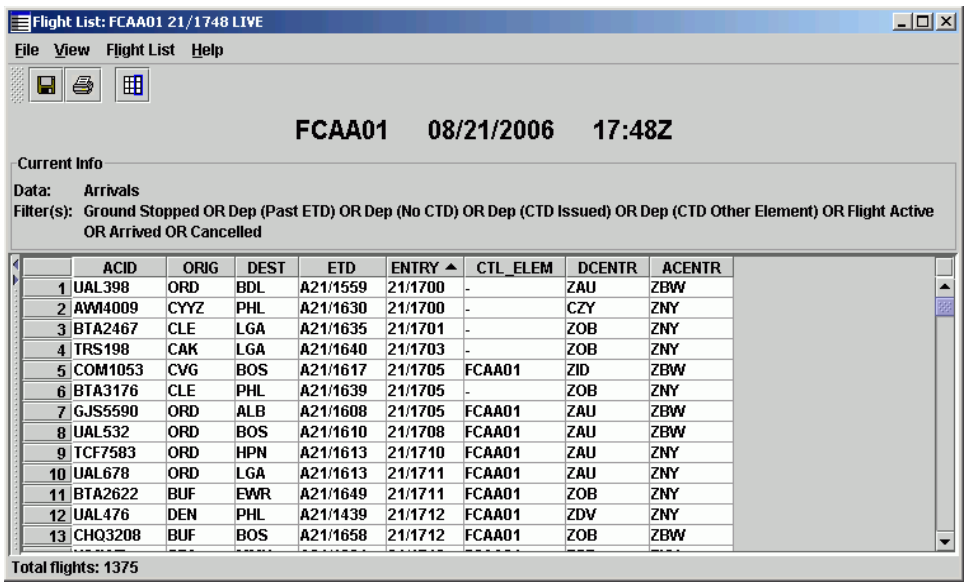
3. Right-click the FCA boundary to display a pop-up menu, which includes the zoom options as well as the options to view the Time Line, Bar Graph, or Flight List components for that FCA in Monitor Live mode.
4. Select **Open Flight List** to view the Flight List for FCA009.

   The Flight List opens.
5. Select **File > Close** to close the Flight List window.

Flight List Format

Although there are many ways to generate an FSM Flight List, the lists are always in the same format (see Figure 6 - 23). Flight List characteristics include:

- Spreadsheet format – you can manage the lists in the same way you manage spreadsheets.
- You can resize the Flight List and scroll through it.
- The default sort order for an airport Flight List is by ETA.
- The Component information displays in the Flight List title bar: Three-letter airport code or FEA/FCA name, ADL day and time, mode in which the data was retrieved and User Defined Group name (if applicable).
- The number of flights contained in the list displays in the bottom left corner of the component.



	ACID	ORIG	DEST	ETD	ENTRY	CTL_ELEM	DCENTR	ACENTR
1	UAL398	ORD	BDL	A21/1559	21/1700	-	ZAU	ZBW
2	AWI4009	CYYZ	PHL	A21/1630	21/1700	-	CZY	ZNY
3	BTA2467	CLE	LGA	A21/1635	21/1701	-	ZOB	ZNY
4	TRS198	CAK	LGA	A21/1640	21/1703	-	ZOB	ZNY
5	COM1053	CVG	BOS	A21/1617	21/1705	FCAA01	ZID	ZBW
6	BTA3176	CLE	PHL	A21/1639	21/1705	-	ZOB	ZNY
7	GJS5590	ORD	ALB	A21/1608	21/1705	FCAA01	ZAU	ZBW
8	UAL532	ORD	BOS	A21/1610	21/1708	FCAA01	ZAU	ZBW
9	TCF7583	ORD	HPN	A21/1613	21/1710	FCAA01	ZAU	ZNY
10	UAL678	ORD	LGA	A21/1613	21/1711	FCAA01	ZAU	ZNY
11	BTA2622	BUF	EWR	A21/1649	21/1711	FCAA01	ZOB	ZNY
12	UAL476	DEN	PHL	A21/1439	21/1712	FCAA01	ZDV	ZNY
13	CHQ3208	BUF	BOS	A21/1658	21/1712	FCAA01	ZOB	ZBW

Figure 6 - 23 : Flight List

Selecting Flight List Information

There are certain default values for Flight List information categories (the default information is configurable). When you first open an airport Flight List, the following default information displays:

- ACID – The air carrier (AC) and aircraft identification number (ID). This is a three letter carrier code followed by the flight's identification number. For example, UAL1234 indicates a United Airlines flight with ID number 1234. Airline users see only their own carrier and sub-carriers ACIDs; FSM masks all other flights.
- ETD – The flight's Estimated Time of Departure
- ETA – The flight's Estimated Time of Arrival
- DCENTER – The center from which the flight is departing
- ORIG – The airport at which the flight originated.
- AFIX – The Arrival Fixes associated with the monitored airport
- DFIX – The Departure Fixes associated with the monitored airport
- DEST – The Destination airport for the flight

When you first open an FEA/FCA Flight List, the following default information displays:

- ACID – The air carrier (AC) and aircraft identification number (ID). This is a three letter carrier code followed by the flight's identification number. For example, UAL1234 indicates a United Airlines flight with ID number 1234. Airline users see only their own carrier and sub-carriers ACIDs; FSM masks all other flights.
- ORIG – The airport at which the flight originated.
- DEST – The Destination airport for the flight
- ETD – The flight's Estimated Time of Departure
- ENTRY – Current, best, estimated time of entry for a flight into an FEA or FCA considering all data sources
- CTL_ELEM – If a flight is controlled (i.e., has a CTD and CTA), this field indicates the constrained NAS element for which a ground delay program or ground stop was run. Currently, the CTL_ELEM can be an arrival airport, FEA, or FCA.
- DCENTER – The center from which the flight is departing
- ACENTER – The center where the flight is arriving

You can configure the information in the Flight List to suit your needs by using the Add/Remove Columns window. The Add/Remove Columns window allows you to add columns by:

- Field – Allows you to select individual ADL data elements.
- Group – Allows you to select logical groups of ADL elements.
- FSM Calculated value – Allows you to select values that are the result of operations on times listed in the ADL.

You can also remove columns using the Add/Remove Columns window with the following *exception*:

- ACID

This section explains how to add, remove, and move columns on the flight list.

To add data column information to a Flight List

1. Select **View > Add/Remove Columns** from the Flight List component.

   The Add/Remove Columns window opens showing all possible informational categories that you can view in FSM's Flight Lists. The categories correspond to the available data fields in the ADL, groups of available data fields, and calculations that you can specify. The data elements currently displayed in the Flight List, also are displayed in the **Fields Displayed** scroll box (see Figure 6 - 24).

2. Select any data fields you want to add from the By Field section of the window.
3. Click the bottom arrow button to move the fields to the **Fields Displayed** scroll box.
4. Select any groups of data fields that you want to add from the By Group section of the window.
5. Click the bottom arrow button to move the groups to the **Fields Displayed** scroll box.
6. Specify the calculation you would like to add from the By Calculation section of the window.

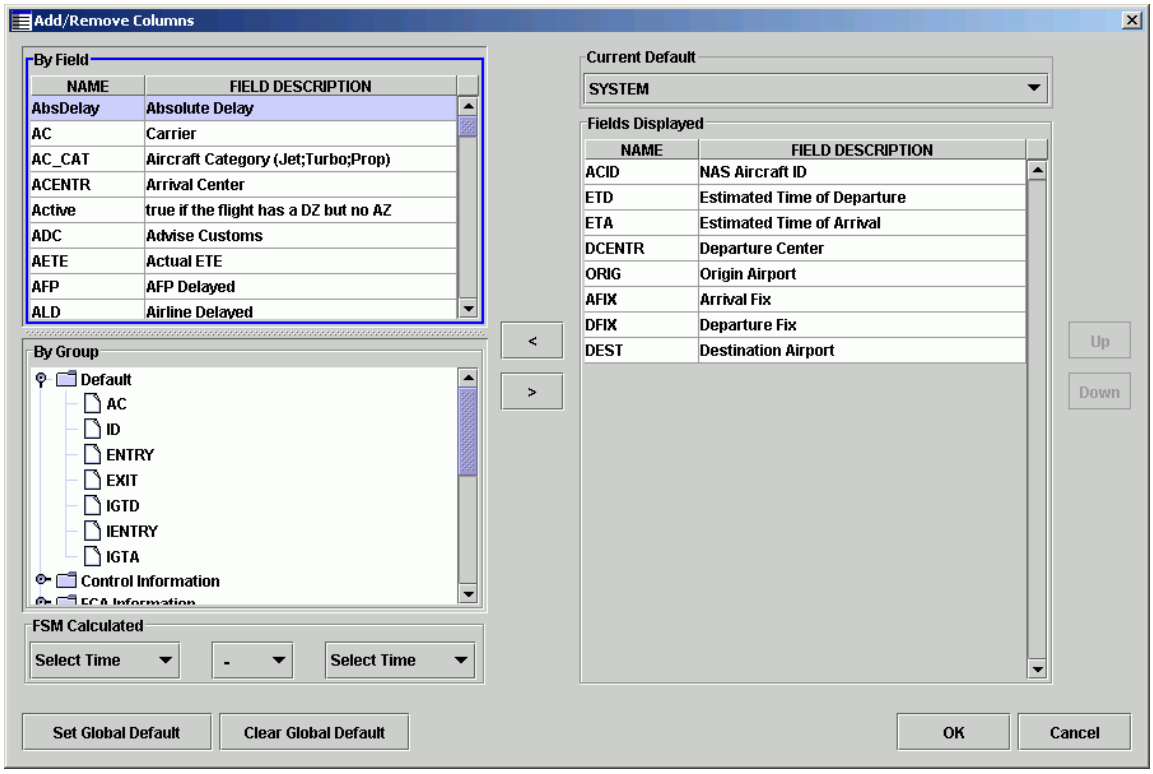


Figure 6 - 24 : Add/Remove Columns Window

7. Click the bottom arrow button to move the calculations to the **Fields Displayed** scroll box.

8. Click **OK**.

To add multiple calculations to a Flight List

1. Select **View > Add/Remove Columns** from the Flight List component.

   The Add/Remove Columns window opens.
2. Select the data fields you want to use for first the calculation.
3. Click the bottom arrow button to move the category to the **Fields Displayed** scroll box.
4. Select the data fields you want to use for the next calculation.
5. Click the bottom arrow button to move the category to the **Fields Displayed** scroll box.
6. Continue adding calculations in this way until all of your calculations are displayed in the Shown Fields section of the window.
7. Click **OK**.

   All of the calculations are displayed in the Flight List window.

To remove data column information from a Flight List

1. Select **View > Add/Remove Columns** from the Flight List component.

   The Add/Remove Columns window opens. The data elements currently displayed in the Flight List, are in the **Fields Displayed** scroll box (see Figure 6 - 25).

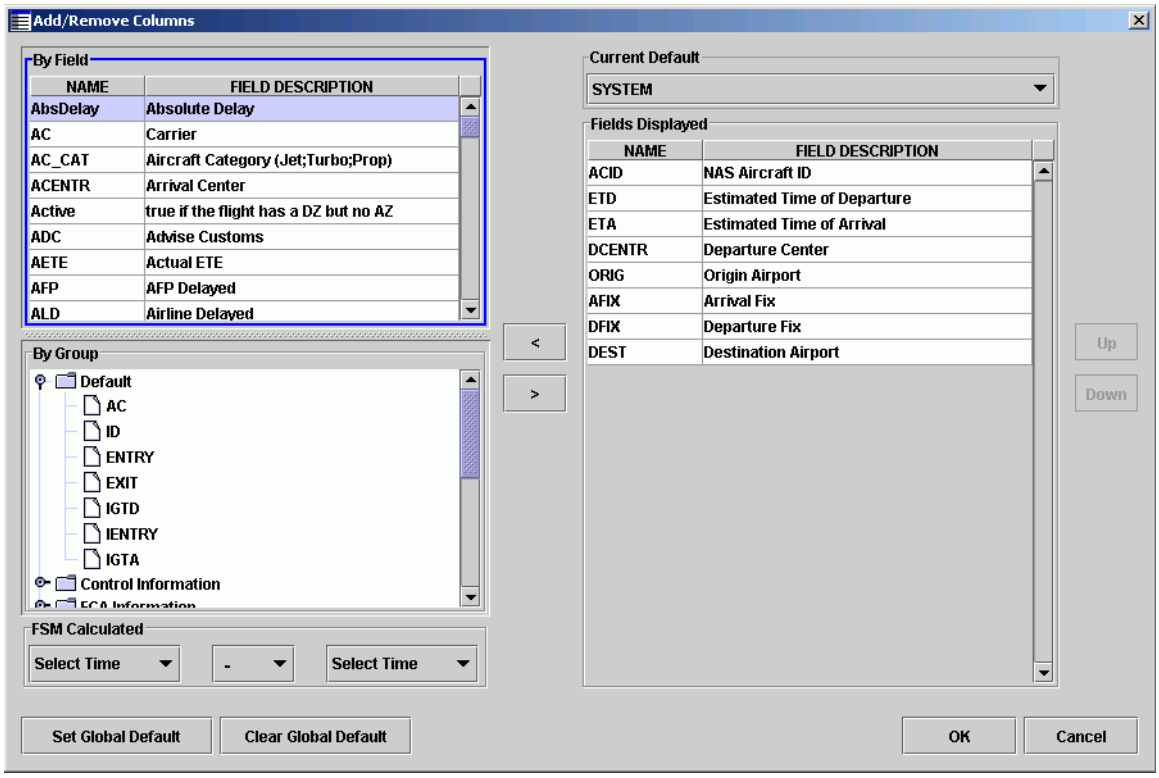


Figure 6 - 25 : Add/Remove Columns Window

2. To remove a shown data field, double-click the field you want to remove or select the field and click the top arrow button to move the data field back to the appropriate scroll box.
3. Click **OK**.

To rearrange columns in a Flight List

You can arrange the order in which your columns are displayed with two different methods. The easiest and most convenient method is to do it directly from the Flight List itself, by dragging and dropping the column header to the desired position in the list. The second method, discussed below, uses the Add/Remove Columns window.

1. Select **View > Add/Remove Columns** from the Flight List component.

   The Add/Remove Columns window opens.
2. Select the ADL data field (column header) from the Fields Displayed scroll box.
3. Move it up or down the list using the **Up** or **Down** buttons located to the right of the **Fields Displayed** scroll box. Moving a data element to the top of the Add/Remove Columns window positions the data element header to the left most column on the Flight List.
4. Once you move the data fields to the positions you want, click **OK**.

Using the Global Default

To improve the process and speed of comparing multiple Flight Lists and decrease the amount of time required to modify the column display, FSM has a Global Default functionality. This provides the ability to save a set of columns to be used for all data sets throughout the application. The persistence settings are managed through the Add/Remove Columns Dialog.

You can preserve the columns selected and the order in which they are displayed in the Fields Displayed section as a global setting so that all future Flight Lists open with the same display. Once you set a Global Default, the current Flight List and future Flight Lists display the same columns and positioning that you defined.

> **Note:** Flight Lists generated using Reports are not affected by Flight List persistence settings. Report lists contain predefined elements relevant to the report.

If you are unsure what an opened Flight List's settings are, open the Add/Remove Columns dialog and review the Current Default display. There are three options: System, Global, and Manual (see Table 6-15).

Table 6-15: Flight List Settings

Current Default	Description
System	The system default set by FSM in the configuration file.
Global	Global default you set for the current FSM session.
Manual	Indicates that the Flight List settings differ from both GLOBAL and SYSTEM defaults.

To set a Global Default

1. Select **View > Add/Remove Columns** from the Flight List component.
2. Select any data fields you want to add from the By Field section of the window.
3. Click the right arrow button to move the fields to the Fields Displayed scroll box.
4. Select any data fields you want to remove from the Fields Displayed scroll box.
5. Click the left arrow button to move the fields to the By Field section.
6. Change the position of the columns in the Fields Displayed section as desired.
7. Click **Set Global Default** at the bottom left-hand corner of the Add/Remove Columns dialog, an FSM Information box pops up to inform you how FSM will set the Global default.

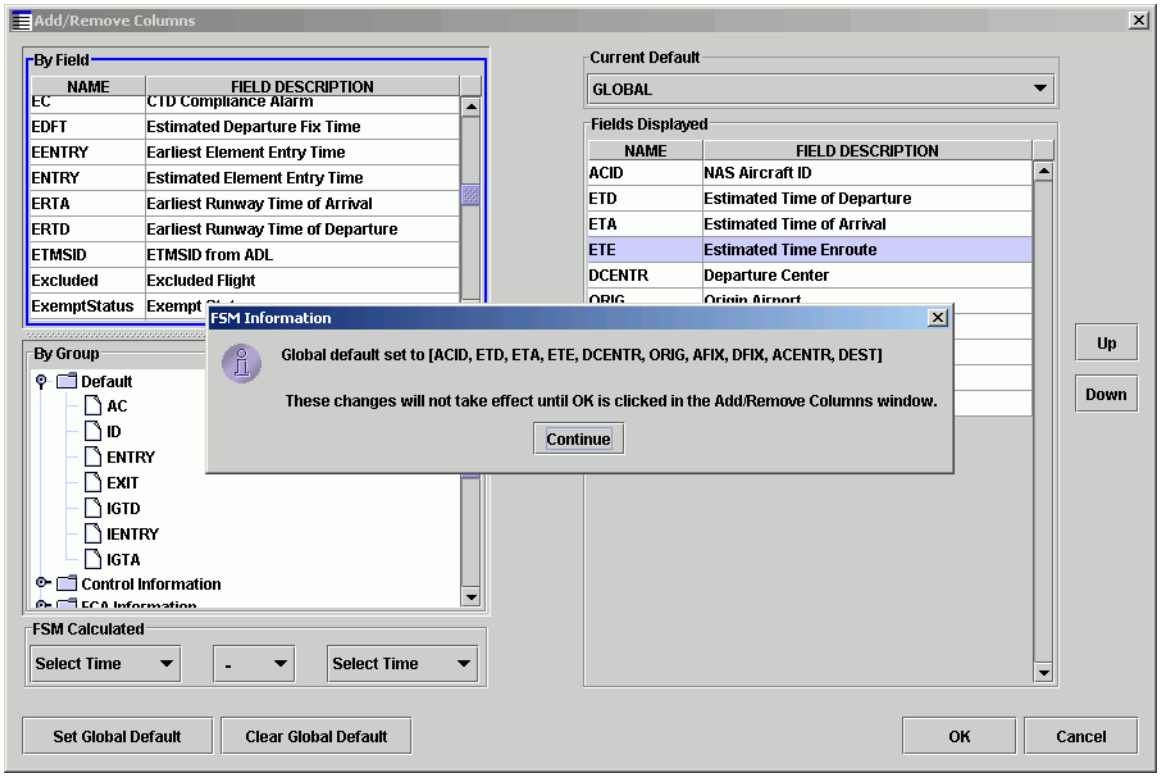


Figure 6 - 26 : Set Global Default Information Dialog

8. Click **Continue**, the FSM Information window no longer is displayed.
9. Click **OK** on the Add/Remove Column dialog to approve the changes and close the dialog.

FSM now applies the default to all flight lists that you open from that client for that session.

> **Note:** A Global setting can be saved from session to session by saving an adaptation. If an adaptation is not saved, all Flight List columns reset to the System default when FSM is closed.

To remove a Global Default

1. Select **View > Add/Remove Columns** from the Flight List component.
2. Click **Clear Global Default** from the Add/Remove Columns dialog, an FSM Information box pops up to inform you how FSM will remove the Global default.

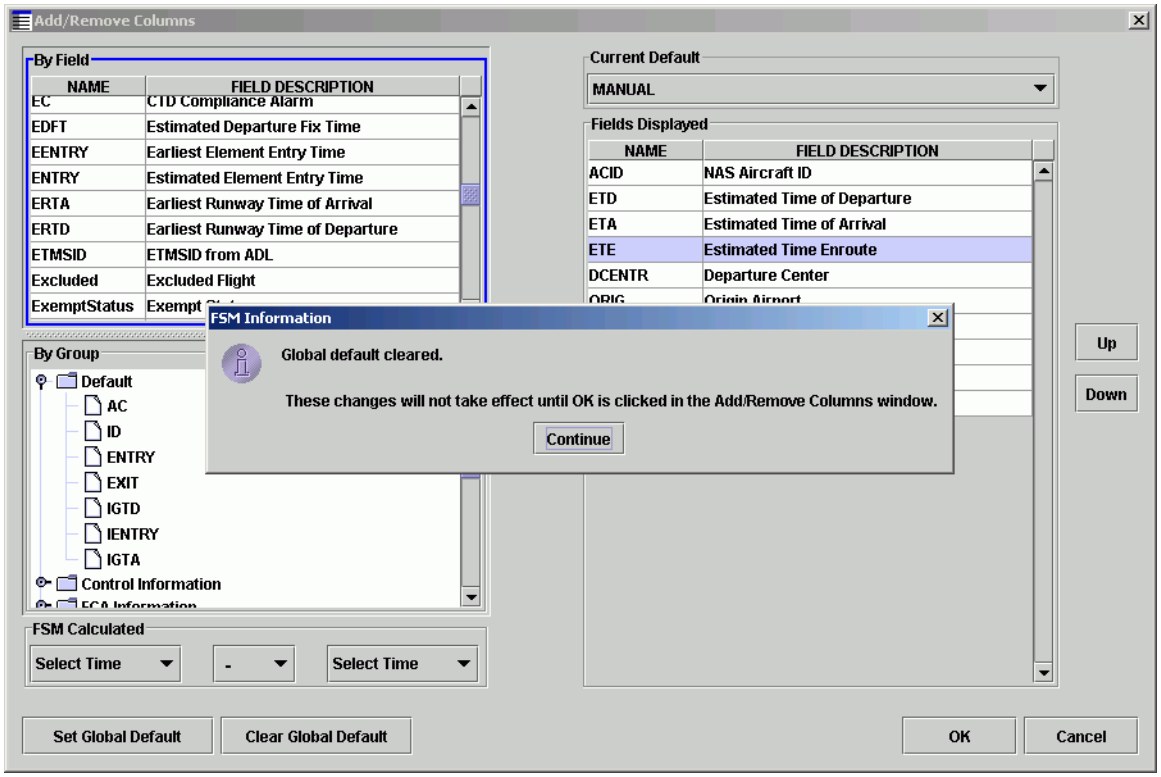


Figure 6 - 27 : Remove Global Default Information Dialog

3. Click **Continue**, the FSM Information window no longer is displayed.
4. Click **OK** on the Add/Remove Column dialog. FSM restores the System default for all new Flight Lists.

Grouping Information in the Flight List

Once you create a Flight List, you can group the information according to your own needs. To group a flight list select **View > Group Flights** on the Flight List component. The Group window enables either individual or multi-level grouping of all data fields currently displayed in the Flight List.

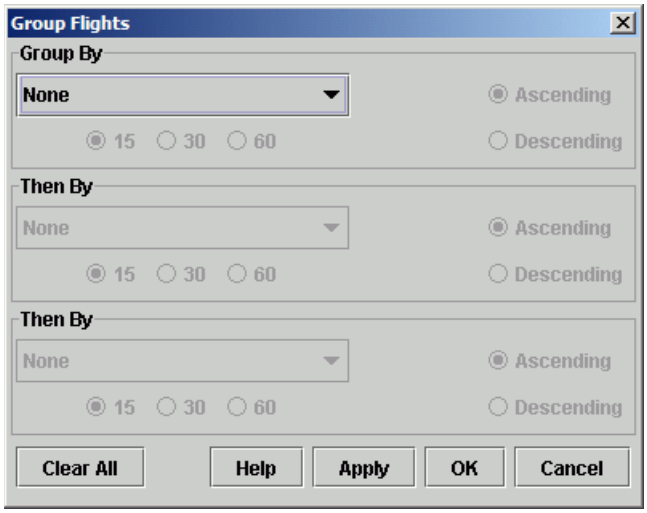


Figure 6 - 28 : Flight List Grouping Window

The Group window has the following buttons:

- **Clear All** – Erases all selections in the Group window. Clicking **Apply** or **OK** after clicking **Clear All** returns you to the default Flight List.
- **Help** – Displays information about the component version currently running in the Group window.
- **Apply** – Keeps the Group window open after FSM updates the flight list.
- **OK** – Closes the Group window after FSM updates the flight list.
- **Cancel** – Cancels any selections made, closes the Group window, and restores the default selections.

Figure 6 - 29 below, shows the flights grouped by ETA, then departure center, then origin airport. The Flight List displays in a split screen and FSM puts grouped flights into folders that you can expand for more detail. This grouped Flight List corresponds with the Group window parameters shown in Figure 6 - 28.

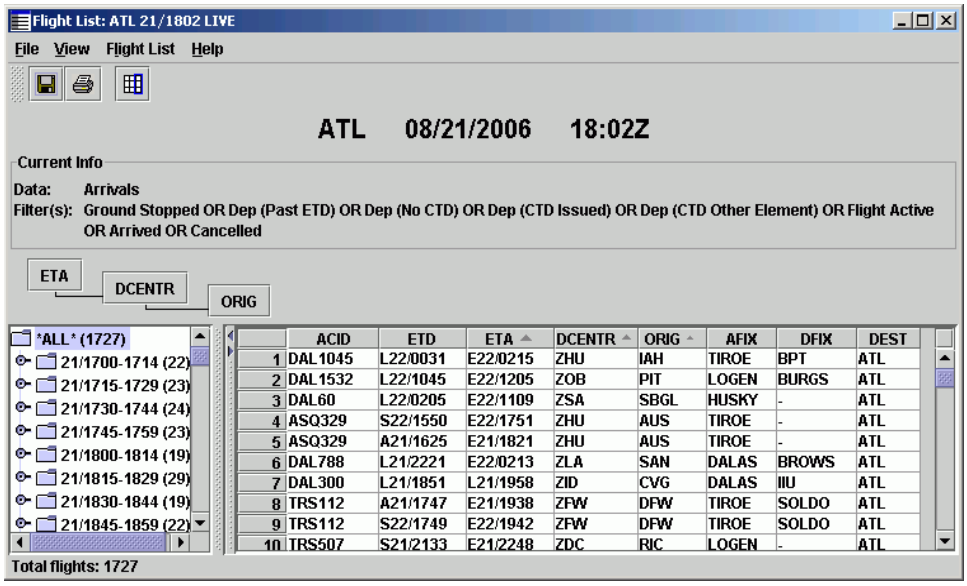


Figure 6 - 29 : Flight List Grouped

To group flights by one data field

1. Select a data field in the Group By dropdown.
2. Select either ***Ascending*** or ***Descending***.
3. Click **OK** or **Apply** in the Group window and the Flight List groups flights according to the parameters you set.

To group flights by multiple data fields

You can also group according to multiple categories in the Flight List. For example, you want to group your filtered airport Flight List by the Initial Gate Time of Arrival (IGTA), Airline, and Origin Airport (ORIG) respectively.

1. Select the **IGTA** data field in the Group By dropdown.

   Note: You can specify time increments of ***15***, ***30***, and ***60*** minutes for data fields that are time based by selecting the corresponding radio buttons.

2. Select ***Ascending***.
3. Select **ORIG** data field in the Then By dropdown.
4. Select ***Ascending***.
5. After you select all the grouping parameters, click **Apply** or **OK** to generate the grouped Flight List.
6. You can expand a group by double-clicking the group or clicking the expand/collapse icon. Drilling down shows individual flights within each group set. The grouping parameters are displayed above the grouped flights section.

To remove grouping from a Flight List

You can easily return to the normal Flight List display.

1. Select **View > Group Flights** to access the Group Window.
2. Click **Clear All**.
3. Click **OK**.

Sorting Information in the Flight List

Once you create a Flight List, you can sort the information and arrange it according to your own needs. You can sort the list one column category at a time by double-clicking the column heading. The arrow at the top of the column indicates that ascending or descending order for that category sorts the Flight List column.

To sort by multiple categories select **View > Sort Flights** from the Flight List component. The Sort window shows the data fields that are currently listed in the Flight List. The data fields correspond to the available data fields in the ADL. You can also sort multiple categories by pressing **Ctrl** on your keyboard and then selecting up to three categories in the flight list. The arrow at the top of the column indicates the ascending or descending order for that category and the size of the arrow indicates what level the sort is.

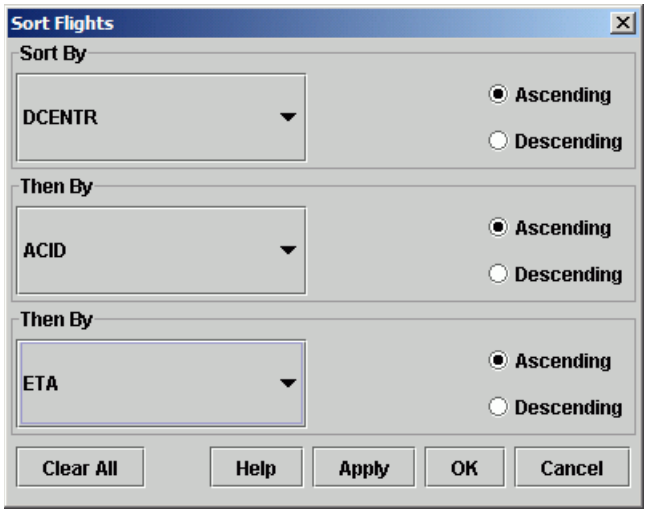
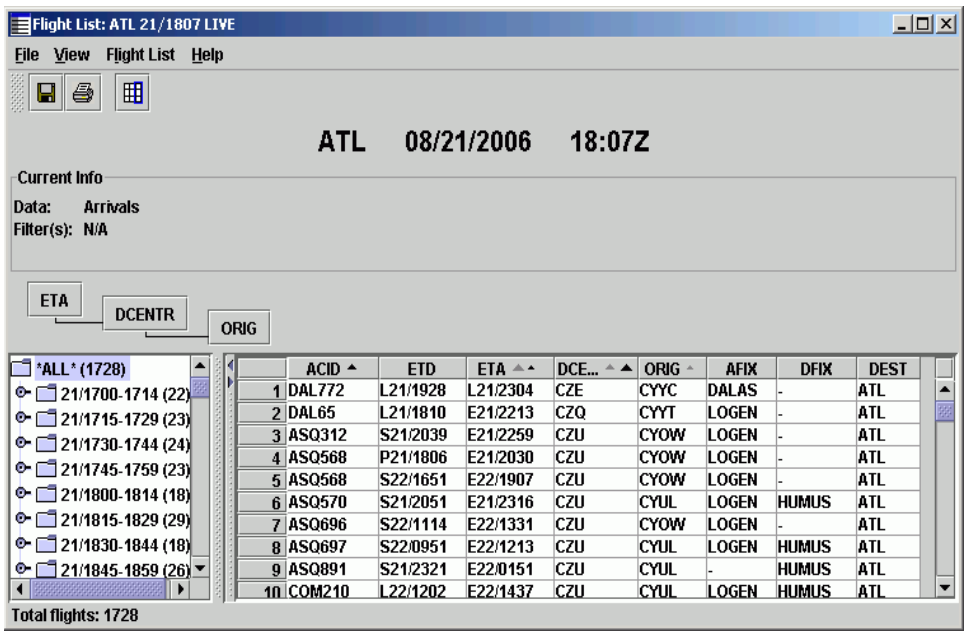


Figure 6 - 30 : Sort Window

The Sort Window has the following buttons:

- **Clear All** - Erases all selections in the Sort window. Clicking **Apply** or **OK** after clicking **Clear All** returns you to the default Flight List.
- **Help** - Displays information about the component version currently running in the Sort window.
- **Apply** - Keeps the Sort window open after FSM updates the flight list.
- **OK** - Closes the Sort window after FSM updates the flight list.
- **Cancel** - Cancels any selections made and closes the Sort window.

Figure 6 - 31 shows flights sorted by DCENTER, then ACID, and then ETA. This sorted Flight List corresponds with the Sort window parameters shown in Figure 6 - 30.



	ACID	ETD	ETA	DCE...	ORIG	AFIX	DFIX	DEST
1	DAL772	L21/1928	L21/2304	CZE	CYYC	DALAS	-	ATL
2	DAL65	L21/1810	E21/2213	CZQ	CYYT	LOGEN	-	ATL
3	ASQ312	S21/2039	E21/2259	CZU	CYOW	LOGEN	-	ATL
4	ASQ568	P21/1806	E21/2030	CZU	CYOW	LOGEN	-	ATL
5	ASQ568	S22/1651	E22/1907	CZU	CYOW	LOGEN	-	ATL
6	ASQ570	S21/2051	E21/2316	CZU	CYUL	LOGEN	HUMUS	ATL
7	ASQ696	S22/1114	E22/1331	CZU	CYOW	LOGEN	-	ATL
8	ASQ697	S22/0951	E22/1213	CZU	CYUL	LOGEN	HUMUS	ATL
9	ASQ891	S21/2321	E22/0151	CZU	CYUL	-	HUMUS	ATL
10	COM210	L22/1202	E22/1437	CZU	CYUL	LOGEN	HUMUS	ATL

Figure 6 - 31 : Sorted Flight List

Multi-Level Sorting

You can use the Sort window to sort a flight list by multiple data fields. For example, you want to sort your Flight List by Destination Center (DCENTER), Aircraft ID (ACID), and Estimated Time of Arrival (ETA) respectively.

1. Select **View > Sort Flights** from the Flight List component.
   The Sort window opens.
2. Select the **DCENTER** data field in the Sort By dropdown menu.
3. Select ***Ascending***.
4. Select the **ACID** data field in the Then By dropdown menu.
5. Select ***Ascending***.
6. Select the **ETA** data field in the Then By dropdown menu.
7. Select ***Ascending***.
8. Click **OK** or **Apply** in the *Sort* window to generate the sorted Flight List.

Using the Apply Filters Window

The Apply Filter window displays a pre-determined list that allows you to arrange the data in the Flight List according to your selection.

1. Select **View > Apply Filter** from the Flight List component.

2. Select a filter option from the Apply Filter window.
3. Click **OK**. This applies the filter to the Flight List. For example, when you select the Arrived filter option, FSM arranges the data according to the arrived flights in the Flight List.
4. To cancel the applied filter and return to the original Flight List settings, select **View > Clear Filter** from the Flight List menu.

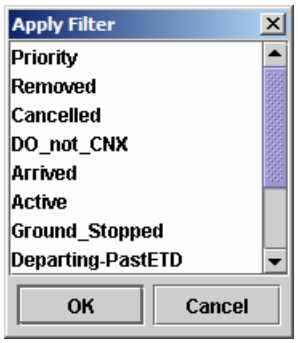


Figure 6 - 32 : Apply Filter Window

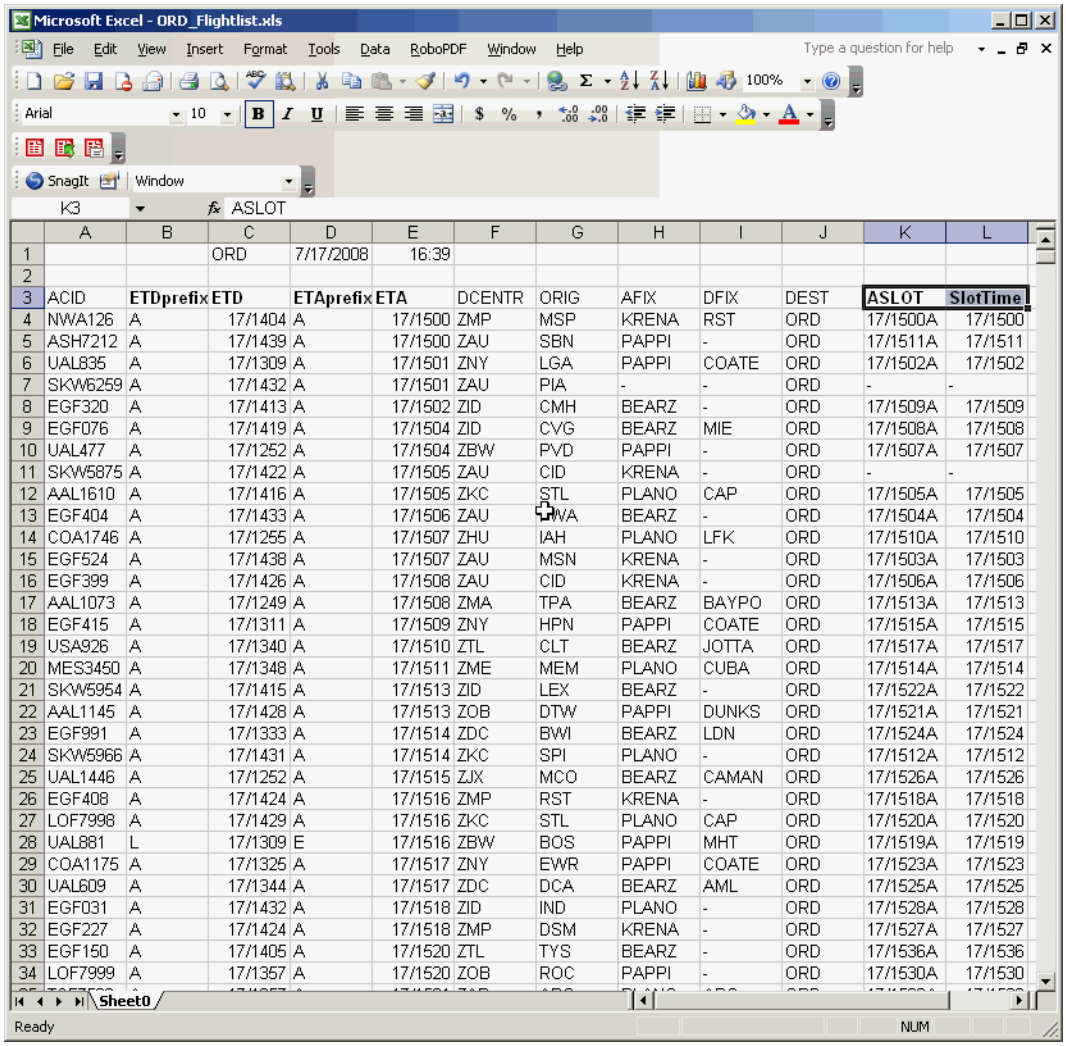
Exporting Flight List

To export Flight List to an Excel spreadsheet

1. From the Flight List window menu bar, select **File > Save As**. The Save Flight List As dialog box opens.
2. Enter a name in the File Name field.
3. Microsoft Office Excel Worksheet (*.xls) is the default file type in the Files of Type dropdown menu. Click **Save**.

The exported report is compatible with Microsoft Office Excel 2003 or later and Open Office 1.x or later.

All time values are saved as native time/date fields; therefore, ADL fields that combine date/time with text are exported as multiple cells. The date/time portion of the field is saved in one cell and the text portion is saved in another.



	A	B	C	D	E	F	G	H	I	J	K	L
1			ORD	7/17/2008	16:39							
2												
3	ACID	ETDprefix	ETD	ETAprefix	ETA	DCENTR	ORIG	AFIX	DFIX	DEST	ASLOT	SlotTime
4	NWA126	A	17/1404	A	17/1500	ZMP	MSP	KRENA	RST	ORD	17/1500A	17/1500
5	ASH7212	A	17/1439	A	17/1500	ZAU	SBN	PAPPI	-	ORD	17/1511A	17/1511
6	UAL835	A	17/1309	A	17/1501	ZNY	LGA	PAPPI	COATE	ORD	17/1502A	17/1502
7	SKW6259	A	17/1432	A	17/1501	ZAU	PIA	-	-	ORD	-	-
8	EGF320	A	17/1413	A	17/1502	ZID	CMH	BEARZ	-	ORD	17/1509A	17/1509
9	EGF076	A	17/1419	A	17/1504	ZID	CVG	BEARZ	MIE	ORD	17/1508A	17/1508
10	UAL477	A	17/1252	A	17/1504	ZBW	PVD	PAPPI	-	ORD	17/1507A	17/1507
11	SKW5875	A	17/1422	A	17/1505	ZAU	CID	KRENA	-	ORD	-	-
12	AAL1610	A	17/1416	A	17/1505	ZKC	STL	PLANO	CAP	ORD	17/1505A	17/1505
13	EGF404	A	17/1433	A	17/1506	ZAU	IWA	BEARZ	-	ORD	17/1504A	17/1504
14	COA1746	A	17/1255	A	17/1507	ZHU	IAH	PLANO	LFK	ORD	17/1510A	17/1510
15	EGF524	A	17/1438	A	17/1507	ZAU	MSN	KRENA	-	ORD	17/1503A	17/1503
16	EGF399	A	17/1426	A	17/1508	ZAU	CID	KRENA	-	ORD	17/1506A	17/1506
17	AAL1073	A	17/1249	A	17/1508	ZMA	TPA	BEARZ	BAYPO	ORD	17/1513A	17/1513
18	EGF415	A	17/1311	A	17/1509	ZNY	HPN	PAPPI	COATE	ORD	17/1515A	17/1515
19	USA926	A	17/1340	A	17/1510	ZTL	CLT	BEARZ	JOTTA	ORD	17/1517A	17/1517
20	MES3450	A	17/1348	A	17/1511	ZME	MEM	PLANO	CUBA	ORD	17/1514A	17/1514
21	SKW5954	A	17/1415	A	17/1513	ZID	LEX	BEARZ	-	ORD	17/1522A	17/1522
22	AAL1145	A	17/1428	A	17/1513	ZOB	DTW	PAPPI	DUNKS	ORD	17/1521A	17/1521
23	EGF991	A	17/1333	A	17/1514	ZDC	BWI	BEARZ	LDN	ORD	17/1524A	17/1524
24	SKW5966	A	17/1431	A	17/1514	ZKC	SPI	PLANO	-	ORD	17/1512A	17/1512
25	UAL1446	A	17/1252	A	17/1515	ZJX	MCO	BEARZ	CAMAN	ORD	17/1526A	17/1526
26	EGF408	A	17/1424	A	17/1516	ZMP	RST	KRENA	-	ORD	17/1518A	17/1518
27	LOF7998	A	17/1429	A	17/1516	ZKC	STL	PLANO	CAP	ORD	17/1520A	17/1520
28	UAL881	L	17/1309	E	17/1516	ZBW	BOS	PAPPI	MHT	ORD	17/1519A	17/1519
29	COA1175	A	17/1325	A	17/1517	ZNY	EWR	PAPPI	COATE	ORD	17/1523A	17/1523
30	UAL609	A	17/1344	A	17/1517	ZDC	DCA	BEARZ	AML	ORD	17/1525A	17/1525
31	EGF031	A	17/1432	A	17/1518	ZID	IND	PLANO	-	ORD	17/1528A	17/1528
32	EGF227	A	17/1424	A	17/1518	ZMP	DSM	KRENA	-	ORD	17/1527A	17/1527
33	EGF150	A	17/1405	A	17/1520	ZTL	TYS	BEARZ	-	ORD	17/1536A	17/1536
34	LOF7999	A	17/1357	A	17/1520	ZOB	ROC	PAPPI	-	ORD	17/1530A	17/1530

Figure 6 - 33 . Exported Flight List

Viewing a Single Flight

You can view information for a single flight by:

- Searching By Callsign for the flight
- Viewing the Flight Information window
- Viewing the Flight Detail window

This section describes how to access and use each of these methods to obtain information on a specific flight.

Search By Callsign

You can use the Search By Callsign component when you know the call sign for the flight you want to view. In FSM, the uniqueness of a flight relies on the call sign, origin, and

destination. In performing the search, if you enter only the call sign, leaving Origin blank, FSM finds all flights with that call sign regardless of the origin airport.

To use Search By Callsign

1. Ensure you have a data set open.
2. From the Time Line or Flight List component select **[Component Name] > Search By Callsign** (or select **Utilities > Search By Callsign** from the Control Panel).

   The Search By Callsign dialog box opens.

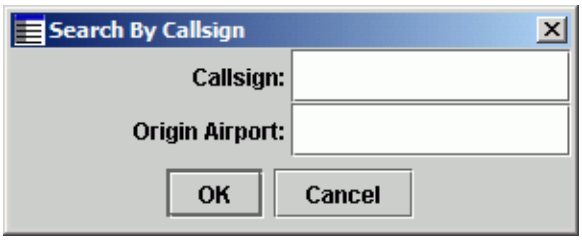


Figure 6 - 34 : Search By Call sign Dialog Box

3. Enter the flight's ***Callsign*** and ***Origin Airport***.

   Note: The origin airport field is optional.

4. Click **OK**.

   The Flight Info window for that flight opens or if more than one flight has the call sign you entered, a Flight List opens displaying all flights that match the callsign searched (Figure 6 - 35).

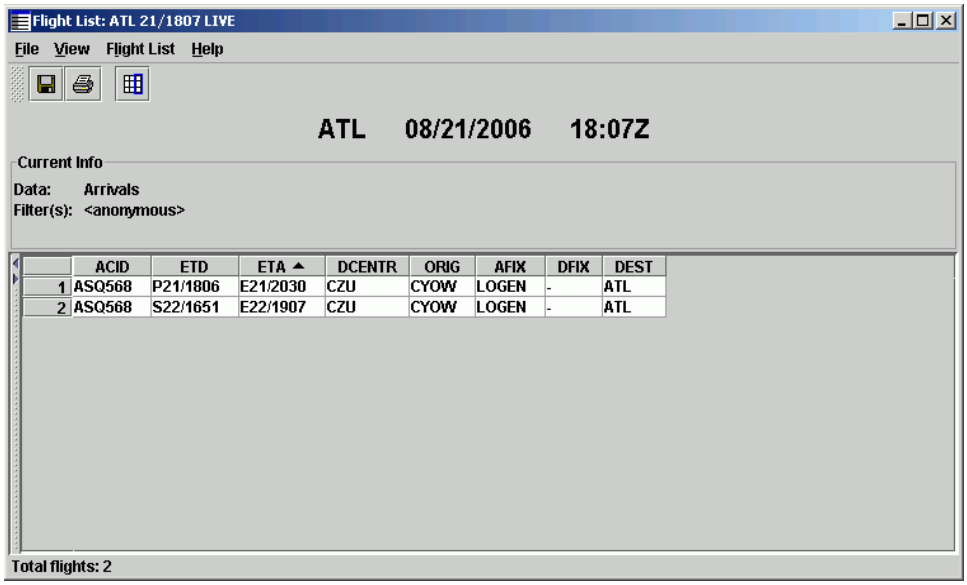


Figure 6 - 35 : Duplicate Flight Warning

5. Right-click the flight in the Flight List and select either Flight Info or Flight Detail to view the selected flight's information.

Using wildcards to search for a flight

You can use the * and ? wildcards to search for flights for which you have incomplete call sign or origin airport information. For example, you have call sign SWA13 but are missing the last two digits and the origin airport starts with a D.

1. Ensure you have an airport data set open.
2. From the Time Line component select **Time Line > Search By Callsign** (or select **Utilities > Search By Callsign** if the Time Line is not open).

   The Search By Callsign dialog box opens.
3. Enter the flight's ***Callsign*** and ***Origin Airport*** using the wildcards.

   Note: The wildcard '?"stands in for one character (e.g., SWA1?? returns all SWA flights with two ID numbers). The wildcard '*' stands for multiple characters (e.g., UAL* returns all UAL flights with any length ID number.

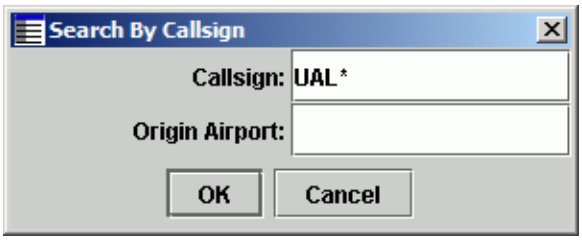


Figure 6 - 36 : Search by call Sign with wildcard

4. Click **OK**.

   The Flight Info window for that flight opens. If more than one flight meets these criteria, a Flight List displays displaying all matching flights. The Flight List operates in the same way as any other Flight List.
5. Click **Cancel** on the Search By Callsign dialog box to exit the search.

Flight Info Window

You can access individual flight information by right-clicking any flight icon in the Time Line component or by right-clicking a single flight in a Flight List and selecting **Flight Info** from the pop-up menu (see Figure 6 - 37). The Flight Info window opens. The Flight Info window gives you some general ADL information for the selected flight.

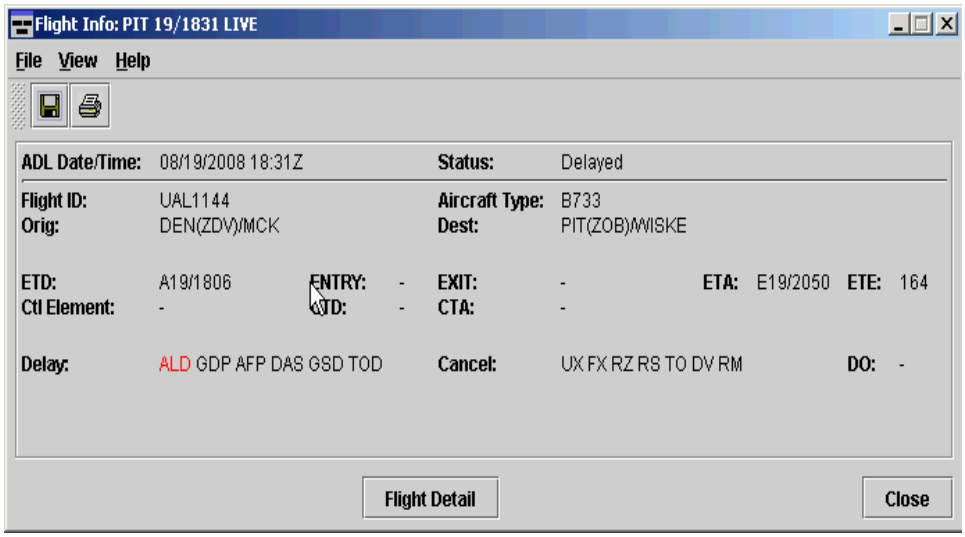


Figure 6 - 37 : Flight Information Window

Flight Information Data

The Flight Info window contains the following information:

- ***ADL Date/Time*** – The date and time at which you are viewing the flight. In Monitored Live mode, this is always the current date and time.
- ***Status*** – Flight Status describes the current status of a flight. For example, a flight can be Delayed, In Program, or Unknown.
- ***Flight ID*** – The aircraft call sign (a combination of airline code and flight number). FSM filters this information for airline users.
- ***Aircraft Type*** – Indicated the type of aircraft.
- ***Orig*** – Origin airport of the flight, with the corresponding center in parentheses.
- ***Dest*** – Destination airport of the flight, with the corresponding center in parentheses.
- ***ETD*** – Most recent Estimated Departure Time for the flight.
- ***ENTRY*** – Estimated Element Entry Time. The estimated time when the flight will enter the FCA or FEA. This field is null if the flight does not fly through an FEA or FCA.
- ***EXIT*** – Estimated Element Exit Time. The estimated time when the flight will exit the FEA or FCA. This field is null if the flight does not fly through an FEA or FCA.
- ***ETE*** – When available, FSM gives the actual time en route for the flight. Otherwise, FSM gives an estimated time en route.
- ***ETA*** – Most recent Estimated Arrival Time for the flight.
- ***Ctl Element*** – If a flight is controlled (i.e., has a CTD and CTA), the CTL_ELEM indicates the constrained NAS element for which a ground delay program or ground stop was run. Currently, the CTL_ELEM can be an arrival airport, FEA, or FCA. This field is null if the flight is not controlled.
- ***CTD*** – *The Control Time of Departure for the flight, if it has one.*

- ***CTA*** *– The Control Time of Arrival for the flight, if it has one.*
- ***Delay*** – If the flight is delayed, one of the delay codes is highlighted. ALD indicates that the carrier imposed a delay on the flight. GDP indicates that the flight is delayed because of a ground delay program. AFP indicates that the flight is delayed because of an airspace flow program. DAS (formerly FAD) indicates that the flight is delayed because of pop-up flight(s) after the GDP was issued. GSD indicates that the flight is delayed because of a ground stop. TOD indicates the flight is delayed because its ETD timed out in ETMS (the number in parentheses next to this field indicates the length in minutes of the time out delay); the flight passed its ETD without taking off.
- ***Cancel*** – If the flight is cancelled, one of the cancellation codes is highlighted. UX indicates that the flight was cancelled due to an EDCT update, which a traffic manager may use to cancel a flight. FX indicates that the flight was cancelled using an FX message, which is the CDM message used by the airlines to indicate a cancelled flight. RZ indicates that the flight was cancelled using an RZ message, which is a NAS flight plan cancellation message. RS indicates that the flight was cancelled using an RS message, which is an internal ETMS message generated when a specialist takes an OAG flight out of the database. TO indicates that ETMS considers the flight time out cancelled because no activation message has been received within a certain time of the predicted departure time. The amount of time out delay displays in parentheses. DV indicates that the flight was cancelled and diverted to an alternate destination. RM indicates that the flight has been removed from the ETMS database. DO indicates that the flight was originally routed through an FEA/FCA, but has since changed its route so that it no longer travels through the FEA/FCA.
- ***DO*** – The DO flag displays Red if the flight has dropped out of an FEA/FCA.

Flight Info buttons

- **Flight Detail** – Clicking this button brings up the Flight Detail window. This window provides more detailed information for the flight.

Flight Info Menu

The menu bar in the Flight Info window contains three options: **File, View,** and **Help**.

1. File Menu
   - **File > Save As** – Saves the flight information to a text file, which you can open later and use again.
   - **File > Print** – Prints the flight information you see on the screen.
   - **File > Close** – Closes the Flight Info window.
2. View Menu
   - **View > Flight Detail** – Displays the Flight Detail window.
3. Help Menu
   - **Help > Flight Information** – Opens the on-line help information for the Flight Info window.

Flight Detail Window

Use **Flight Detail** to obtain more detailed information for a specific flight than displays in the Flight Info window (see Figure 6 - 38). There are four ways to access the **Flight Detail** window:

1. Right-click any flight icon in the FSM Time Line and select **Flight Detail**.
2. Right-click a flight in any FSM Flight List and select **Flight Detail**.
3. Click **Flight Detail** from the Flight Information window.
4. Select **View > Flight Detail** in the Flight Information window.

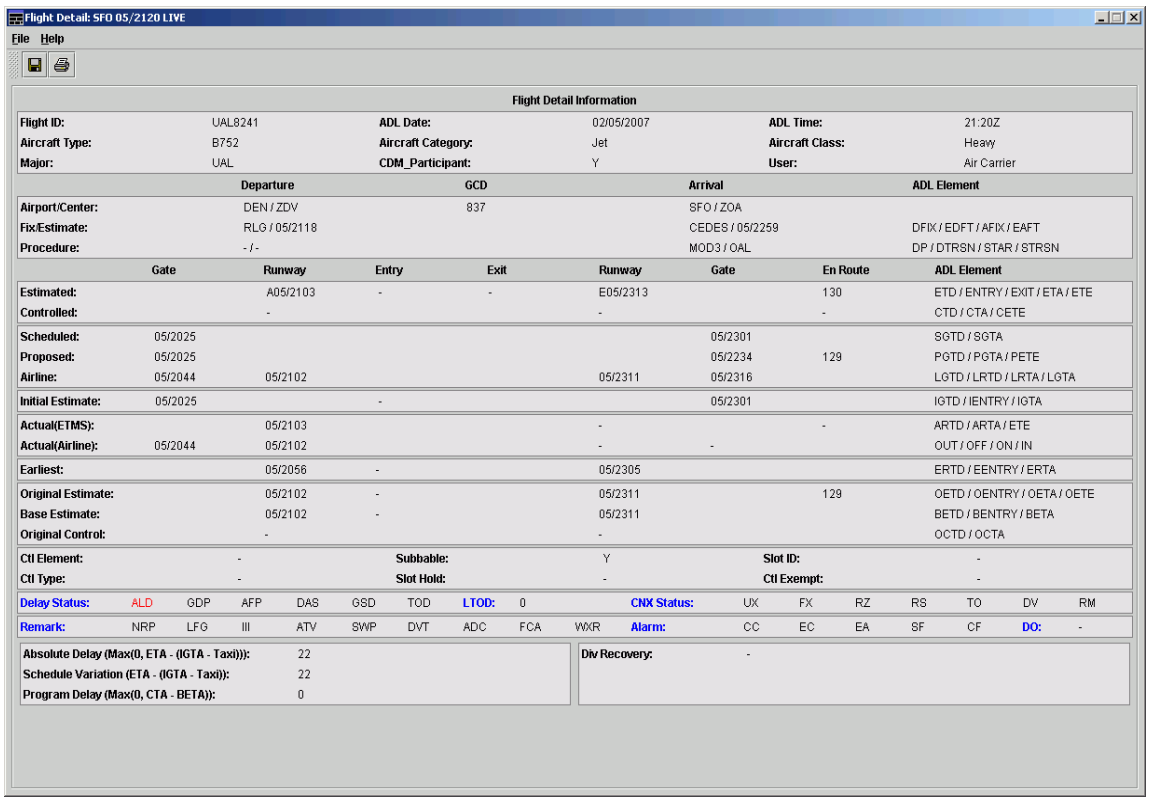


Figure 6 - 38 : Flight Details Window

Flight Detail ADL Data Elements

The Flight Details window contains the following information:

- ***Flight ID*** – The code that identifies the airline and flight number.
- ***Date/Time*** – The date and time at which you are viewing the flight. In Monitored Live mode, this is always the current date and time.
- ***Aircraft Type*** – Indicates the type of aircraft being used for the flight.
- ***AC_CAT*** – Indicates the equipment type: propeller, jet, turbo, or unknown.
- ***Class*** – The class to which the aircraft belongs. Classes are: heavy, large, or small.
- ***Major*** – The airline carrier that controls substitutions for the flight.

- ***CDM_Participant*** – Indicates whether the flight belongs to an airline that participates in the FAA's Collaborative Decision Making program.
- ***User*** – The user class to which the aircraft belongs. User Classes are: air carrier, air taxi, air cargo, military, general aviation, and other.
- ***Departure Information*** – This column contains the flights Departure information.
- **GCD** – This field indicates the Great Circle Distance (GCD), which is the distance between the origin airport and arrival airport.
- ***Arrival Information*** – This column contains the flights Arrival information.
- ***ADL Element*** – This column indicates which ADL elements FSM used to derive the information in each column. For example, to display the flight's departure fix time, FSM uses the ADL element marked DFIX.
- ***Airport/Center*** – Includes the flights' origin and destination Airport and Center (Airport/Center). This row also contains the flight's GCD.
- ***Fix/Estimate*** – Departure Fix (DFIX), Estimated Departure Fix Time (EDFT), the arrival Fix (AFIX), and Estimated Arrival Fix Time (EAFT).
- ***Procedure*** – Departure Procedure (DP), Departure Procedure Transition (DTRSN), Standard Terminal Arrival Route (STAR) and Standard Transition (STRSN)
- ***Gate***, ***Runway***, ***ENTRY***, ***EXIT***, and ***En Route Times*** – This section of the Flight Details window displays estimated, controlled, scheduled, proposed, airline, and actual times for several fields that allow you to track the flight's progress from the departure gate and runway to the destination runway and gate. It also includes entry and exit times for flights traversing FEAs or FCAs. The information includes the various times given for:
    - ***ETD/ENTRY/EXIT/ETE/ETA*** – Estimated Wheel Times, Entry times and Exit times

    Note: FSM displays the CTA under Entry if an airspace Element controls a flight. FSM displays CTA under Runway for all other instances.

    - ***CTD/CTA/CETE*** – Control Times
    - ***SGTD/SGTA*** – Scheduled Gate Times
    - ***PGTD/PGTA/PETE*** – Proposed Gate Times
    - ***LGTD/LRTD/LRTA/LGTA*** – Airline Gate and Runway Times
    - ***IGTD/IENTRY/IGTA*** – Initial Estimated Gate/Entry Times
    - ***ARTD/ARTA/ETE*** – Actual Runway Times
    - ***OUT/OFF/ON/IN*** – Time that the flight was out of the departure gate, off the departure runway, on the arrival runway, and in the arrival gate.
    - ***ERTD/EENTRY/ERTA*** – Earliest Runway/Entry Times
    - ***OETD/OENTRY/OETA/OETE*** – Original Estimated Wheel/Entry Times

- ***BETD/BENTRY/BETA*** – Beginning Estimated Wheel/Entry Times
- ***OCTD/OCTA*** – Original Control Times

- ***Ctl Exempt/ Ctl Type/ Ctl Element*** – Displays the type of controls on the flight resulting from a program.
- ***Slot ID/Slot Hold*** – The Slot ID is the currently assigned slot for the flight. Slot Hold indicates whether the slot is being held so that it is not used in compression. A "Y" indicates the slot is being held. A dash (-) indicates the slot is not being held.
- Diversion Recovery **(*Div Recovery*)** – Indicates whether the flight is a diversion recovery leg of a previous flight.
- ***Delay Status*** (ALD GDP DAS (formerly FAD) GSD TOD) – Indicates the type of delay, if any, on a flight.
- ***LTOD*** – If a flight is time out delayed, the length of time out delay displays here.
- ***CNX Status*** (UX FX RZ RS TO DV RM) – Indicates the cancellation status of the flight. The codes indicate how or why the flight was cancelled.
- ***Remark*** (NRP LFG III ATV SWP DVT ADC FCA WXR) – These codes indicate important information about the flight. NRP is National Route Program flight. LFG is Lifeguard flight. III is Category III flight. ATV is Altitude reservation. SWP is SWAP flight. DVT is Diversion recovery flight. ADC is Advise customs. FCA is Flow Constrained Area. WXR is Severe weather route.
- ***Alarm Status*** (CC EC EA SF CF) – Indicates the type of alarm criteria, if any, that the flight meets.
- ***DO*** (Y N) – Indicates whether the flight has dropped out of the FEA/FCA. If the flight has dropped out the Y is colored red for easier viewing.
- ***Absolute Delay*** (Max [0, ETA - (IGTA - Taxi)]) – FSM calculates the Absolute Delay to include all types of delay on a flight. This includes FAA and airline-imposed delay due to traffic management initiatives, mechanical delays, etc. Please note that delay can be only a positive integer. Therefore, if the flight is running as scheduled or is early, Absolute Delay is a value of zero (0).
- ***Schedule Variation*** (ETA - [IGTA - Taxi]) – Schedule variation is almost identical to absolute delay with the exception that schedule variation can include negative values. A negative value in the Schedule Variation field indicates that the flight is running earlier than scheduled.
- ***ATC Delay*** (Max [0, CTA - BETA]) – ATC Delay includes only that delay that results from an FAA traffic management initiative and any action taken by the airline as a result of the traffic management initiative. This does not include airline-imposed delay, such as mechanical failures, crew delay, etc. ATC Delay can be only a positive integer. If the flight is running ahead of its schedule, ATC delay is a value of zero (0).

Note: For a description of each of the flight data fields contained in the Flight Details window. See ADL Data Format or select **Help > ADL Data Elements** from the FSM Control Panel component.

Flight Detail Menu

The menu bar in the Flight Detail component contains two options: **File** and **Help**.

1. File Menu
   - **File > Save As** – Saves the Flight Detail to a text file, which you can open later and use again.
   - **File > Print** – Prints the Flight Detail information you see on the screen.
   - **File > Close** – Closes the Flight Detail window.
2. Help Menu
   - **Help > Flight Details** – Opens the on-line help for Flight Details information.

Viewing Problem Flights

In the air traffic community, operators need to identify which flights from their own operations may be contributing to delay and cancellation problems. Delays and cancellations, caused by Time Outs, occur when no activation message has been received within a certain time of the predicted departure time. Time Outs can be problematic when trying to manage air traffic. To help, FSM includes two reports for problem flights: Time Out Delay Report and Time Out Cancel Report. See Chapter 21: Understanding and Using FSM Reports for more information about these reports. You can group and sort Report Lists using the same methods described in the Flight List section. You can access all reports lists from the **Reports** menu on the Control Panel component.

Other Flight Reports

Flight reports in FSM are a good way to view a set of flights arriving at an airport that meet specific criteria. You can access the following reports from the **Reports** menu on the Control Panel component:

- Surface Delay Report
- Priority Flight Report
- Slot Hold Report
- Sub Opportunities Report

See Chapter 21: Understanding and Using FSM Reportsfor more information about these reports.

Compliance Flight Lists

When any flight becomes noncompliant, FSM generates a Flight List, called a compliance report, that includes these flights. You can access the compliance reports from the **Reports > Compliance >** option from the Control Panel component. There are five possible compliance reports:

- By CTD

- By ETE
- By CTA
- Spurious Flight
- Cancel That Flew

See Chapter 21: Understanding and Using FSM Reports for more information about these reports.

Query Manager Flight Lists

The Query Manager component can query an element and generate a Flight List that contains only flights that meet certain criteria. You can access the Query Manger by selecting **Utilities > Query Manager** on the FSM Control Panel component. From the Query Manger, select any one of the Built-In or User Defined Filters then click **Flight List** or select **View > Flight List**.

> **Note:** If you do not have a data set selected, FSM displays a “No Active Data Sets” error message.

The generated Flight List contains only those flights that meet the selected criteria. For more detail on how to view and use flight filters in Query Manager, see Chapter 22: Using Query Manager.

7: Evaluating Airport and Airspace Conditions

Decision support or modeling tools are functions in FSM that aid you in looking at various operational or traffic scenarios. You can use modeling tools to analyze existing operations and previous days' events. This chapter reviews some of the utilities in FSM specifically set up to help you model various air traffic scenarios. You can use these tools at any time during your FSM session.

Adverse weather or any other significant airport event can decrease the airport's or airspace's capacity, which lowers the AAR. When the arriving flight demand exceeds the AAR capacity, then you may need a Traffic Management Initiative (TMI).

FSM allows you to model different scenarios in Ground Delay Tools (GDT) mode to help you determine what type of TMI would be most effective. Either a Ground Delay Program, or Ground Stop, or in some cases more both may be necessary. Alternately, an Airspace Flow Program might be more effective.

Evaluating Demand Versus Capacity

Bar Graph

The Bar Graph serves as a quick look to see if demand exceeds the airport's or airspace's capacity. The arrival flow rate displays the demand independently of the time-bin conventions. Therefore, you can view where the fluctuations in demand are located within each hour. If there are several hours where demand is significantly greater than the AAR, you may need a TMI to control the traffic flow into the airport or airspace.

The Bar Graph component is colored according to the tab option currently in use. For example, if the Status tab is active, the bars in the graph are colored according to the percentage of flights that represent each respective arrival status. If half of the flights for one time period have not departed (light green), while the other half are in the air (red), the bar for that hour is half red and half green. If every flight for the hour has already landed, the bar for that hour is black. The Bar Graph is dynamic and changes according to the information in each ADL update. The Bar Graph also automatically updates itself when you choose a different tab option. See Chapter 3: Understanding Components for more information.

Time Line

The Time Line component is colored according to the tab option currently in use. You can view the default colors from the Time Line's legend. See Chapter 3: Understanding Components for more information. At the top of each hour column in the Time Line, the AAR and expected demand are displayed for that hour. For example, 94/101 indicates that the AAR is 94 and the demand expected for that hour is 101 (see Figure 7 - 1). There are situations where demand exceeds capacity in one hour but the next hour has plenty of room to accommodate the spill over from the previous hour. In these instances, a TMI would be unlikely. Figure 7 - 1 shows an AAR of 94. At 2000z, the demand expected is 101; therefore, the demand exceeds the capacity by 7 flights. At first glance this seems

excessive, but looking into the next hour, the expected demand is only 83. The airport can accommodate the 7 flights from the 2000z hour in the 2100z hour. A TMI is more likely when demand exceeds capacity for several hours.

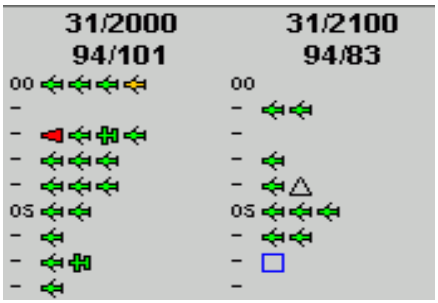


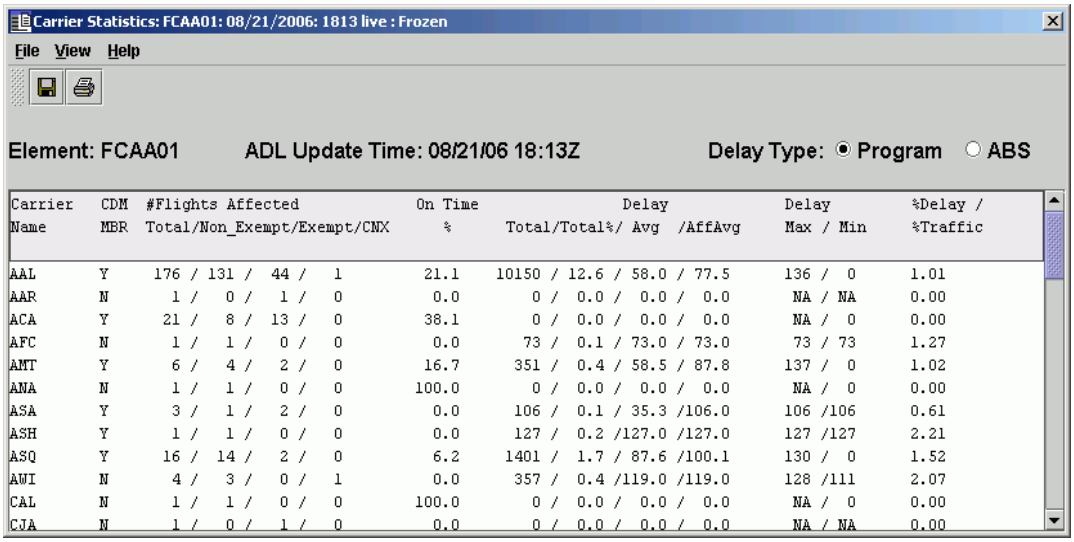
Figure 7 - 1 : Time Line AAR vs. Demand counts

Deciding when a TMI is necessary is not always this simple, but the ATCSCC works closely with all participants through telcons to decide when a TMI is essential.

TMI Evaluation Using Carrier Statistics Report

When you run a TMI, FSM generates a Carrier Statistics report. You can view this report from the Control Panel component by selecting **Reports > Carrier Statistics** or from **View > Carrier Statistics** on any TMI Coversheet. Ensure the desired data set is active to review the correct carrier statistics. From the Carrier Statistics report you can view Program delay or ABS delay (total delay including airline delay). The Carrier Statistics report is based on a flight's ETA and displays specific delay information for each carrier's flights. The Carrier Statistics report is particularly helpful to airlines. Airlines can view how the TMI affects them.

Figure 7 - 2 is an example of the ATCSCC personnel view of the carrier statistic report. Airlines would only see their own callsign and any sub-carriers. For more information on the Carrier Statistics report, see Chapter 21: Understanding and Using FSM Reports.



Carrier Name	CDM MBR	#Flights Affected Total/Non_Exempt/Exempt/CNX	On Time %	Delay Total/Total%/ Avg /AffAvg	Delay Max / Min	%Delay / %Traffic
AAL	Y	176 / 131 / 44 / 1	21.1	10150 / 12.6 / 58.0 / 77.5	136 / 0	1.01
AAR	N	1 / 0 / 1 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
ACA	Y	21 / 8 / 13 / 0	38.1	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
AFC	N	1 / 1 / 0 / 0	0.0	73 / 0.1 / 73.0 / 73.0	73 / 73	1.27
AMT	Y	6 / 4 / 2 / 0	16.7	351 / 0.4 / 58.5 / 87.8	137 / 0	1.02
ANA	N	1 / 1 / 0 / 0	100.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
ASA	Y	3 / 1 / 2 / 0	0.0	106 / 0.1 / 35.3 /106.0	106 /106	0.61
ASH	Y	1 / 1 / 0 / 0	0.0	127 / 0.2 /127.0 /127.0	127 /127	2.21
ASQ	Y	16 / 14 / 2 / 0	6.2	1401 / 1.7 / 87.6 /100.1	130 / 0	1.52
AWI	N	4 / 3 / 0 / 1	0.0	357 / 0.4 /119.0 /119.0	128 /111	2.07
CAL	N	1 / 1 / 0 / 0	100.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
CJA	N	1 / 0 / 1 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00

Figure 7 - 2 : Carrier Statistics

Modifying Program Rates

Modeling the Program Rate on the Bar Graph is helpful to visually determine how a lowered AAR affects the balance between capacity and demand. If demand exceeds the reduced AAR, then a TMI may be necessary.

Specify Model Program Rate

The **Bar Graph > Model Program Rate > Specify** allows you to change the Model Program Rate for a specific amount of time. You can set the Model Program Rate for up to 36 hours beyond the current time. The new Model Program Rate displays in the Bar Graphs. The Time Line only displays actual ADL AAR rates.

Changing the Rate

There are several ways to change the model Program Rate using the Specify Model Program Rate window, including the ability to assign several different Program Rates within the same hour.

To modify rates, enter the new value in the ***With*** text box. Then, fill in the hours in the ***From Hour*** and ***Through Hour*** text boxes to reflect the duration of the new Program Rate. Click **Fill** to automatically fill those hours. This is a good option when you need to fill a block of hours with one rate.

To fill several hours, each with different rates, you can enter new values directly into the Element row cells next to the appropriate Time column cells that you want to change.

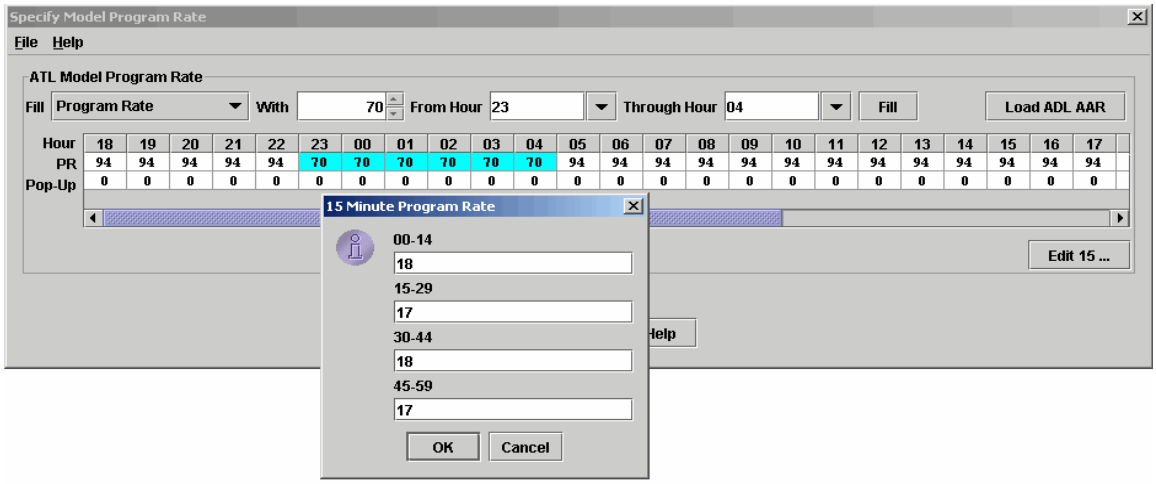


Figure 7 - 3 : Specify Model AAR Window and 15 Min AAR Dialog Box

To fill a single hour with multiple Program Rates, click the cell you want to modify and then click **Edit 15** in the lower right-hand corner of the rates table or right-click an active cell in the Element row. The 15 Min Program Rate dialog box displays.

This window allows you to assign Program Rates in 15-minute increments for that hour. For example, Figure 7 - 3 illustrates a Program Rate of 50, but for the first fifteen minutes the element can take 10 flights. Therefore, you need to assign an AAR of 13, 14, and 13 for the other 15-minute time increments. You can assign any value in each 15-minute increment as long as the total equals the overall Program Rate for that hour. Click **OK** to change the 15-minute increments for that hour or **Cancel** to close the window. When an hour increment is not evenly distributed in the 15-minute increments, the cell is colored green.

After changing your Model Program Rate information, click **OK** from the Specify Model Program Rate window to reflect the changes in your local Bar Graph component.

View Model Program Rate

The dashed, white line represents the modeled Program Rate. To view the modeled Program Rate, you must select the **View > Model Program Rate** checkbox. In all FSM modes, the Model Program Rate initially displays in the same position as the ADL AAR in the Bar Graph. If the ADL AAR displays on the graph, the dashed line (for modeling) is hidden behind the white solid line. In addition to changing the model Program Rate from the **Bar Graph > Model Program Rate > Specify** feature, you can change the Program Rate by placing your cursor over the Program Rate line and dragging the model line to your desired model rate.

> **Note:** Only the portion of the line to the right of the cursor moves**.**

Any portion of the line to the left of your cursor should remain in the same position as you drag the line to a new AAR. The Bar Graph component and the Specified Model Program Rate component dynamically synchronize; therefore when you alter an Program Rate

from one component, the changes also are reflected in the other. For more information on Program Rate see Chapter 5: Viewing Demand.

Apply or Clear Program Rate Changes

After you enter new Program Rate information, there are three options available on the Specify Model Program Rate panel:

- **OK** – Applies the newly modeled Program Rate to the Bar Graph and closes the Specify Model Program Rate window.
- **Cancel** – Closes the Specify Model Program Rate window without taking any action.
- **Help** – Defines the function of the component.

Specify Model Program Rate Menu Options

1. File Menu
   - **File > Open** – Opens previously saved Program Rate parameters.
   - **File > Save As** – Saves the Program Rate parameters to a text file which you can open later and use again.
   - **File > Print** – Prints the Specify Model Program Rate window.
   - **File > Close** – Closes the Specify Model Program Rate window.
2. Help Menu
   - **Help > Demand Rates** – Opens the on-line help for Specifying Program Rates.

Reset Program Rate Model Data

You can reset the Program Rate data to the original data in several ways during your FSM session. In the Bar Graph, you can select **Bar Graph > Model Program Rate > Reset** in the Monitored Live, Historical, or GDT mode. You can select **Utilities > Model Program Rate > Reset** from the Control Panel.

You can also reset the Program Rates from the Specify Program Rate window. Select **Bar Graph > Model Program Rate > Specify** and click **ADL AAR** to reset the Program Rates to the original values.

Manipulating Data Time

Set Time (Historical Mode)

When working in Historical Mode, you have the ability to specify the time you would like to view. You can specify the data time from the Open Data Set component when you first open an airport, FEA, or FCA in Historical Mode or at any time while you are in Historical Mode. To change the data time when viewing an airport, FEA, or FCA in Historical Mode, select **Bar Graph > Set Time**. This feature is available only in Historical Mode. The Set time dialog box displays and allows you to specify the time at which to

view the data (see Figure 7 - 4). Select the day from the dropdown box and enter the time in “hhmm” format.

Note: Time in FSM is always in Zulu time unless otherwise specified.

Click **OK** to update flights’ data to the closest to (but no later than) the entered time. Click **Cancel** to close the Set Time dialog box without changing the data time.

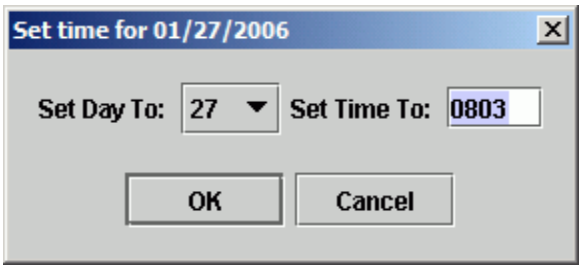


Figure 7 - 4 : Set Time Dialog Box

Modify Data Time (GDT Mode only)

You can select the ***Data Time*** from the Parameters tab on the GDT Setup component (see Figure 7 - 5). The data time allows you to change the data time without making any modifications to the data itself. If you wanted to model what might happen if the program was modeled and run an hour from the current time, you could set the Data Time to be an hour in the future. In the ***Data Time*** textbox, enter a time in “ddhhmm” format to change the time. Valid times are from 0000 - 2359. When you change the ***Data Time*** to a value other than the current time, the ***Data Time*** text box, as well as the GDT tab border, is highlighted in red.

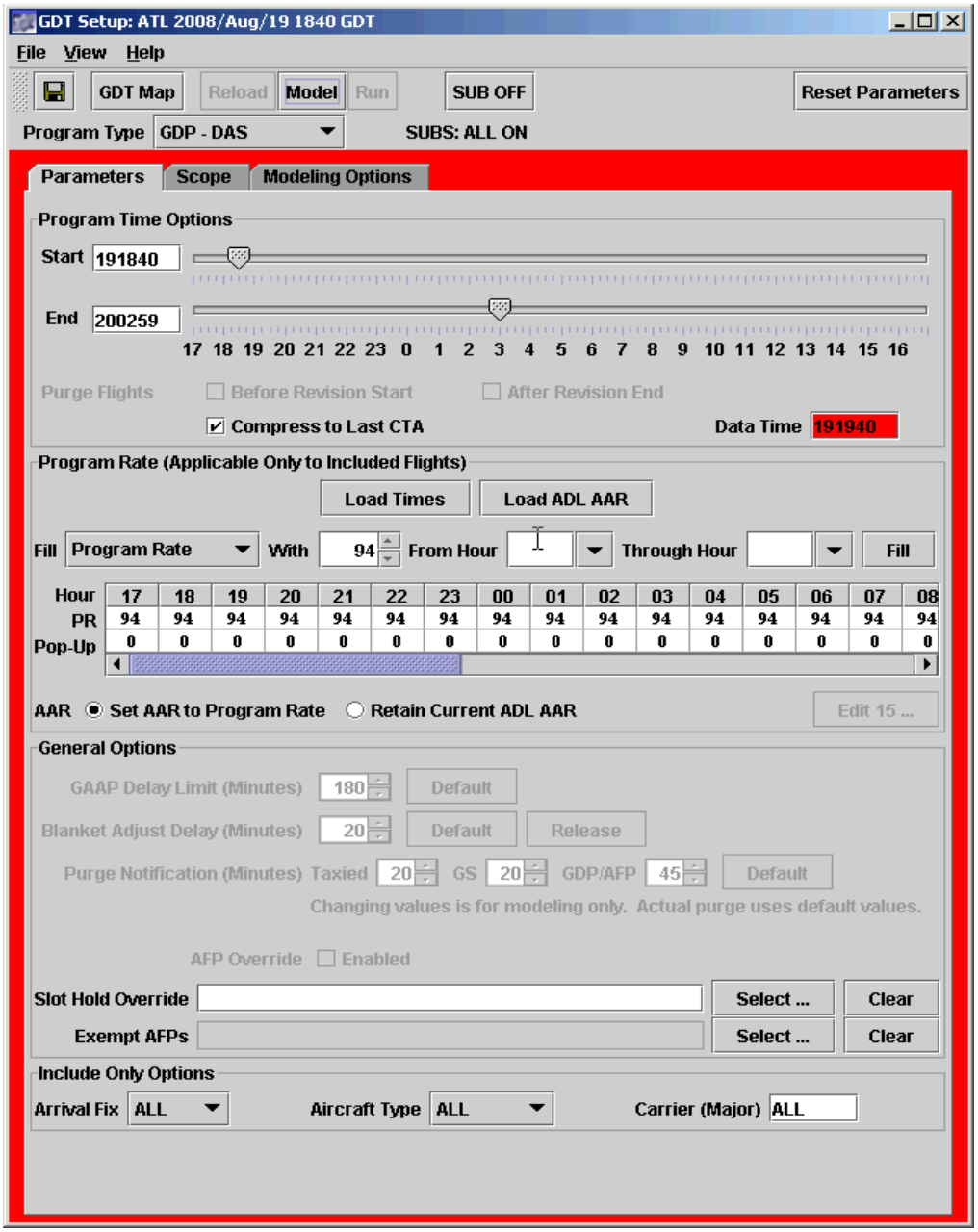


Figure 7 - 5 : GDT Setup Component

Update Data Time (Historical Mode Only)

You can only use **Update** on the Control Panel component when in Historical Mode. Click **Update** to receive the next historical ADL updates.

Remove and Restore Flights (CSA Only)

Remove Flights

You can remove flights from the ETMS database using FSM. You can use this feature to remove an airline that goes on strike, eliminate duplicate flights, or remove erroneous flights listed in the OAG. To remove a flight, ensure the airport, FEA, or FCA from which you want to remove the flight is active, and then select **ETMS Tools > EDCT Commands > EDCT Remove** from the Control Panel (see Figure 7 - 6). The EDCT Remove dialog box prompts you to type in the flight number and date. To remove the flights from the database, click **Send**. FSM prompts you to decide whether you really want to remove the flight. Click **YES** to remove the flight. Click **NO** to cancel the action. Click **Cancel** to close the dialog box without taking any action. **Help** defines and explains the Remove Flights feature.

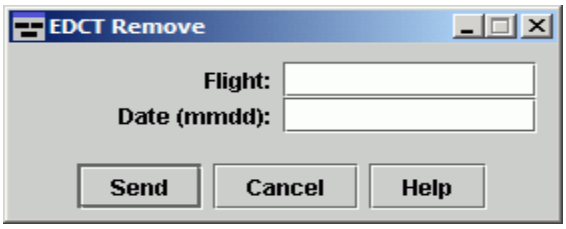


Figure 7 - 6 : EDCT Remove Dialog Box

Restore Flights

To restore a flight, select **ETMS Tools > EDCT Commands > EDCT Restore** from the Control Panel, as shown in Figure 7 - 7. The EDCT Restore dialog box prompts you to type in the flight number and date. To restore the flight to the database, click **Send.** FSM prompts you to decide whether you really want to restore the flight. Click **YES** to restore the flight. Click **NO** to cancel the action. Click **Cancel** to close the dialog box without taking any action. **Help** defines and explains the Restore Flights feature.

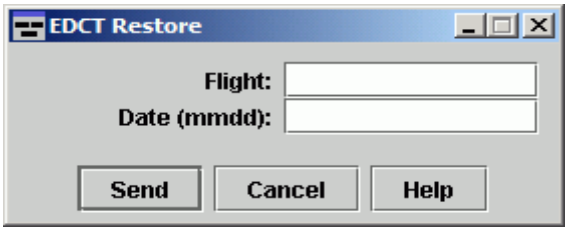


Figure 7 - 7 : EDCT Restore Dialog Box

8: Modeling a Ground Delay Program

Due to unexpected events, such as bad weather at an airport, the FAA delays flights scheduled to arrive at the affected airport. The FAA examines flights to determine whether to include them in a Ground Delay Program (GDP) based on the time period of the operation. The FAA checks those flights eligible for inclusion in the operation against the various exemption criteria specified.

Generally, a GDP is necessary where arrival demand excessively surpasses the airport capacity. The AAR defines airport capacity for a GDP. You can raise the AAR rates, or lower them, due to weather, runway closures, or any other significant event by adjusting the Program Rate with a GDP. FSM helps determine what kind of program would be necessary to adequately control the traffic flow into the airport.

One important function of FSM GDT Mode is that it allows you to view “what-if” scenarios. That is, FSM analyzes the effects of a GDP operation using different parameters you set. FSM's analysis capabilities help you determine the best parameters for a GDP operation-that minimizes impact on air carrier operations and maximizes efficiency during adverse conditions. This chapter discusses modeling a GDP in GDT Mode.

You can use the GDT Setup Panel component to model, issue, and send GDPs. In addition to GDPs FSM can also model and run Airborne Holding, Ground Stops, Compressions, Blankets, and revisions.You can manage the TMI parameters from the GDT Setup Panel. When you model a GDP, you can use parameters that you specify or you can use proposed parameters.

Modeling a GDP Using Parameters You Specify

To model a GDP, you need to set the parameters you want to use for the GDP. You can do this by opening any monitored airport in GDT mode and selecting the GDP parameters. The parameters you can set are different depending on which program type you select, this chapter will discuss setting parameters for a GDP. For more information on what parameters are available for each program type, see Chapter 3: Understanding Components.

To model a GDP using parameters you specify

For example, you want to model a GDP - DAS program type for EWR.

1. Click **Open Data Set**.

   The Open Data Set window opens.

2. Select EWR from the Airports Section on the Monitored Live tab.

   If EWR is not available from the Monitored Live tab, select the airport from the All Live tab

3. Click **Apply**.

   The Time Line and Bar Graph components for EWR are displayed.

4. Click **GDT Mode** from the main Control Panel.

Note: If there is no active airport, the **GDT Mode** button is disabled.

The GDT Setup Panel, GDT Bar Graph, and GDT Map are displayed, as shown in Figure 8 - 1.

Note: All GDT components interact with one another; The GDT Setup and GDT Map dynamically reflect one another, whereas clicking Reload or Model on the GDT Setup panel reflects changes in all components.

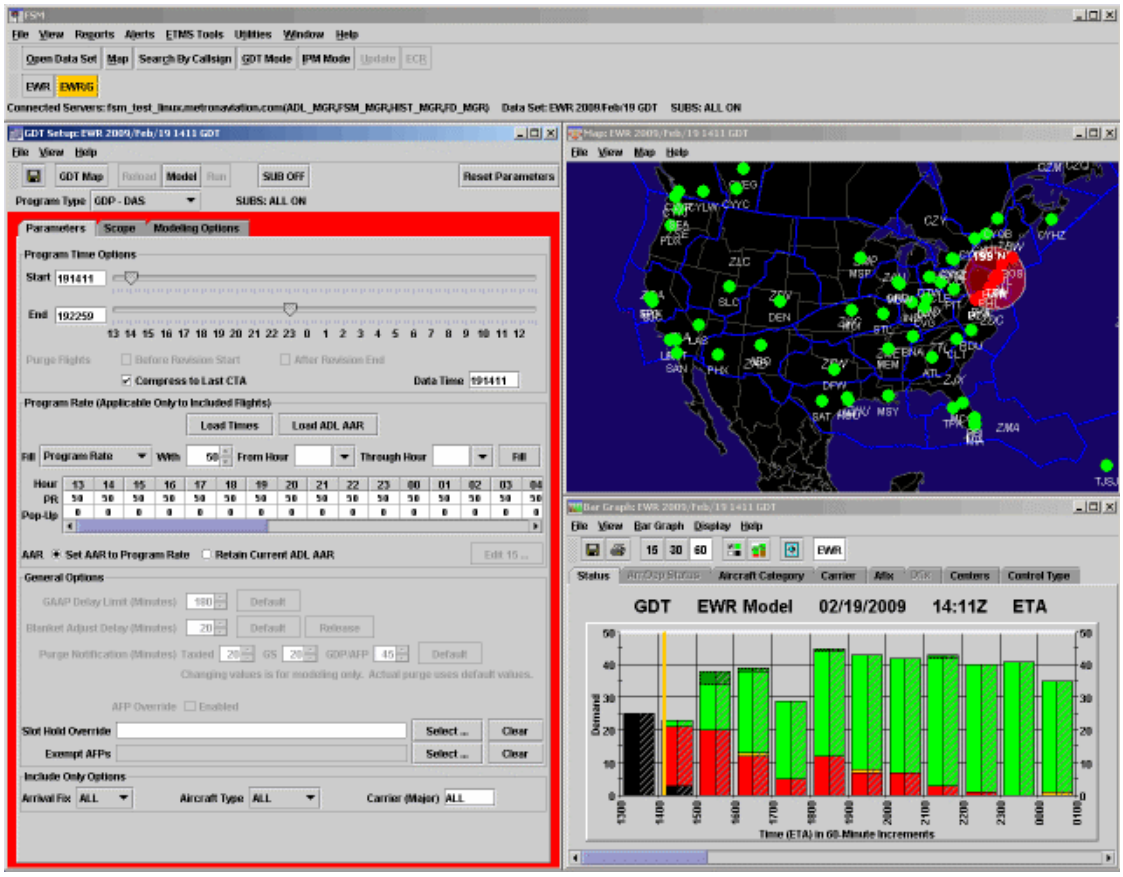


Figure 8 - 1 : Initial Default GDT Display

5. Select GDP - DAS from the ***Program Type*** dropdown menu.
6. On the Parameters tab of the GDT Setup panel (see Figure 8 - 2), complete the Program Time Options section. For this example, enter the following:
   - ***Start Time*** – 191411 (ddhhmm)
   - ***End Time*** – 192259 (ddhhmm)
7. Enter the appropriate values for the program into the Program Rate section of the Parameters tab. For this example, enter a Program Rate of 25 (See Figure 8 - 2).
8. Complete the Include Only Options section by selecting values for ***Arrival Fix***, ***Aircraft Type***, and ***Carrier*** (see Figure 8 - 2).

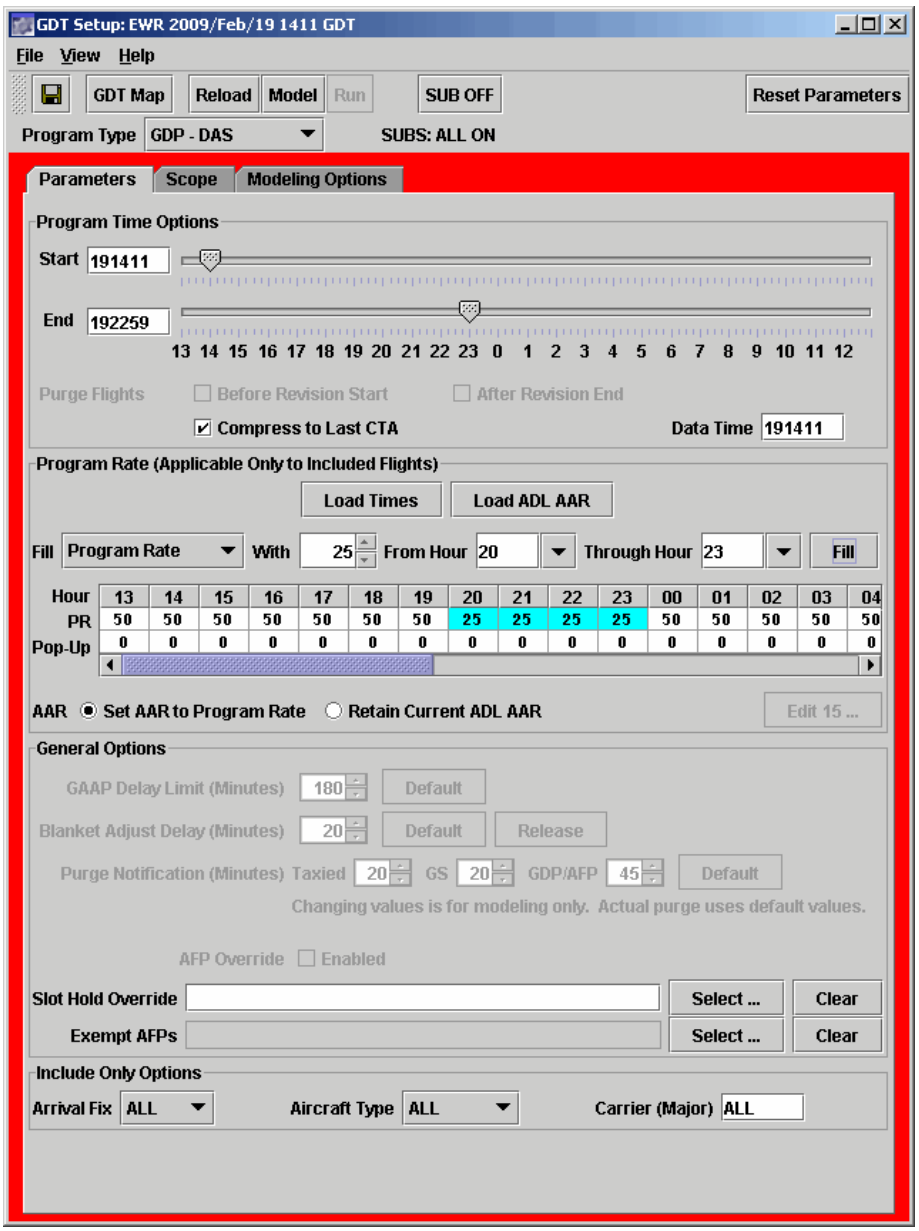


Figure 8 - 2 : GDT Setup Parameters Tab

9. Click the Scope tab, and enter the appropriate values for the program. For this example, enter the following (see Figure 8 - 3):
   - ***Select By*** – Distance
   - ***Scope*** – 400 nm

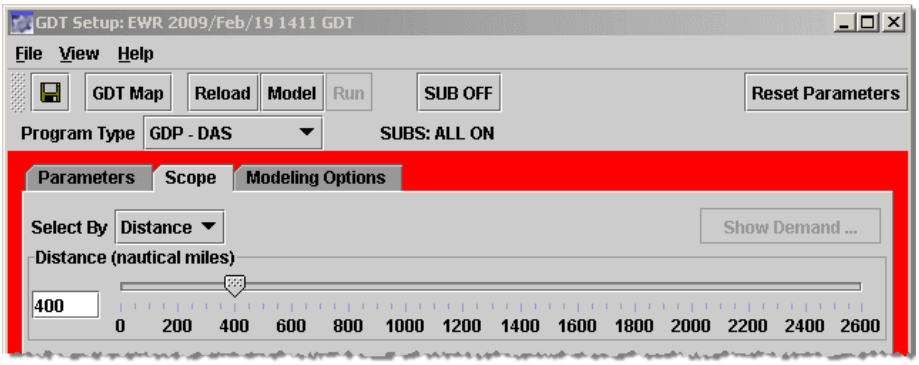


Figure 8 - 3 : Scope Selected by Distance

Note: Any changes you make to the *GDT Map* are dynamically reflected in the *GDT Setup* component's Scope tab.

10. GDP Distance is selected by default on the Modeling Options tab.
11. Click **Model**.

    FSM models the program using the parameters you provided. The red border inside the GDT Setup Panel no longer is displayed. FSM updates all GDT components with your parameters. You can use these components to determine how this program affects ATL.
12. If you want to load the latest ADL and model to analyze the data before issuing the program, click **Reload**.

    Note: You can retrieve additional GDT components from the **View** menu on the GDT Setup panel.

Modeling a GDP Using Proposed Parameters

When the ATCSCC sends out proposed parameters for a GDP, you can model those parameters to determine how they affect your situation. This can help you to plan before the ATCSCC implements the actual GDP.

Note: You can use the same steps to model actual parameters except that you select **File > Load Actual Parameters>[Program Type]** from the GDT Setup panel.

To Model a GDP using proposed parameters

For example, the ATCSCC sends out proposed parameters for GDP - GAAP program type for ATL and you want to view the program.

1. Click **Open Data Set**.

   The Open Data Set window displays.
2. Select ATL from the Monitored Live tab.
3. Click **Apply**.

The Time Line and Bar Graph components for ATL are displayed.

4. Click **GDT Mode** from the main Control panel.

   The GDT Setup Panel, GDT Data Graph, GDT Bar Graph, and GDT Map are displayed.

5. Select **File > Load Proposed Parameters>Ground Delay Program**.

   FSM loads the proposed parameters into the GDT Setup Panel.

   Note: You can only load parameters for the airport you are modeling.

6. Click **Model** or **Reload** if available.

   FSM models the program using the loaded parameters. The red border inside the GDT Setup Panel no longer is displayed. FSM updates all GDT components with the proposed parameters. You can now determine how the program affects your operations.

Impact Modeling

You can use impact modeling in GDT mode to determine how a program you are modeling for one element affects other elements. Impact modeling gives you the ability to make adjustments to the TMI based on the impact of it other elements. For more information on the Modeling Options tab, see Chapter 3: Understanding Components.

FSM uses all of the same presentation logic and coloring for an Impact Element as for a Model Element with the following exceptions:

- When switching among different elements in the GDT Bar Graph, the display defaults to ETA for Airport data sets and ENTRY for Airspace data sets.
- When switching among different elements in the Bar Graph, the color by tab display remains the same.
- If a color by tab is not available for a data set, the tab defaults to Status.
- When viewing the Afix tab for a model or impact element, FSM displays the Afixes for the selected Airport.

FSM maintains the GDT Bar Graph tabs and makes them available to all element graphs. Currently, there are six default tabs available for airport data sets and five default tabs available for airspace data sets. You can use the tabs where applicable, whether you are in the model or impact element bar graph. The impact elements display the current ADL data before modeling.

For example, if you model a GDP for EWR, you can model the impact of the GDP on JFK, LGA, BOS, and BED.

1. Select the Modeling Options tab from the GDT Setup component for the program you are modeling.
2. From the Impact Modeling Options section, select the elements on which you want to model the impact of the TMI from the ***Available*** box.

Note: You can model the impact on up to five elements.

3. Click **>** to add the elements to the ***Selected*** box.

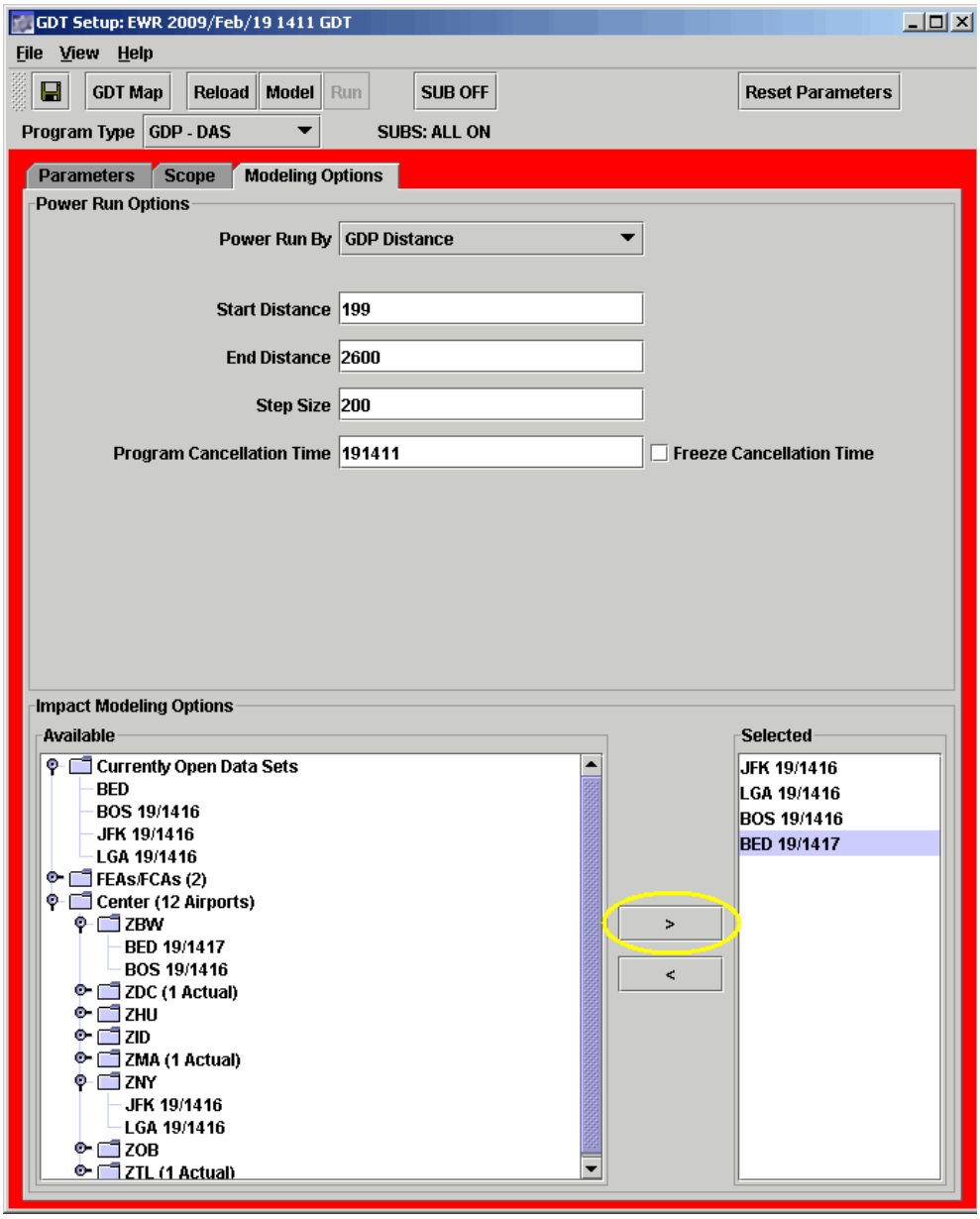


Figure 8 - 4 : Selected Impact Elements

4. Click **Model**.

   The GDT Bar Graph displays the model element and impact elements as buttons next to the button bar.

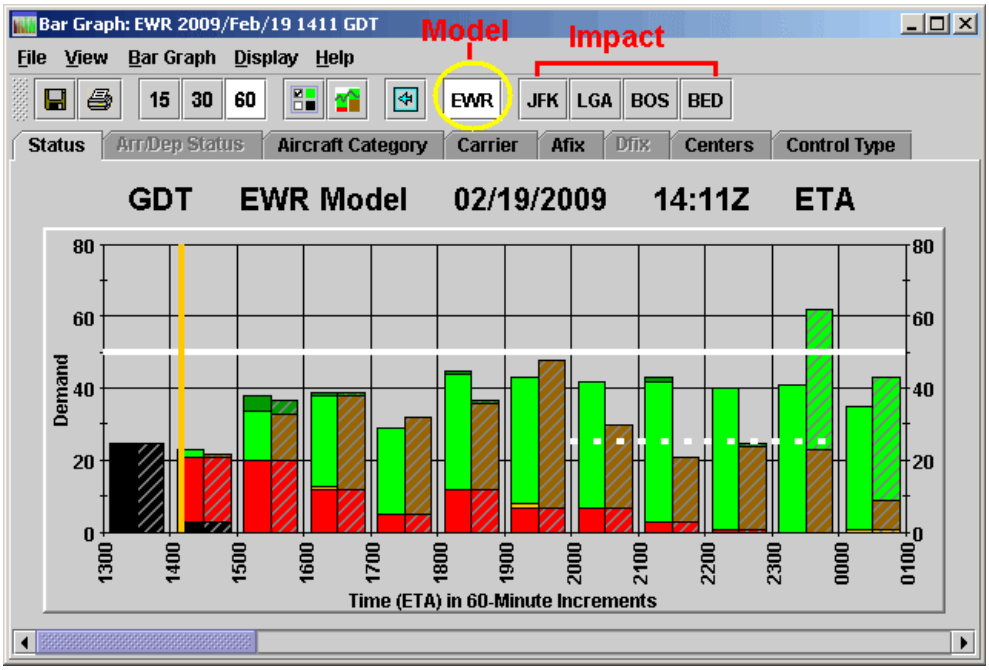


Figure 8 - 5 : GDT Bar Graph with both Model and Impact Elements

5. On the Bar Graph, click the appropriate button to view the impact of the TMI on the element you selected.

   Note: The model element button displays first and is separated from the impact element buttons by a space.

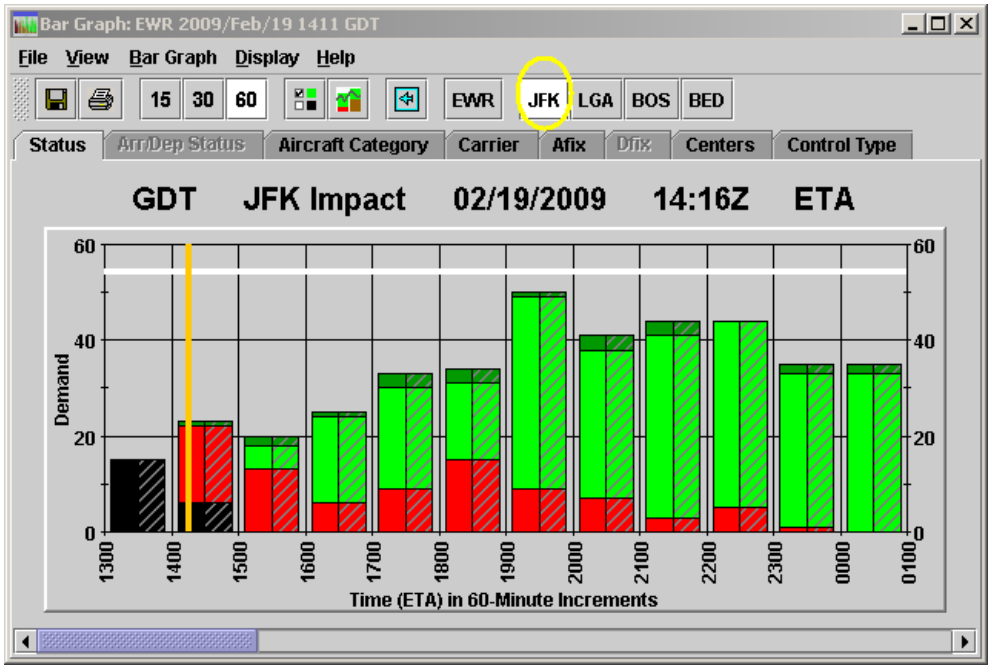


Figure 8 - 6 : GDT Bar Graph with Impact Element selected

6. Click **Reset Parameters** to clear the Impact elements of the modeled data and display the current ADL data on the GDT Bar Graph.
7. You can remove or add impact elements by making change in the Modeling Options tab and clicking **Model**. Select the element you want to remove from the ***Selected*** box and click **<** to remove an element.

Modeling Analysis

Preview Your Work

After clicking **Model** or **Reload** on the GDT Setup component, all FSM GDT components change to reflect the modeled GDP. Viewing these components can help you decide if the GDP you have modeled is the best scenario for the traffic flow problems at an airport. All of the following components are based on an EWR modeled GDP program.

GDT Time Line Component

To open the GDT Time Line, select **View > Time Line** from the GDT Setup component. You can preview the changes made in the Time Line as a result of running the GDP model (see Figure 8 - 7). A quick glance at the Time Line shows you the distribution of flights, the number of cancelled flights (squares) and the number of delayed flights (triangles).

Note: If you modeled a GDP with a GAAP delay limit, you would also see the number of Unassigned Slots (white diamonds).

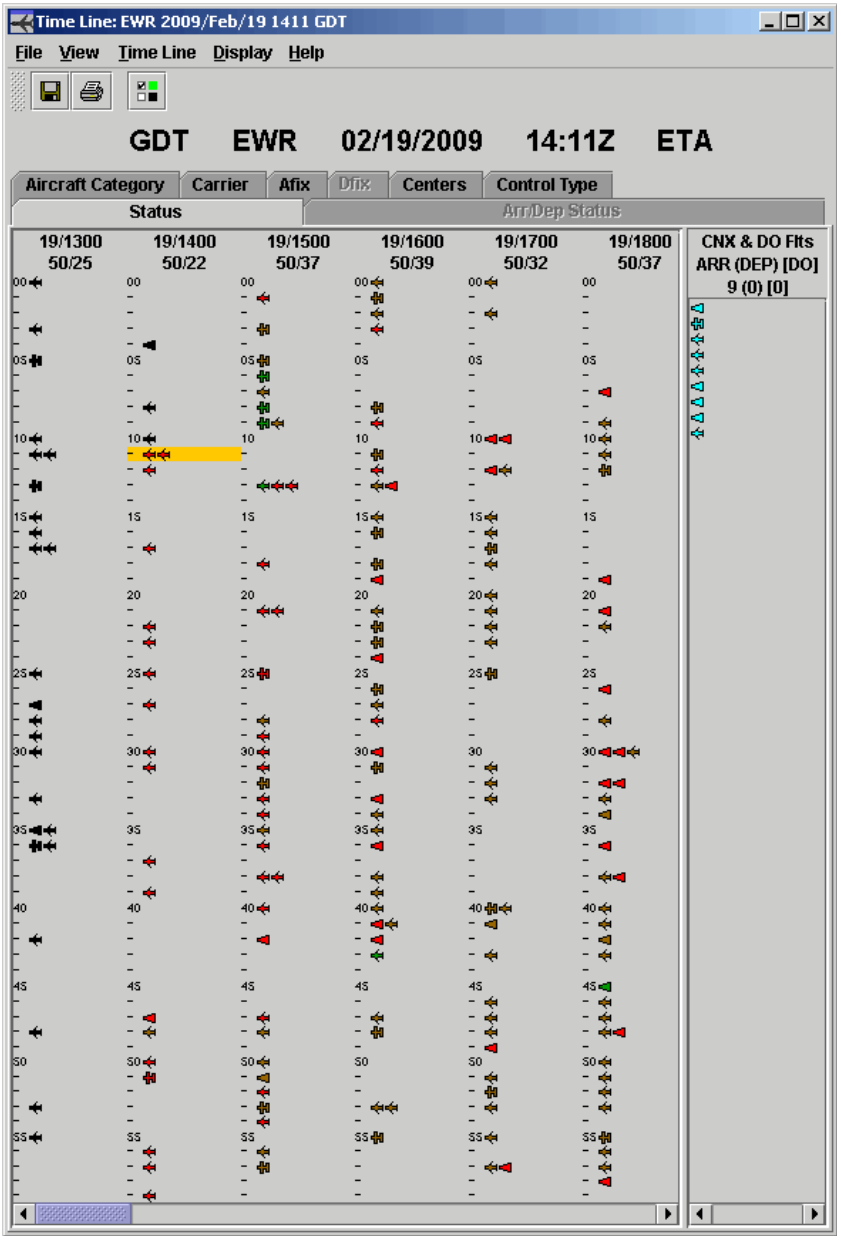


Figure 8 - 7 : GDT Time Line View

GDT Bar Graph Component

The Bar Graph displays by default both solid and hashed bars. Solid bars represent the original data, while hashed bars represent modeled data. Uncheck **View > Current Data** from the GDT Bar Graph to view only modeled data. The modeled AAR line (dashed white line) is displayed by default when in GDT mode. The Bar Graph can indicate if the stack at the end of the program is a potential problem and allows you to view the overall impact of the program (see Figure 8 - 8).

> **Note:** If you model a GDP with a GAAP delay limit, white sections of bars represent the Unassigned Slots.

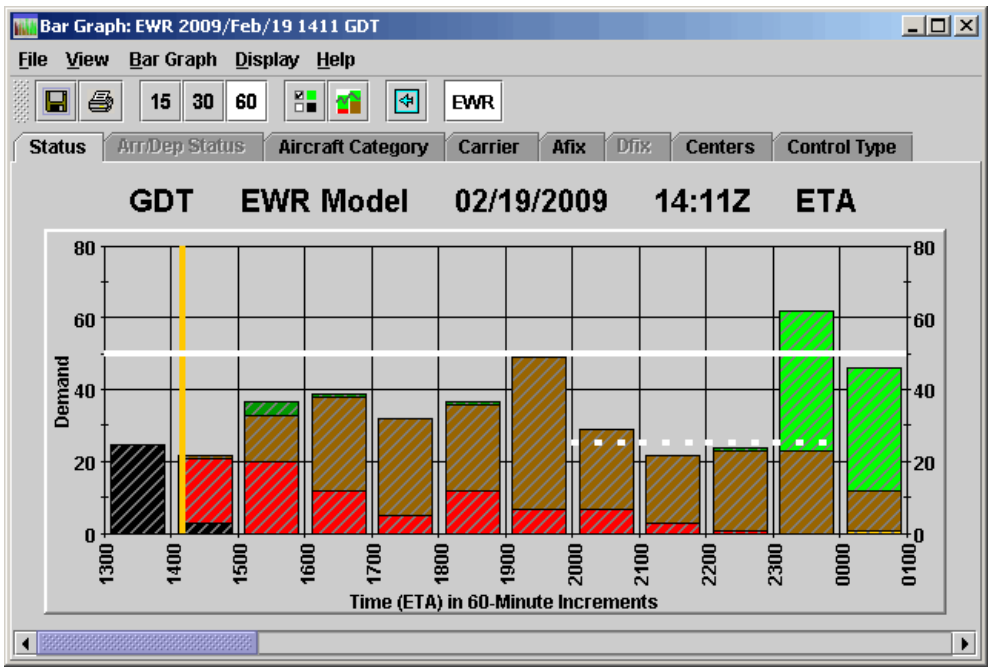


Figure 8 - 8 : GDT Bar Graph View With Current Data Option Unchecked

For more information on the Bar Graph component, see Chapter 3: Understanding Components.

GDT Data Graph Component

The GDT Data Graph provides a visual statistical representation of the modeled GDP. The Power Run option that you ran is displayed on the X-axis (see Figure 8 - 9). Using your mouse, drag the black vertical line to the desired Power Run option or just click the mouse over the desired option to move the line. The delay statistics to the left of the Data Graph reflect the line of delineation of the scenario. Additionally, changing the Power Run option automatically updates all GDT components to reflect the new parameters. Rolling your mouse over any line in the Data Graph gives you the delay statistic count for the colored line that reflects the results of the option.

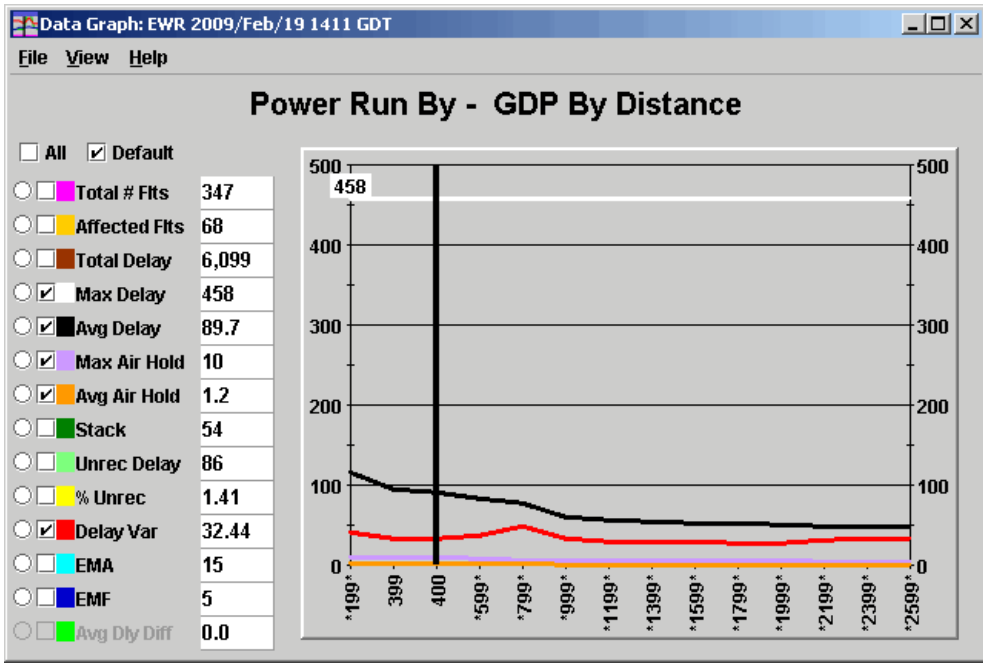


Figure 8 - 9 : Data Graph View

For more information on the Data Graph component, see Chapter 3: Understanding Components.

GDT Map Component

The GDT Map component provides a visual representation of the modeled scope of the GDP. The burgundy highlighted areas indicate the scope of Non-Exempt flights. Airports that are colored red are Non-Exempt and Airports colored green are Exempt due to the scope of the modeled GDP. Clicking an Airport or Center will change the scope of the GDP and be reflected in the GDT Setup component.

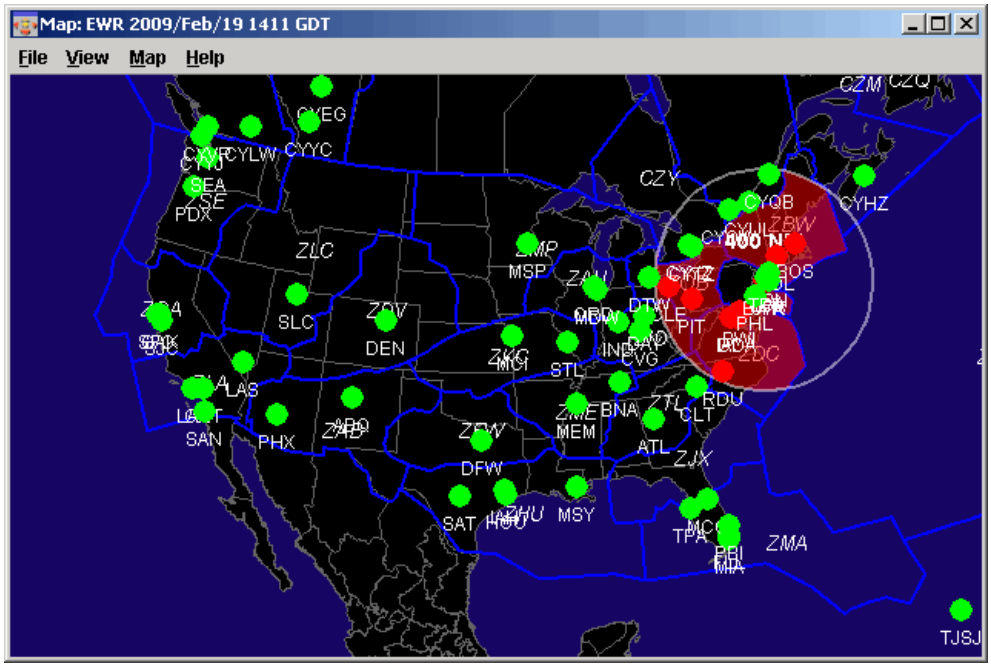
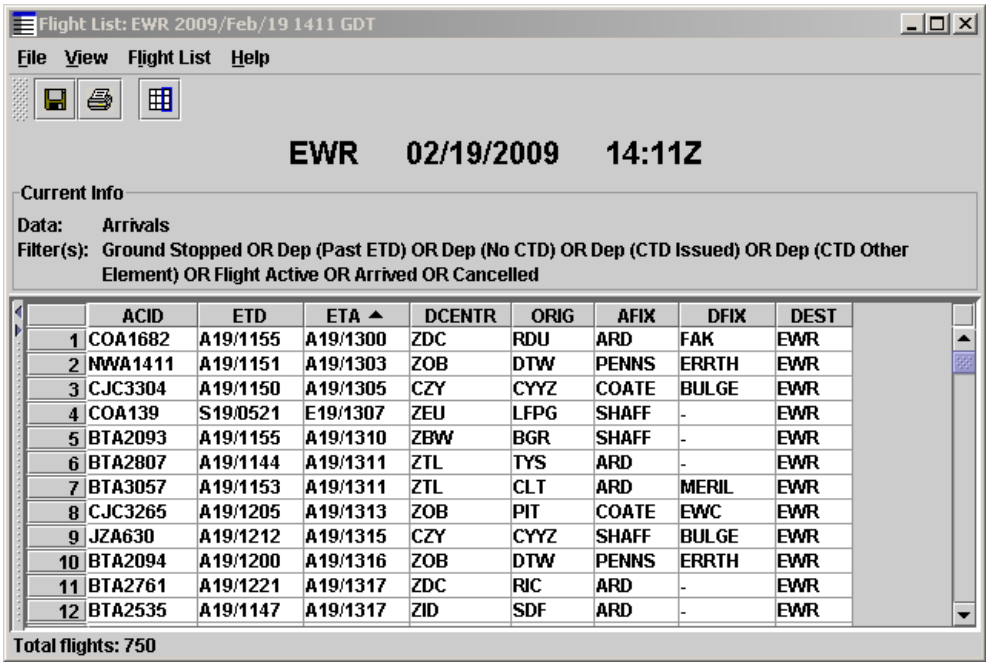


Figure 8 - 10 : GDT Map View

For more information on the GDT Map component, see Chapter 3: Understanding Components.

GDT Flight List Component

To open the GDT Flight List, select **View > Flight List** from the GDT Setup component. The GDT Flight List allows you to view the modeled results for multiple flights (see Figure 8 - 11).



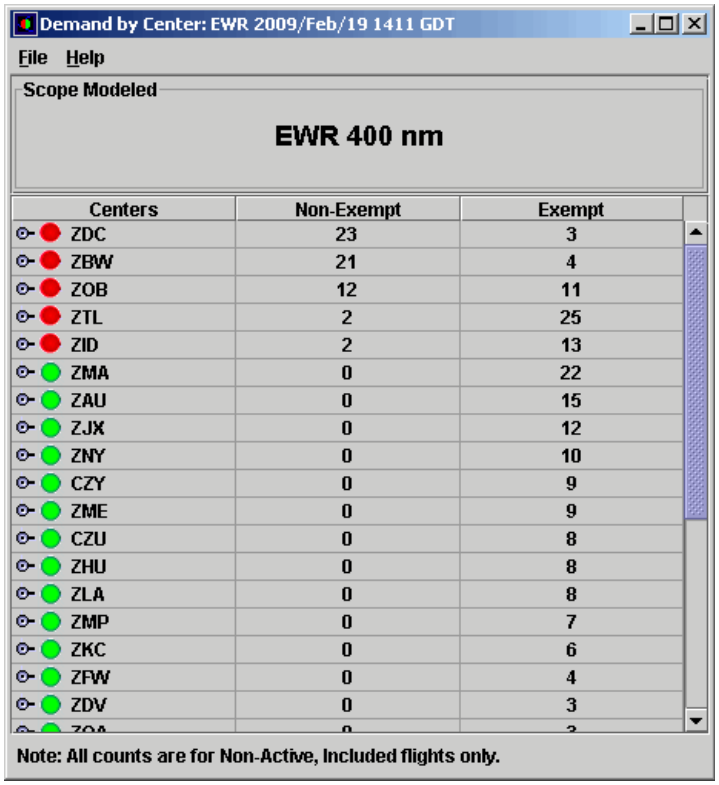
	ACID	ETD	ETA ▲	DCENTR	ORIG	AFIX	DFIX	DEST
1	COA1682	A19/1155	A19/1300	ZDC	RDU	ARD	FAK	EWR
2	NWA1411	A19/1151	A19/1303	ZOB	DTW	PENNS	ERRTH	EWR
3	CJC3304	A19/1150	A19/1305	CZY	CYYZ	COATE	BULGE	EWR
4	COA139	S19/0521	E19/1307	ZEU	LFPG	SHAFF	-	EWR
5	BTA2093	A19/1155	A19/1310	ZBW	BGR	SHAFF	-	EWR
6	BTA2807	A19/1144	A19/1311	ZTL	TYS	ARD	-	EWR
7	BTA3057	A19/1153	A19/1311	ZTL	CLT	ARD	MERIL	EWR
8	CJC3265	A19/1205	A19/1313	ZOB	PIT	COATE	EWC	EWR
9	JZA630	A19/1212	A19/1315	CZY	CYYZ	SHAFF	BULGE	EWR
10	BTA2094	A19/1200	A19/1316	ZOB	DTW	PENNS	ERRTH	EWR
11	BTA2761	A19/1221	A19/1317	ZDC	RIC	ARD	-	EWR
12	BTA2535	A19/1147	A19/1317	ZID	SDF	ARD	-	EWR

Figure 8 - 11 : GDT Flight List View

For more information on the GDT Flight List component, see Chapter 6: Viewing Flight Information.

GDT Demand By Center Component

To open the GDT Demand by Center, select **View > Show Demand** from the GDT Setup component or click **Show Demand** from the Scope tab on the GDT Setup component. The GDT Demand By Center component displays non-active, non-completed, and included flights that are Non-Exempt or Exempt by the modeled GDP (see Figure 8 - 12). Included flights are the combination of both Exempt and Non-Exempt flights included in the modeled GDP. The Demand by Center component lists all Centers and the top five airports, as defined by the number of included flights within each center for the modeled GDP. Click the key icon to the left of the Center coloring to expand the Center selection and display the airports. The Centers are ordered in descending order based on the number of Non-Exempt flights. The red colored Centers indicate that there is at least one Non-Exempt flight within the Center. Using this component can help you make decisions on the scope of your GDP based on the number of Non-Exempt and Exempt flights.



Centers	Non-Exempt	Exempt
ZDC	23	3
ZBW	21	4
ZOB	12	11
ZTL	2	25
ZID	2	13
ZMA	0	22
ZAU	0	15
ZJX	0	12
ZNY	0	10
CZY	0	9
ZME	0	9
CZU	0	8
ZHU	0	8
ZLA	0	8
ZMP	0	7
ZKC	0	6
ZFW	0	4
ZDV	0	3

Figure 8 - 12 : Demand by Center View

For more information on the Demand by Center component, see Chapter 3: Understanding Components.

The Analysis Report

FSM generates the Analysis Report after you click **Run** from the GDT Setup component. To evaluate the effects of any delay operation, select **View > Analysis Report** from the Coversheet, as shown in Figure 8 - 13.

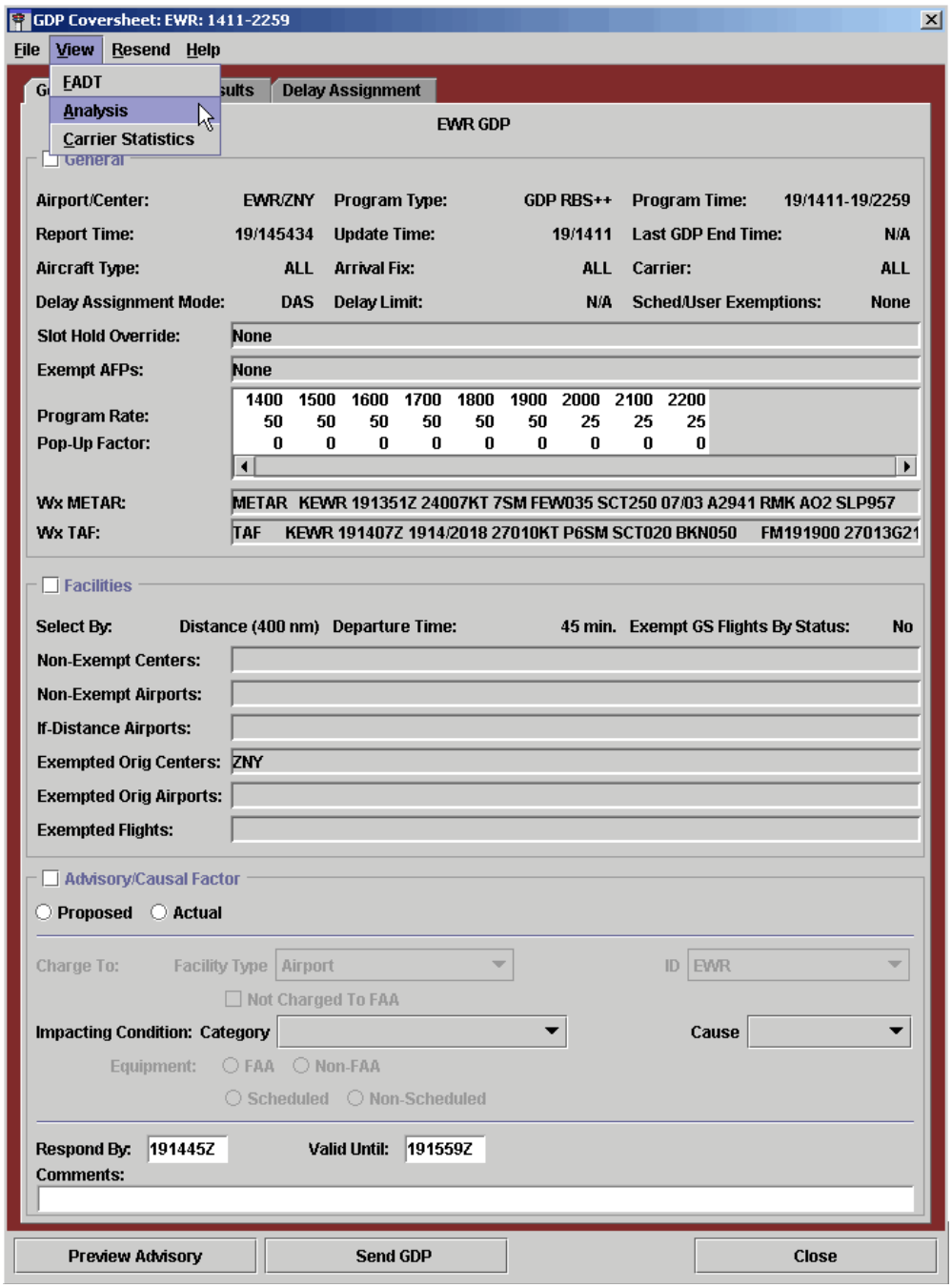
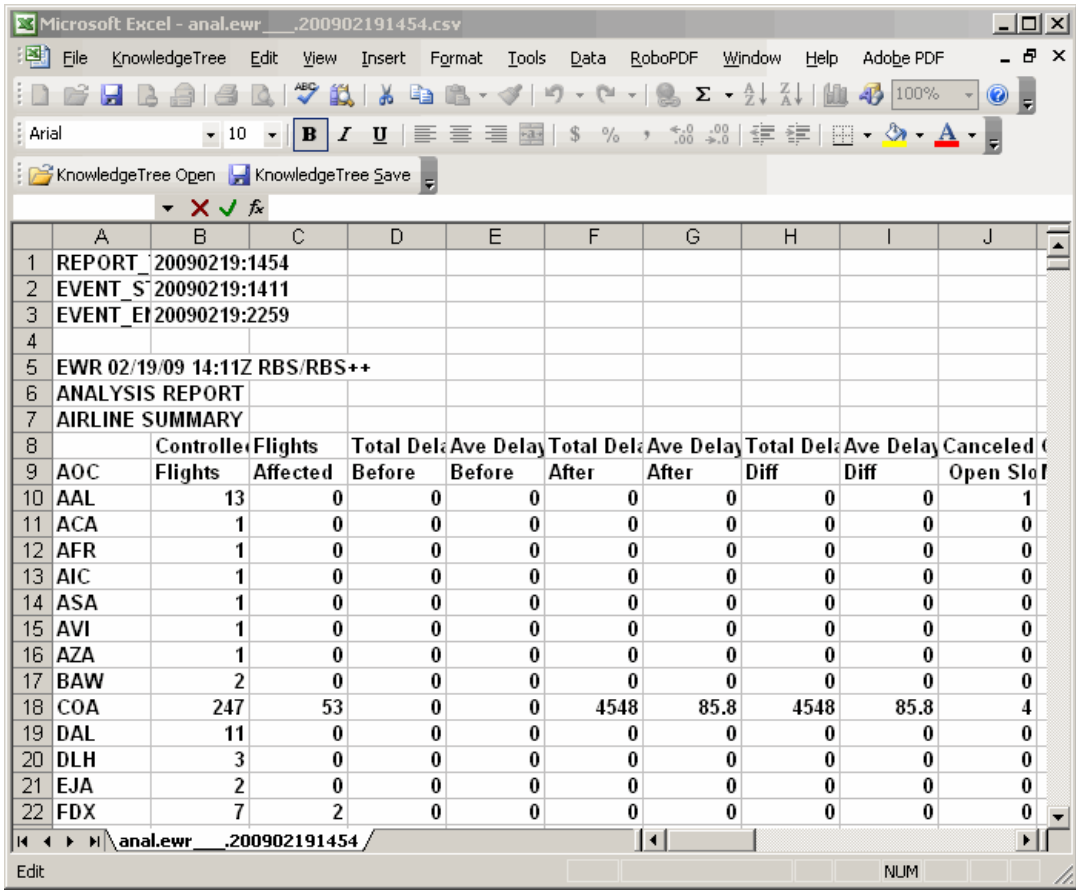


Figure 8 - 13 : Coversheet

FSM automatically opens the spreadsheet application that you have indicated in your configuration files to display the Analysis Report.



	A	B	C	D	E	F	G	H	I	J
1	REPORT_	20090219:1454								
2	EVENT_S	20090219:1411								
3	EVENT_E	20090219:2259								
4										
5	EWR 02/19/09 14:11Z RBS/RBS++									
6	ANALYSIS REPORT									
7	AIRLINE SUMMARY									
8		Controlle	Flights	Total Del	Ave Delay	Total Del	Ave Delay	Total Del	Ave Delay	Canceled
9	AOC	Flights	Affected	Before	Before	After	After	Diff	Diff	Open Slo
10	AAL	13	0	0	0	0	0	0	0	1
11	ACA	1	0	0	0	0	0	0	0	0
12	AFR	1	0	0	0	0	0	0	0	0
13	AIC	1	0	0	0	0	0	0	0	0
14	ASA	1	0	0	0	0	0	0	0	0
15	AVI	1	0	0	0	0	0	0	0	0
16	AZA	1	0	0	0	0	0	0	0	0
17	BAW	2	0	0	0	0	0	0	0	0
18	COA	247	53	0	0	4548	85.8	4548	85.8	4
19	DAL	11	0	0	0	0	0	0	0	0
20	DLH	3	0	0	0	0	0	0	0	0
21	EJA	2	0	0	0	0	0	0	0	0
22	FDX	7	2	0	0	0	0	0	0	0

Figure 8 - 14 : Analysis Report for BWI GDP

The Analysis Report contains pertinent information for the Ground Delay Operation that has just run, including detailed slot information for individual airlines, delay statistics for before and after the operation, and arrival and departure information for individual flights (see Figure 8 - 14). The report contains two sections. One section reflects changes that occur as a result of RBS; the other section reflects changes that occur as a result of Compression. Included in the analysis are statistics for bridge-only carriers.

Reload the Data

If you have been developing a GDP for a while, you may have missed some incoming ADLs. Before sending out the final GDP parameters, you may want to update the data for your proposed TMI. To do this, click **Reload** on the GDT Setup component. The **Reload** button is active only when the actual data time is more recent than the data available in GDT mode. Clicking **Reload** also models the GDP event.

9: Modeling an Airspace Flow Program

The foundation of the Airspace Flow Program (AFP) is the integration of the Flow Evaluation Area/Flow Control Area (FEA/FCA) function of the Traffic Situation Display (TSD) with FSM. Traffic Management Specialists, after consultation with the field Traffic Management Coordinators and customers, create an FEA or FCA in TSD. The FEA/FCA can be a polygon, a line, a sector, or a box. If the FEA/FCA is designated as 'FSM-eligible,' ETMS begins to generate an Aggregate Demand List (ADL), containing detailed information about every flight expected to be part of that FEA/FCA for its duration and several hours afterwards.

When the demand in the FCA is projected to substantially exceed capacity, the National En Route Spacing Position (NESP) specialist at the ATCSCC can issue an AFP for the constrained resource. The process of issuing an AFP is similar to issuing a GDP for an airport.

> **Note:** The ATCSCC can only issue an AFP for an FCA. An FEA must be converted to a FCA before an AFP can be issued.

This chapter discusses modeling an AFP in GDT Mode. You can use the GDT Setup Panel component to model, issue, and send AFPs. In addition to initial AFPs, FSM can also model and run Revisions, Compressions, and Purges to existing AFPs. When you model an AFP, you can use parameters that you specify or you can use proposed parameters.

Modeling an AFP Using Parameters You Specify

To model an AFP, you need to set the parameters you want to use for the AFP. You can do this by opening any monitored FCA in GDT mode and selecting the AFP parameters. The parameters you can set are different depending on which program type you select, this chapter will discuss setting parameters for an AFP. For more information on what parameters are available for each program type, see Chapter 3: Understanding Components.

1. Click **Open Data Set**.

   The Open Data Set window displays.

2. Select an FCA from the FEAs/FCAs section on the Monitored Live tab.

   If the FCA is not available from the Monitored Live tab, select the FCA from the All Live tab

3. Click **Apply**.

   The Time Line and Bar Graph components for the FCA are displayed.

4. Click **GDT Mode** from the Control Panel.

   Note: If there is no active FCA, the **GDT Mode** button is disabled.

The GDT Setup Panel, GDT Data Graph, GDT Bar Graph, and GDT Map are displayed, as shown in Figure 9 - 1.

Note: All GDT components interact with one another; The GDT Setup and GDT Map dynamically reflect one another, whereas clicking **Reload** or **Model** on the GDT Setup panel reflects changes in all components.

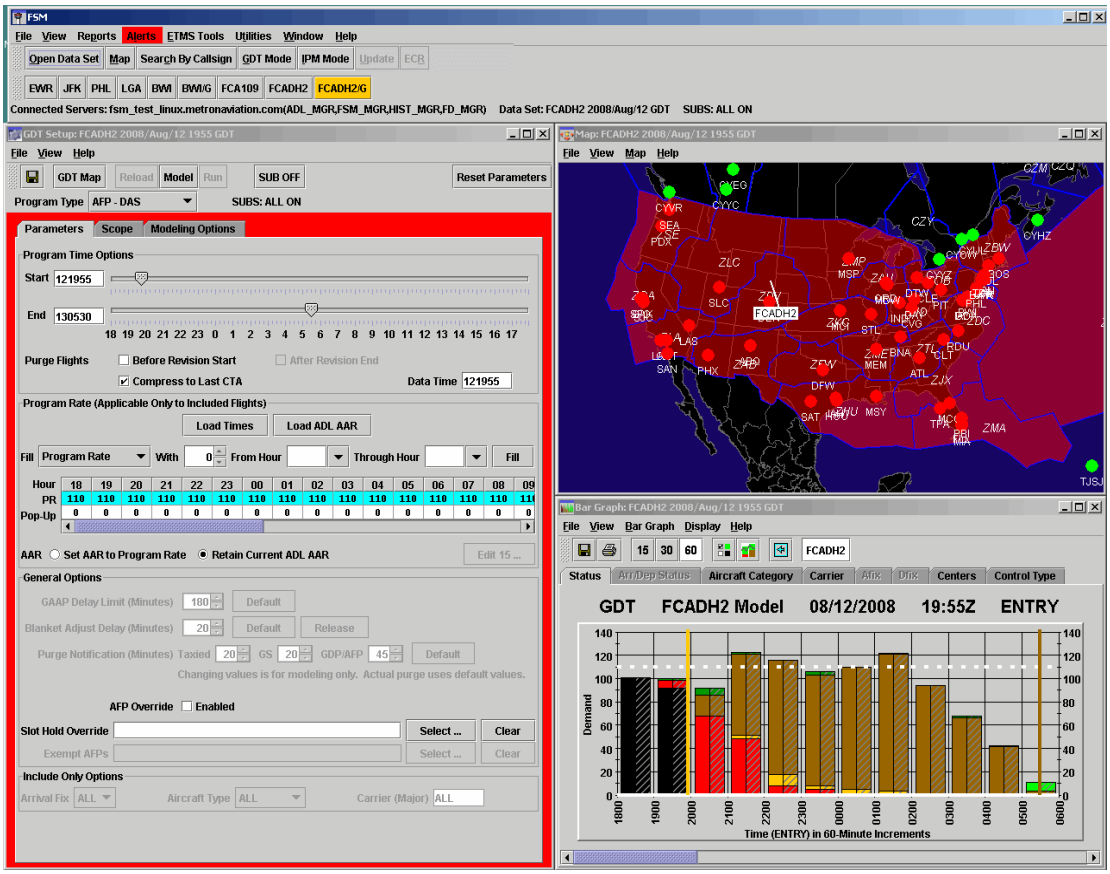


Figure 9 - 1 : Initial Default Display for AFP GDT Mode

5. Select AFP - DAS from the ***Program Type*** dropdown menu.
6. Enter the appropriate values for the AFP - DAS into the Parameters tab of the GDT Setup panel. For this example, enter the following:

   - ***Start time***– 271752 (ddhhmm)

   Note: Start Time of the AFP should be the start time of the FCA or the most current ADL, whichever is latest.

   - ***End time*** – 280159 (ddhhmm)

   Note: End time of the AFP should be the end time of the FCA or the last minute of the available display in FSM.

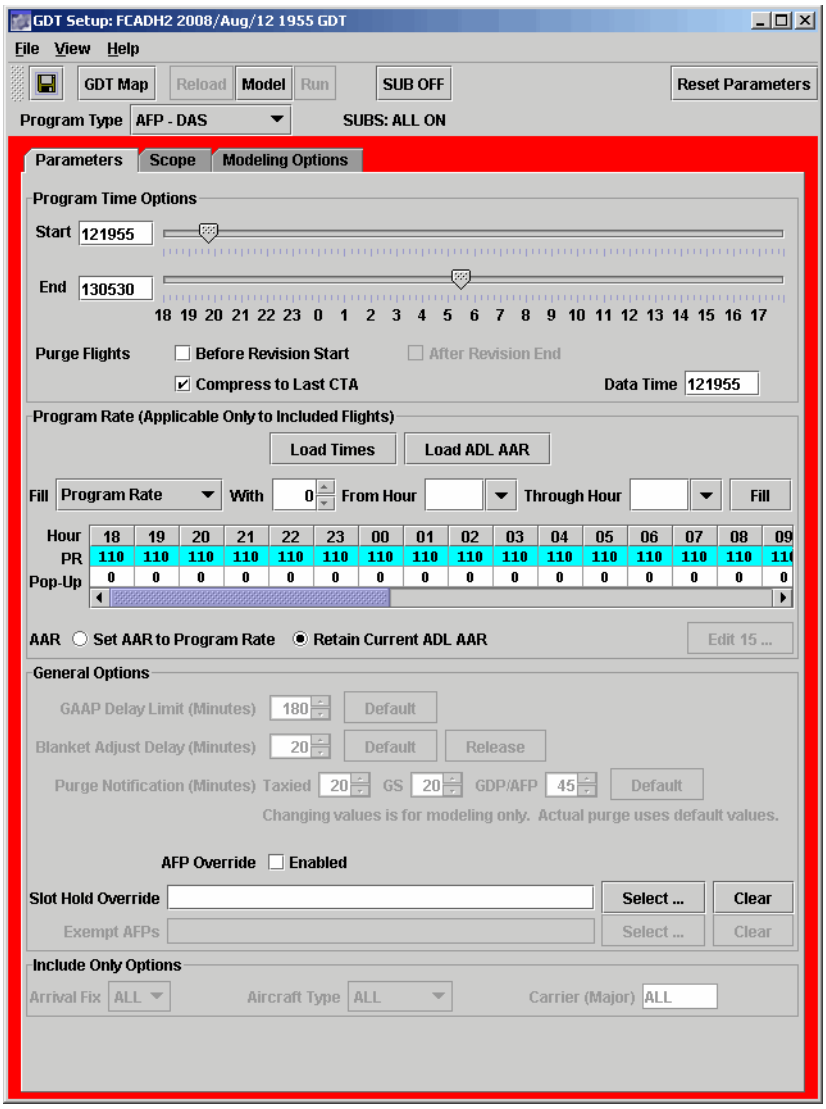


Figure 9 - 2 : GDT Setup Parameters Tab

7. Enter the appropriate values for the Program Rate into the Program Rate section of the GDT Setup panel. You can use the National En Route Spacing Position (NESP) Rate Guidelines document to help determine the appropriate Program Rate for the selected FCA. For this example, enter a Program Rate of 85 for the duration of the AFP and the stack hours after the end time of the AFP.

8. Enter the appropriate values for the ***Pop-up Factor***. Select Pop-Up Factor from the ***Fill*** field. For this example, enter a ***Pop-up Factor*** of 10.

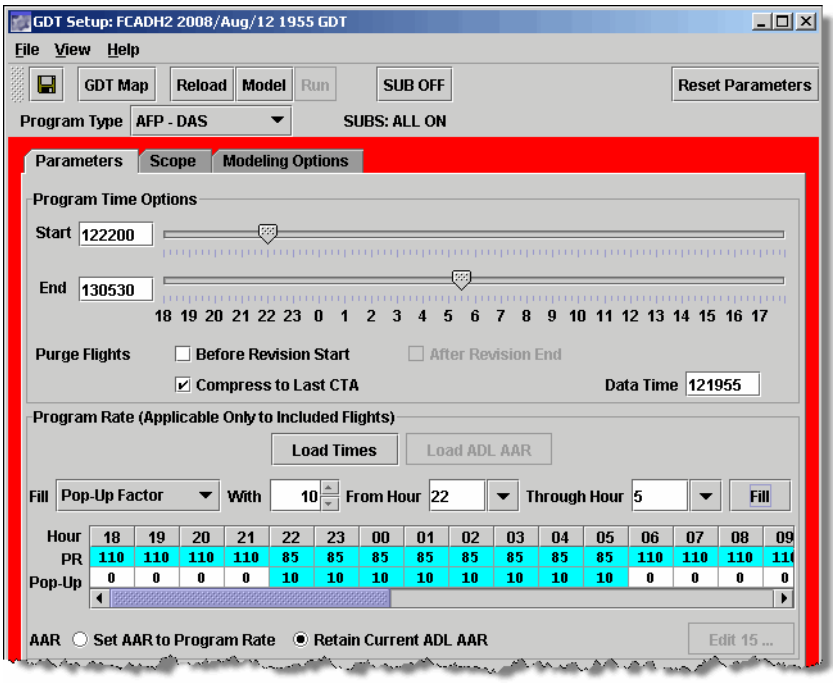


Figure 9 - 3 : GDT Setup Panel Program Rate

Note: The program rate default for an airspace data set is zero. Ensure that the program rate is set high enough after the end of the program to account for the stack value.

9. Enter the appropriate values for the program into the Scope tab of the GDT Setup panel. For this example, enter the following in the Departure Facilities section:
   - ***Scope*** – ALL
   - ***Non-Exempt Airports*** – Add Canadian airports as necessary
10. Enter any ***Exempt Airports*** under the Arrival Facilities section. For this example, leave ***Exempt Airports*** blank.

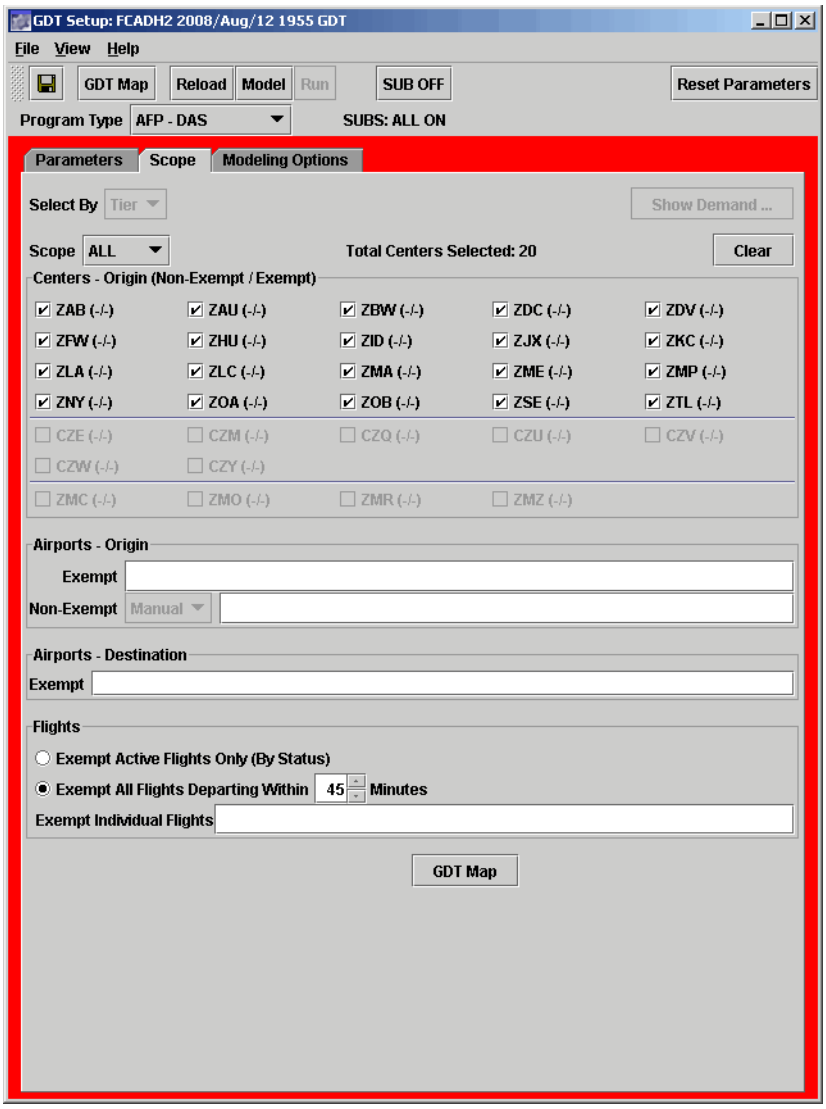


Figure 9 - 4 : GDT Setup Scope Tab

Note: Any changes you make to the *GDT Map* dynamically reflect in the *GDT Setup* component's Scope tab.

11. AFP Percent Demand is selected by default on the Modeling Options tab.
12. Click **Model**.

    FSM models the program using the parameters you provided. The red border inside the GDT Setup Panel no longer is displayed. FSM updates all GDT components with your parameters. You can use these components to determine how this program affects the airspace.
13. If you want to load the latest ADL and model to analyze the data before issuing the program, click **Reload**.

Note: You can retrieve additional GDT components from the **View** menu on the Setup panel.

Modeling an AFP Using Proposed Parameters

When the ATCSCC sends out proposed parameters for an AFP, you can model those parameters to determine how they affect your situation. This can help you to plan before the ATCSCC implements the actual AFP or when running a revision.

Note: You can use the same steps to model actual parameters except select **File > Load Actual Parameters>Airspace Flow Program** from the GDT Setup panel.

To Model an AFP using proposed parameters

For example, the ATCSCC sends out proposed parameters for AFP - GAAP program type for an FCA and you want to view it.

1. Click **Open Data Set**.

   The Open Data Set window displays.

2. Select the FCA from the Monitored Live or All Live tab.
3. Click **Apply**.

   The Time Line and Bar Graph components for the FCA are displayed.

4. Click **GDT Mode** from the main Control panel.

   The GDT Setup Panel, GDT Data Graph, GDT Bar Graph, and GDT Map are displayed.

5. Select **File > Load Proposed Parameters>Airspace Flow Program**.

   FSM loads the proposed AFP parameters into the GDT Setup Panel.

   Note: You can only load parameters for the FCA you are modeling.

6. Click **Model** or **Reload** if available.

   FSM models the program using the loaded parameters. The red border inside the GDT Setup Panel no longer is displayed. FSM updates all GDT components with the proposed parameters. You can now determine how the program affects your operations.

Impact Modeling

You can use impact modeling in GDT mode to determine how a program you are modeling for one element affects other elements. Impact modeling gives you the ability to make adjustments to the TMI based on the impact of it other elements. For more information on the Modeling Options tab, see Chapter 3: Understanding Components.

FSM uses all of the same presentation logic and coloring for an Impact Element as for a Model Element with the following exceptions:

- When switching among different elements in the GDT Bar Graph, the display defaults to ETA for airport data sets and ENTRY for airspace data sets.
- When switching among different elements in the Bar Graph, the color by tab display remains the same.
- If a color by tab is not available for a data set, the tab defaults to Status.
- When viewing the Afix tab for a model or impact element, FSM displays the Afixes for the selected airport.

FSM maintains the GDT Bar Graph tabs and makes them available to all element graphs. Currently, there are six default tabs available for airport data sets and five default tabs available for airspace data sets. You can use the tabs where applicable, whether you are in the model or impact element bar graph. The impact elements display the current ADL data before modeling.

For example, if you model a AFP for FCAMSP, you can model the impact of the AFP on JFK and LGA.

1. Select the Modeling Options tab from the GDT Setup component for the program you are modeling.
2. Select the elements on which you want to model the impact of the TMI from the ***Available*** box.

   Note: You can model the impact on up to five elements.

3. Click **>** to add the elements to the ***Selected*** box.

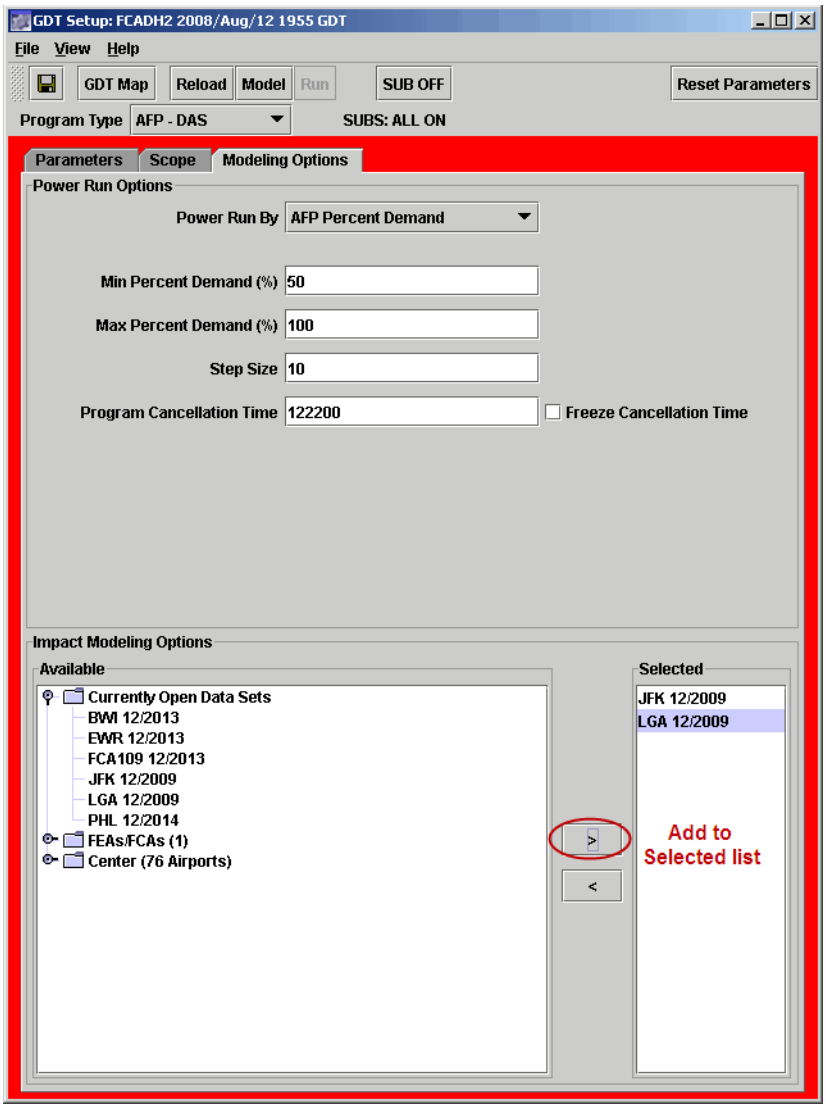


Figure 9 - 5 : Selected Impact Elements

4. Click **Model**.

   The GDT Bar Graph displays the model element and impact elements as buttons next to the button bar.

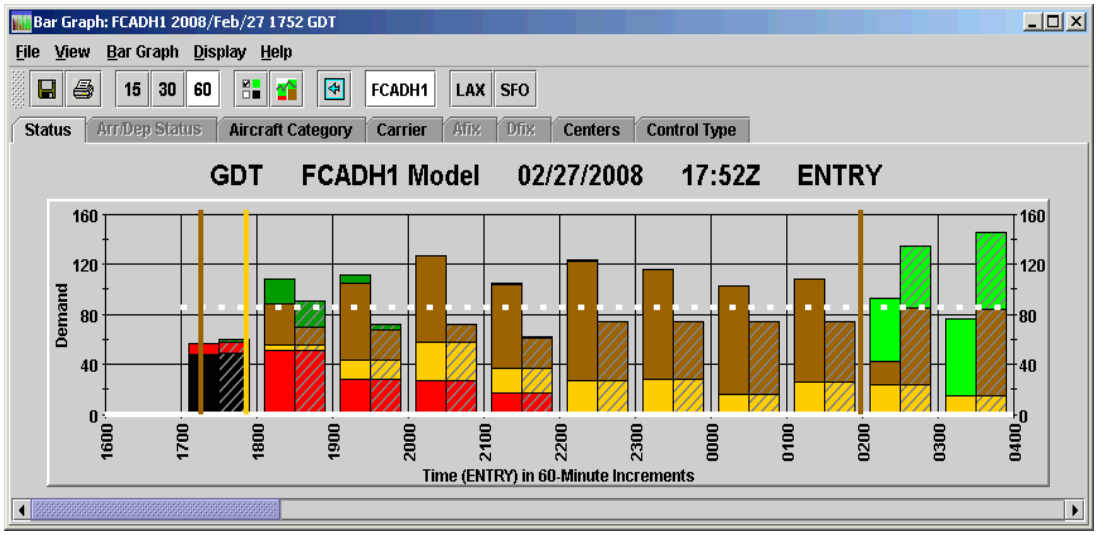


Figure 9 - 6 : GDT Bar Graph with both Model and Impact Elements

5. Click the appropriate button to view the impact of the TMI on the element you selected.

   Note: The model element button displays first and is separated from the impact element buttons by a space.

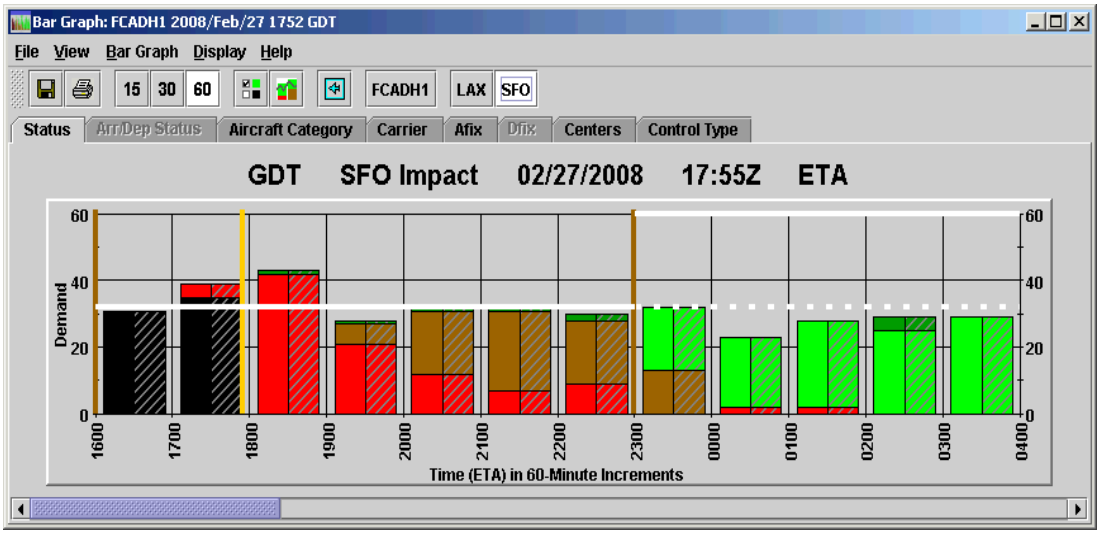


Figure 9 - 7 : GDT Bar Graph with Impact Element selected

6. Click **Reset Parameters** to clear the Impact elements of the modeled data and display the current ADL data on the GDT Bar Graph.

7. You can remove or add impact elements by making change in the Modeling Options tab and clicking **Model**. Select the element you want to remove from the ***Selected*** box and click **<** to remove an element.

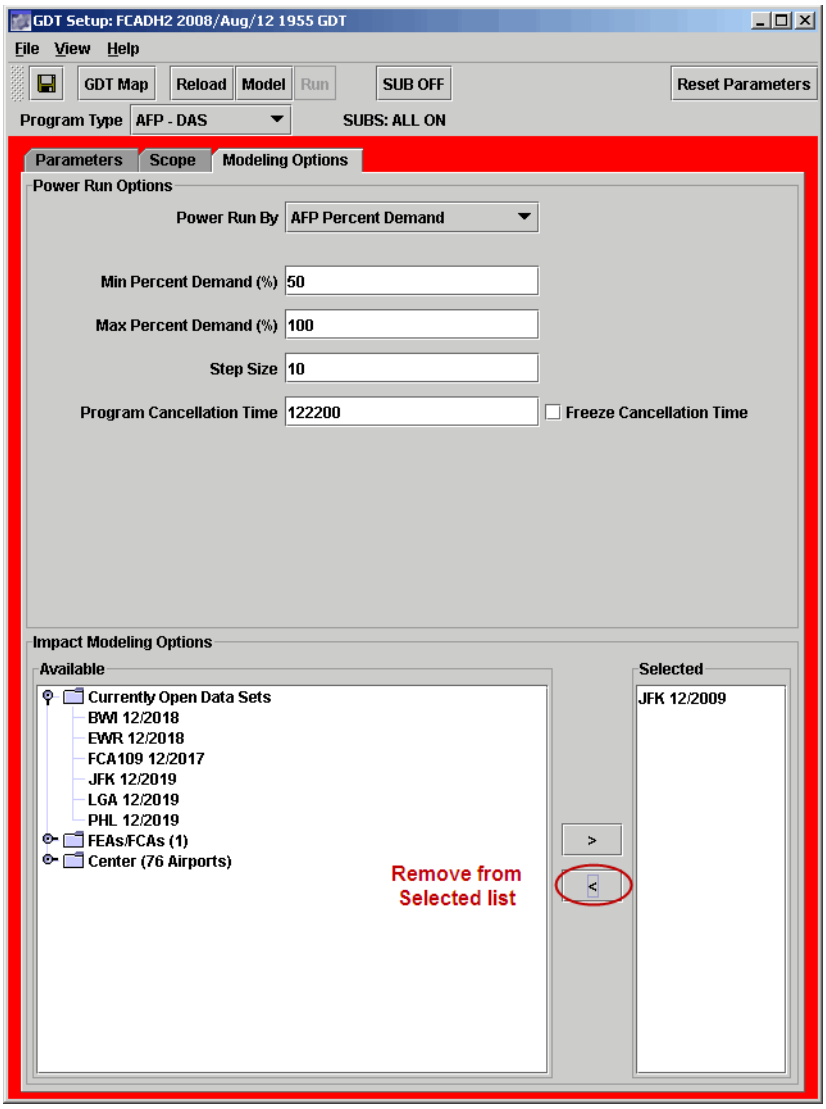


Figure 9 - 8 : GDT Setup Modeling Options Tab with Impact Element removed

Modeling Analysis

Preview Your Work

After clicking **Model** or **Reload** on the GDT Setup component, all FSM GDT components change to reflect the modeled AFP. Viewing these components can help you decide if the AFP you have modeled is the best scenario for the traffic flow problems in the FCA. The following Data Graph component is an example of one of FSM's decision support tools; see Chapter 8: Modeling Analysis to review all of the decision support tool components.

GDT Data Graph Component

The GDT Data Graph provides a visual statistical representation of the modeled AFP (see Figure 9 - 9). The Power Run option that you ran displays on the X-axis, by default the Percent of Demand. Using your mouse, drag the black vertical line to the desired Power Run option or just click the mouse over the desired option to move the line. The delay statistics to the right of the Data Graph reflect the line of delineation of the scenario. Additionally, changing the Percent of Demand black vertical line automatically adjusts the Program Rate and updates all GDT components to reflect the new selection. Rolling your mouse over any line in the Data Graph gives you the delay statistic count for the colored line that reflects the results of the option.

Note: The Program Rate entered reflects as a Percentage of the current demand in the Data Graph component. A 70% percent means that the modeled Program Rate reduces the current airspace demand by 30% for the AFP time frame.

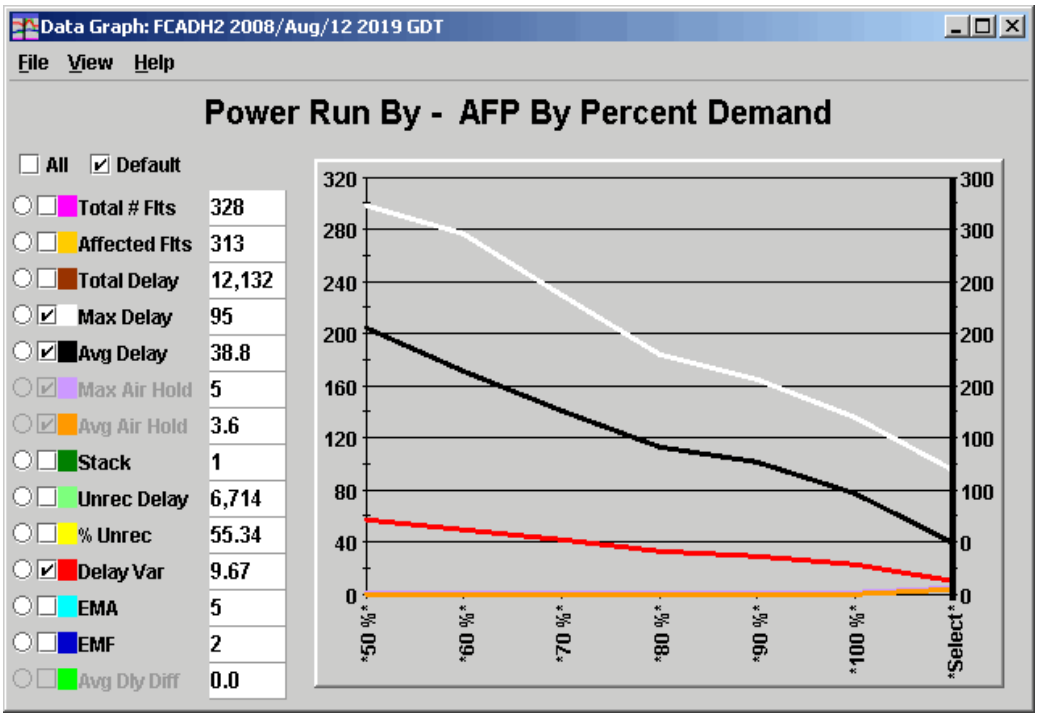


Figure 9 - 9 : Modeled AFP: Data Graph View

For more information on the Data Graph component, see Chapter 3: Understanding Components.

The Analysis Report

FSM generates the Analysis Report after you click **Run** from the GDT Setup component. To evaluate the effects of any delay operation, select **View > Analysis Report** from the Coversheet, as shown in Figure 9 - 10.

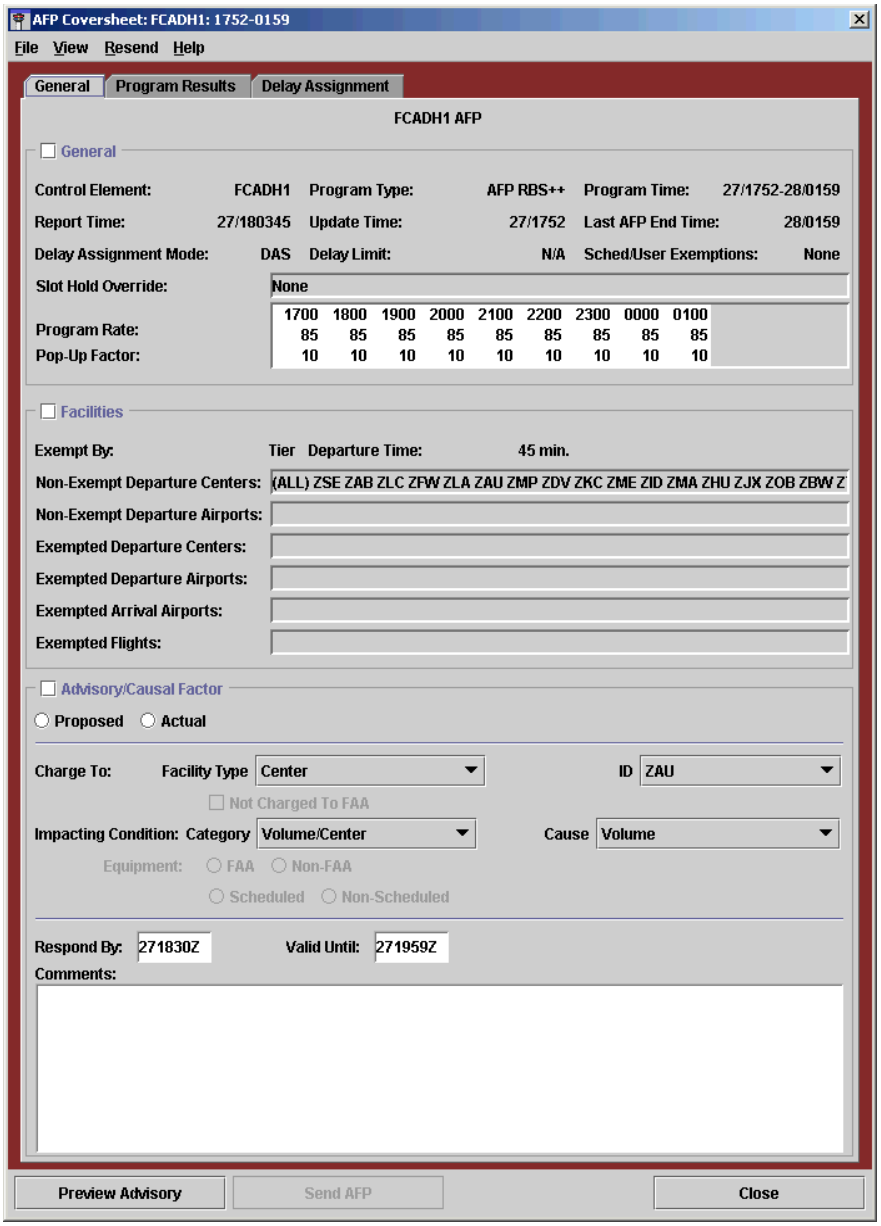
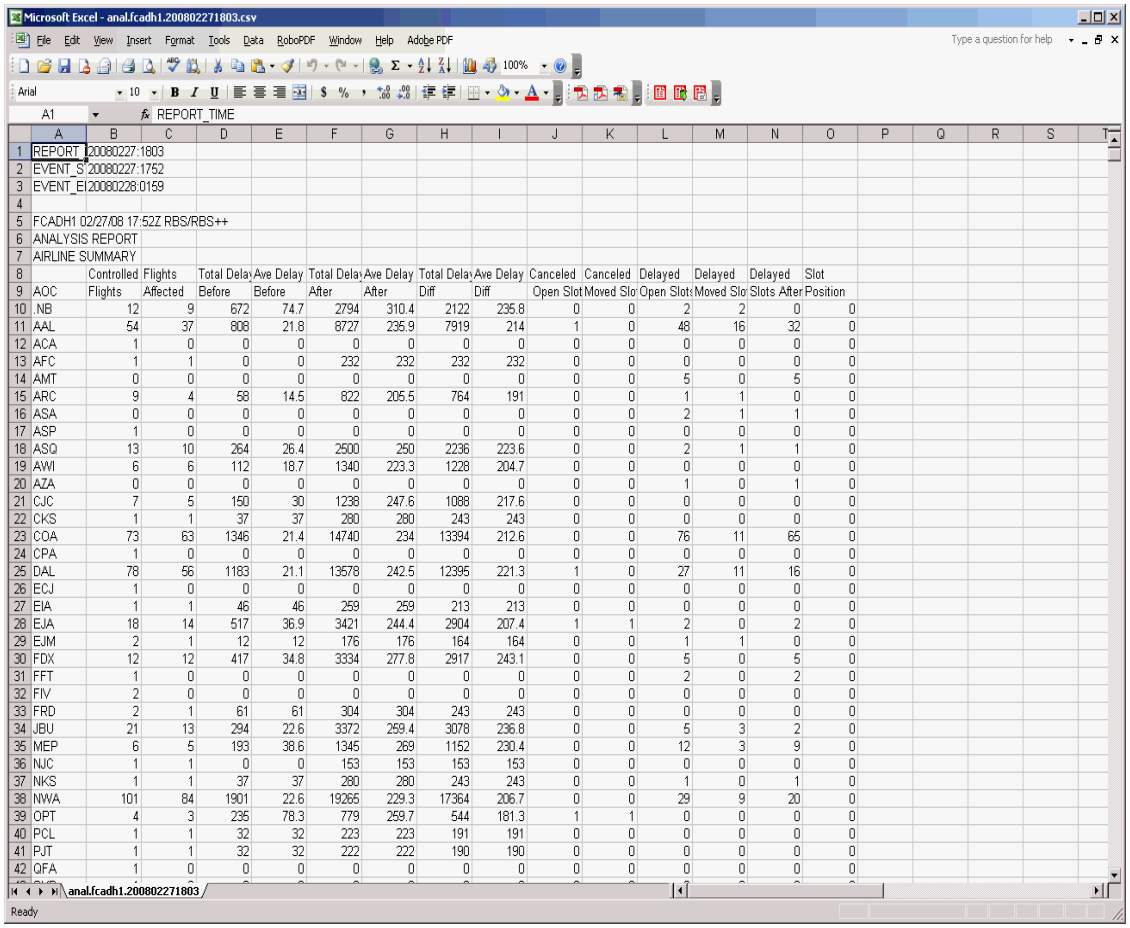


Figure 9 - 10 : AFP Coversheet

FSM automatically opens the spreadsheet application that you have indicated in your configuration files to display the Analysis Report.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	REPORT_T	20080227:1803													
2	EVENT_S	20080227:1752													
3	EVENT_EI	20080228:0159													
4															
5	FCADH1 02/27/08 17:52Z RBS/RBS++														
6	ANALYSIS REPORT														
7	AIRLINE SUMMARY														
8		Controlled	Flights	Total Delay	Ave Delay	Total Delay	Ave Delay	Total Delay	Ave Delay	Canceled	Canceled	Delayed	Delayed	Delayed	Slot
9	AOC	Flights	Affected	Before	Before	After	After	Diff	Diff	Open Slot	Moved Slo	Open Slots	Moved Slo	Slots After	Position
10	.NB	12	9	672	74.7	2794	310.4	2122	235.8	0	0	2	2	0	0
11	AAL	54	37	808	21.8	8727	235.9	7919	214	1	0	48	16	32	0
12	ACA	1	0	0	0	0	0	0	0	0	0	0	0	0	0
13	AFC	1	1	0	0	232	232	232	232	0	0	0	0	0	0
14	AMT	0	0	0	0	0	0	0	0	0	0	5	0	5	0
15	ARC	9	4	58	14.5	822	205.5	764	191	0	0	1	1	0	0
16	ASA	0	0	0	0	0	0	0	0	0	0	2	1	1	0
17	ASP	1	0	0	0	0	0	0	0	0	0	0	0	0	0
18	ASQ	13	10	264	26.4	2500	250	2236	223.6	0	0	2	1	1	0
19	AWI	6	6	112	18.7	1340	223.3	1228	204.7	0	0	0	0	0	0
20	AZA	0	0	0	0	0	0	0	0	0	0	1	0	1	0
21	CJC	7	5	150	30	1238	247.6	1088	217.6	0	0	0	0	0	0
22	CKS	1	1	37	37	280	280	243	243	0	0	0	0	0	0
23	COA	73	63	1346	21.4	14740	234	13394	212.6	0	0	76	11	65	0
24	CPA	1	0	0	0	0	0	0	0	0	0	0	0	0	0
25	DAL	78	56	1183	21.1	13578	242.5	12395	221.3	1	0	27	11	16	0
26	ECJ	1	0	0	0	0	0	0	0	0	0	0	0	0	0
27	EIA	1	1	46	46	259	259	213	213	0	0	0	0	0	0
28	EJA	18	14	517	36.9	3421	244.4	2904	207.4	1	1	2	0	2	0
29	EJM	2	1	12	12	176	176	164	164	0	0	1	1	0	0
30	FDX	12	12	417	34.8	3334	277.8	2917	243.1	0	0	5	0	5	0
31	FFT	1	0	0	0	0	0	0	0	0	0	2	0	2	0
32	FIV	2	0	0	0	0	0	0	0	0	0	0	0	0	0
33	FRD	2	1	61	61	304	304	243	243	0	0	0	0	0	0
34	JBU	21	13	294	22.6	3372	259.4	3078	236.8	0	0	5	3	2	0
35	MEP	6	5	193	38.6	1345	269	1152	230.4	0	0	12	3	9	0
36	NJC	1	1	0	0	153	153	153	153	0	0	0	0	0	0
37	NKS	1	1	37	37	280	280	243	243	0	0	1	0	1	0
38	NWA	101	84	1901	22.6	19265	229.3	17364	206.7	0	0	29	9	20	0
39	OPT	4	3	235	78.3	779	259.7	544	181.3	1	1	0	0	0	0
40	PCL	1	1	32	32	223	223	191	191	0	0	0	0	0	0
41	PJT	1	1	32	32	222	222	190	190	0	0	0	0	0	0
42	QFA	1	0	0	0	0	0	0	0	0	0	0	0	0	0

Figure 9 - 11 : Analysis Report

The Analysis Report contains pertinent information for the AFP that has just run, including detailed slot information for individual airlines, delay statistics for before and after the operation, and arrival and departure information for individual flights (see Figure 9 - 11). The report contains two sections. One section reflects changes that occur as a result of RBS; the other section reflects changes that occur as a result of Compression. Included in the analysis are statistics for bridge-only carriers.

Reload the Data

If you have been developing an AFP for a while, you may have missed some incoming ADLs. Before sending out the final AFP parameters, you may want to update the data. To do this, click **Reload** on the GDT Setup component. The **Reload** button is active only when the actual data time is more recent than the data loaded in GDT mode. Clicking **Reload** also models the AFP event.

10: Using Integrated Program Modeling

Integrated Program Modeling (IPM) allows you to model and compare multiple traffic management initiatives (TMIs), and to review their impact on other data sets. This version of IPM only provides modeling capabilities and does not allow you to send scenarios.

In FSM 8.70 you could model one program's effect on multiple data sets. For example, you could analyze the effect of one Airspace Flow Program (AFP) on many airports. For more information, see Chapter 8: Impact Modeling.

As of FSM 8.80 you can model and compare multiple programs and their impact on other data sets. For example, you can model the effects of multiple GDPs on an FCA.

Note the following limitations:

- You cannot send programs (proposed or actual).
- You cannot alter Data Time.
- You cannot include multiple instances of an element in a scenario.
- You cannot run Blanket or Compression TMIs.
- You cannot model AFPs before airports TMIs.
- AFP exemptions within a GDP are limited to existing AFPs.
- You cannot model re-controls in a purge.
- There is no support for Historical IPM mode.

Building Scenarios

The first step in using the IPM tool is to create one or more scenarios in the Scenario Manager component. The creation of a scenario involves selecting the elements that are either going to be controlled through initiatives or may be impacted by those initiatives. In this example, GDPs are included in a scenario because you want to see their impact on an FCA.

To better understand the IPM Mode, review Chapter 3: Integrated Program Modeling Components prior to creating the scenarios.

1. From the FSM Control Panel component, click **IPM Mode**. The IPM Mode (Scenario Manager and Multi Graph) opens.
2. On the **Scenario Setup** tab > ***Available*** box in the Scenario Manager component, select the airport or airspace to be included in a scenario.
3. For the scenario that you are building, click **Add Model** to add the element that you want to model, or click **Add Impact** to add the element that you want to review the impact of the modeled elements. As you move an element into a scenario, it is displayed in the corresponding Multi Graph tab. FSM highlights the Scenario Manager tabs with a red border to indicate that modifications have been made in Scenario Manager.

Note: You can add up to eight elements within each scenario.

4. Repeat the previous two steps for each element. In this example, three scenarios are compared (see Figure 10 - 1).

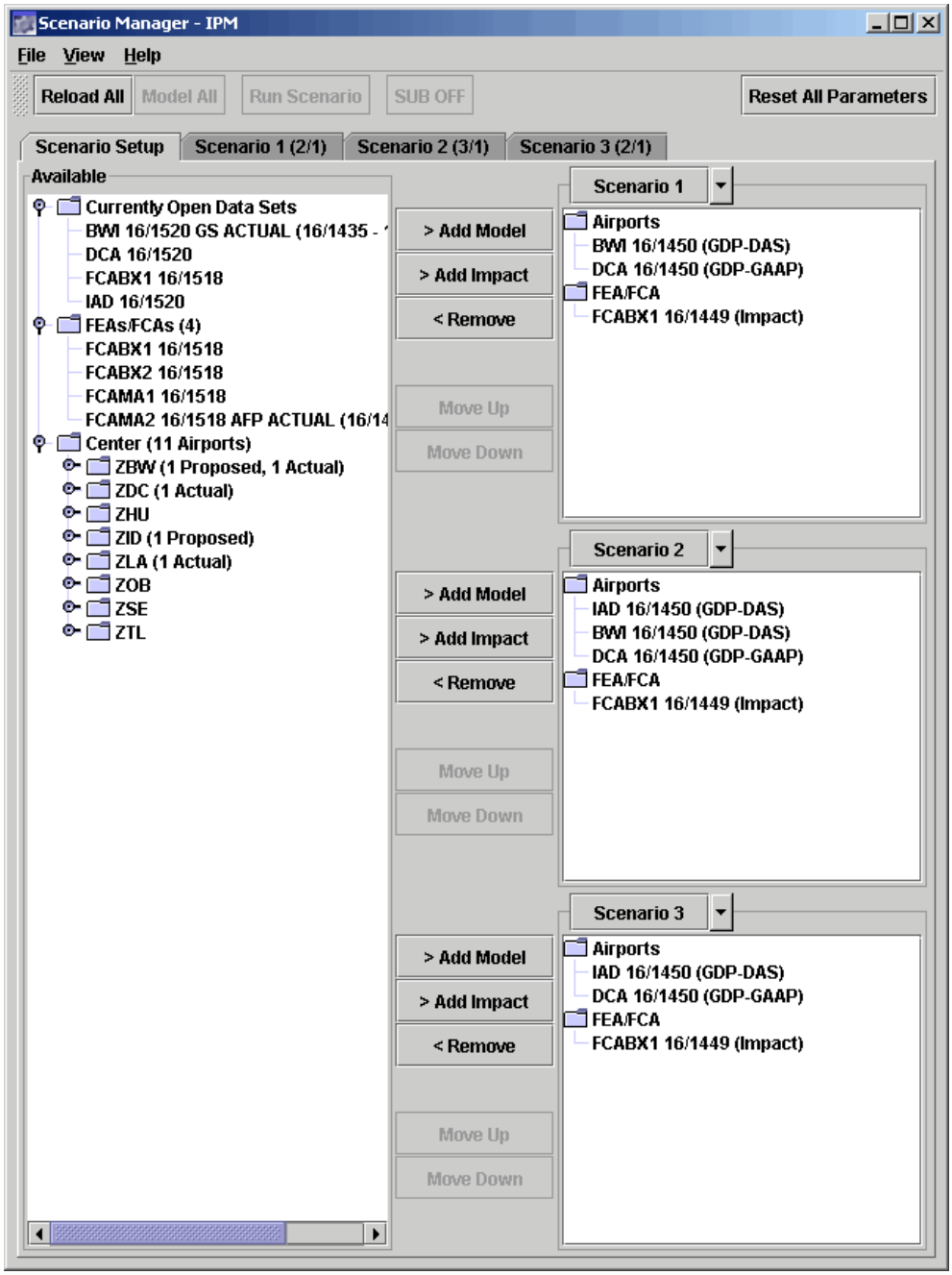


Figure 10 - 1 : Scenario Manager with Three Scenarios Created

5. To change parameters, right-click the element in the Scenario box, and select **IPM Setup** (see Figure 10 - 2) or click the appropriate Scenario tab, and click the ***Element ID*** action button to open the IPM Setup component.

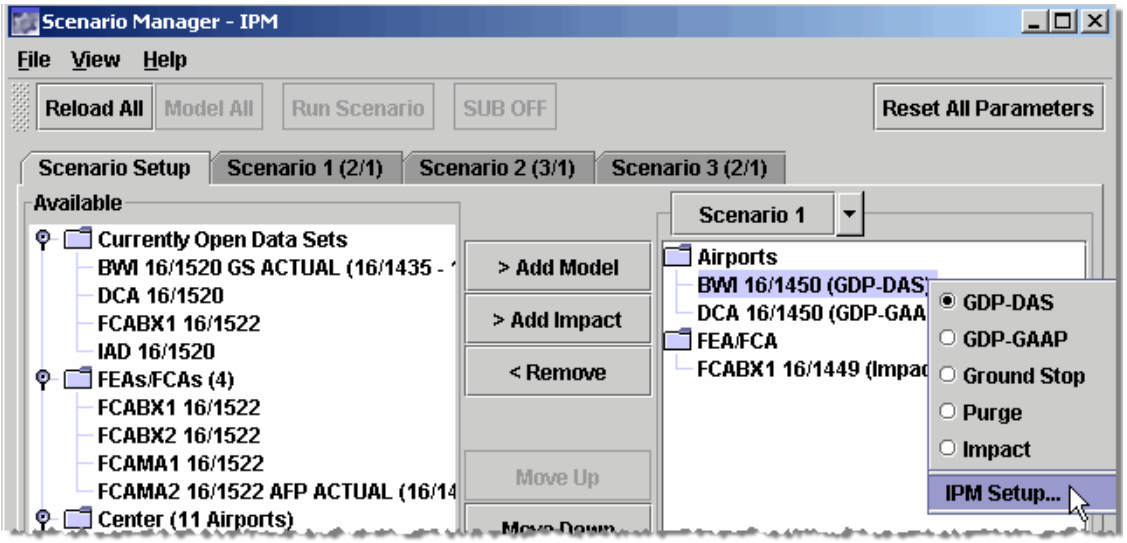


Figure 10 - 2 : Right-Click Menu Option to Open IPM Setup

Note: The IPM Setup (see Figure 10 - 3) component is very similar to GDT Setup.

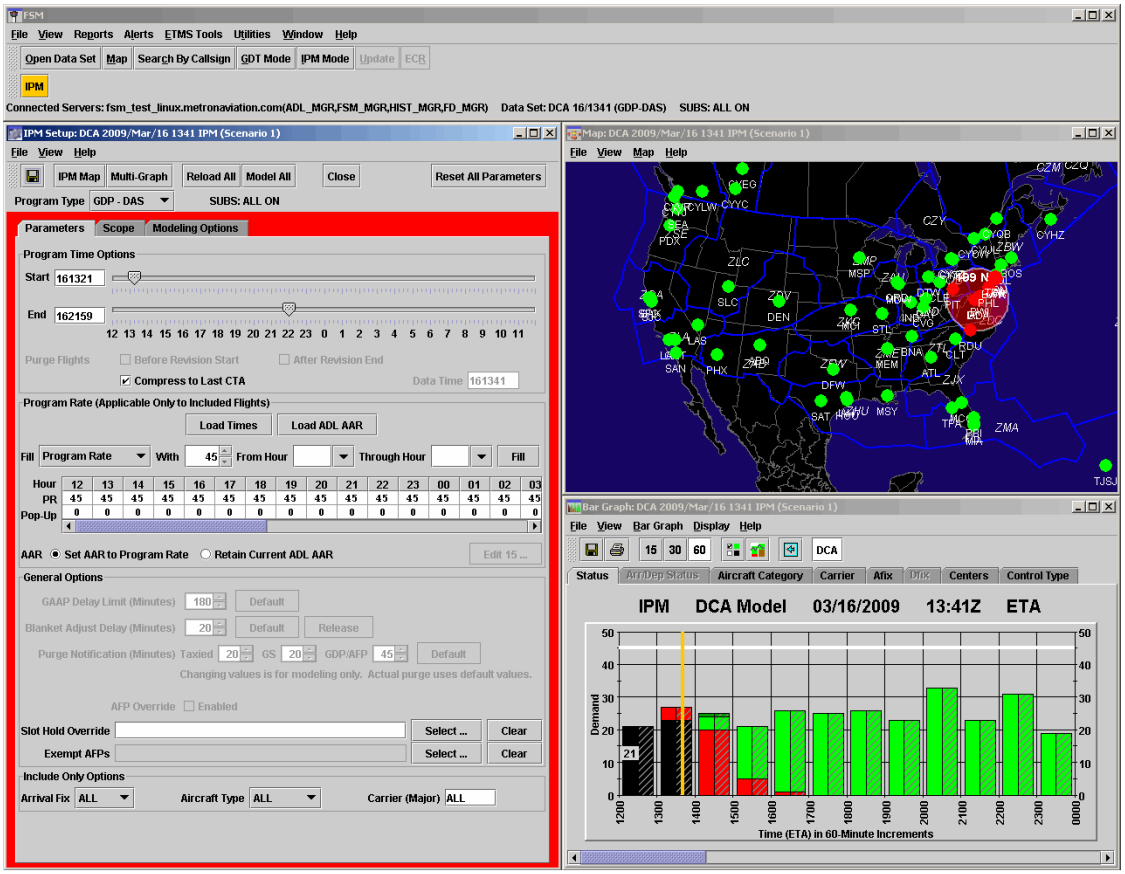


Figure 10 - 3 :IPM Setup Component

6. Select the program type from the ***Program Type*** dropdown menu. This step is only necessary if you want a program type other than the one defined when you created the scenario.

   Note: Compression and Blanket programs are not available in IPM.

7. On the Parameters tab of the IPM Setup panel, complete the Program Time Options section. For this example, enter the following:
   - ***Start Time*** – 161415 (ddhhmm)
   - ***End Time*** – 162114 (ddhhmm)
8. Enter the appropriate values for the program into the ***Program Rate*** section of the Parameters tab.
9. Complete the Include Only Options section by selecting values for ***Arrival Fix***, ***Aircraft Type***, and ***Carrier***.
10. Click the Scope tab, and enter the appropriate values for the program. For this example, enter the following:
    - ***Select By*** – Distance
    - ***Scope*** – 400 nm

    Note: Any changes you make to the *IPM Map* are dynamically reflected in the *IPM Setup* component's Scope tab.

11. Click **Scenario Mgr** to close the IPM Setup components and return to the Scenario Manager component. Continue to change the parameters for each Model element in each scenario.
12. If you want to re-use an element in another scenario (for example, BWI and DCA are used in Scenario 1 and Scenario 2). Select the down arrow next to the Scenario label and select **Copy to > Scenario 2** (see Figure 10 - 4). This copies the list of elements and all parameters to Scenario 2.

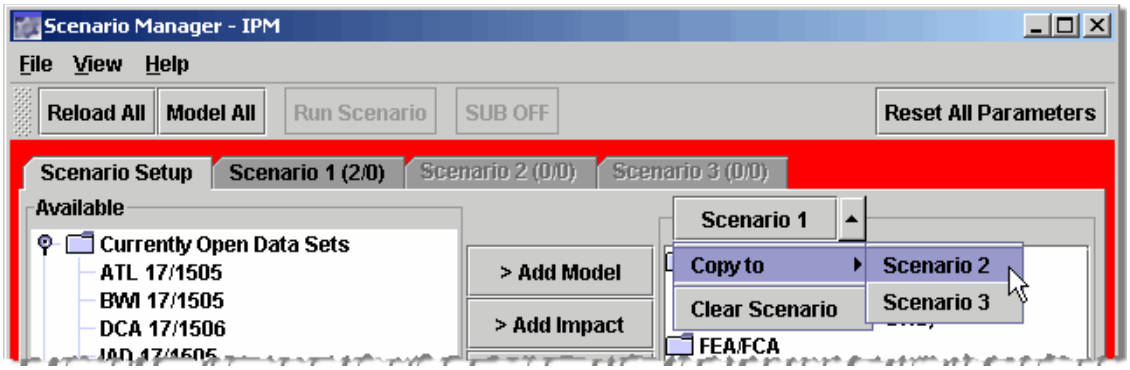


Figure 10 - 4 : Copy To Functionality

13. If you have been modeling a GDP for a while, you may have missed some incoming ADLs. Before modeling the GDP parameters, you may want to update

the data for your proposed TMI. To do this, click **Reload All** on the IPM Setup component. The **Reload All** button is active only when the actual data time is more recent than the data available in IPM mode. Clicking **Reload All** also models all elements in all scenarios.

14. Click **Model All** to model all scenarios. Note the logic used to model the programs:
    - Airports are modeled before FCA/FEAs.
    - Elements are modeled in the order that they are listed.
    - Impact data elements are processed after all TMIs are modeled.
    - Each scenario is a separate optional operational solution, only one of which can be implemented. Each scenario is processed independently of other scenarios.
    - All scenarios are modeled.
15. Click **Reset All Parameters** to clear any elements of the modeled data, and return the IPM settings to their defaults. You cannot reset just one element. To reset just one element without resetting the other elements, remove it and re-add it to the scenario by selecting the element, and clicking **Remove**.

The previous steps reviewed changing parameters through the IPM Setup Component. An alternative method is to click the Scenario tab in the Scenario Manager component and update the ***Program Type***, ***Program Rate***, ***Scope***, ***Start Time***, and ***End Time*** fields directly on the Scenario tab. (see Figure 10 - 5).

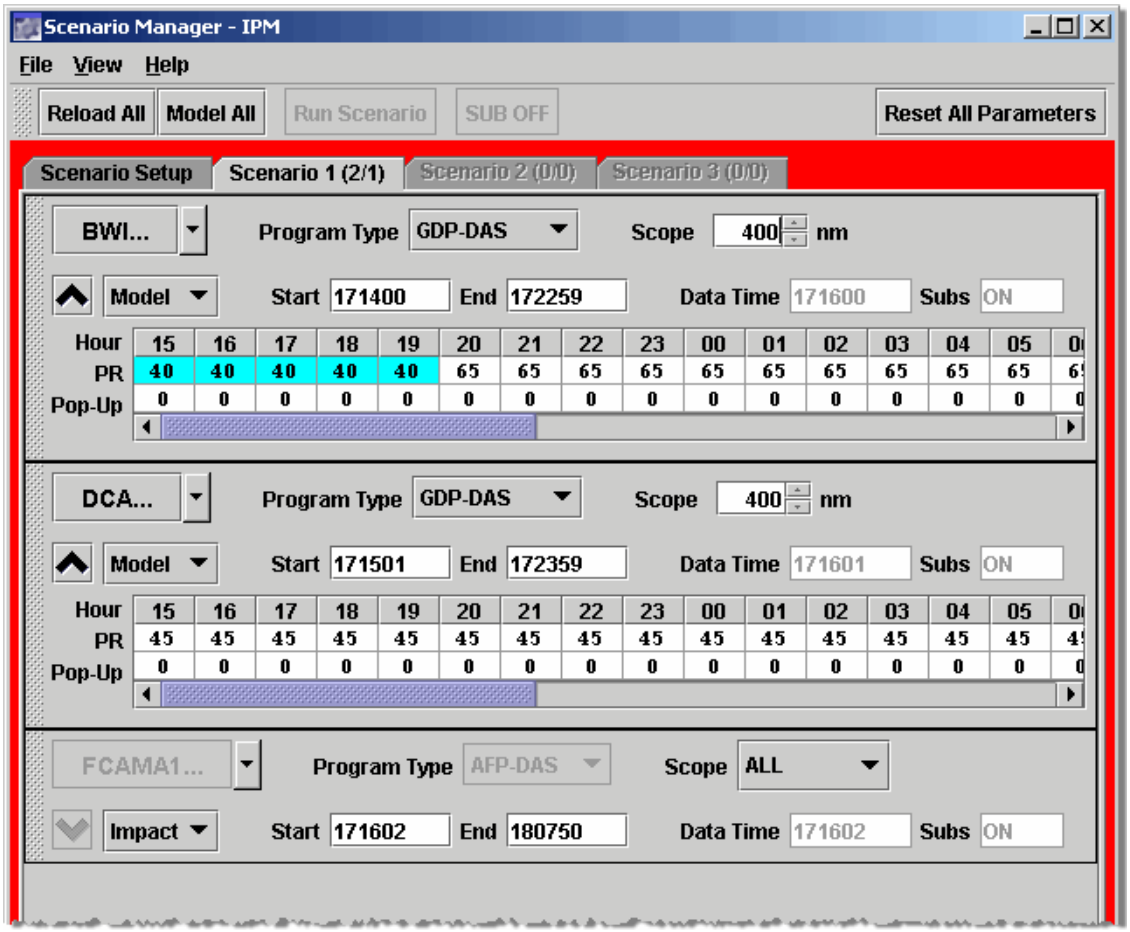


Figure 10 - 5 : Changing Parameters on Scenario Tab

Using Modeled Data in a Program

If you want to run a program using the modeled parameters for an element:

1. Click the appropriate Scenario tab in Scenario Manager. From the ***Element Id*** dropdown menu, select **Open New GDT Mode Instance** (see Figure 10 - 6). This opens a new instance of GDT Mode and copies all the parameters to that GDT Mode. GDT Mode is opened with the ADL currently opened in the Scenario Manager. If the element's ADL for the Scenario Manager is later than the current ADL time, click **Reload All**.

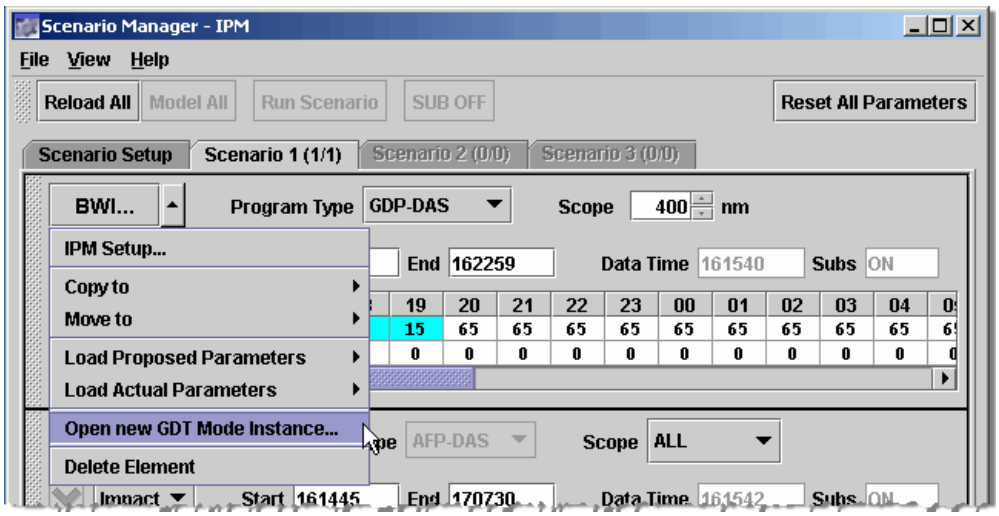


Figure 10 - 6 : Open New GDT Mode Instance

2. Click **Run** to send the program.

   Note: This may yield different results and metrics than your model.

Modeling Analysis

Preview Your Work

After clicking **Model All** or **Reload All** in the IPM Setup component, all IPM components are updated with the modeled GDPs. Viewing these components can help you determine the effect of the model GDPs on the impact data set. The IPM components are the same as what you view in GDT Mode. All of the following components are based on a BWI modeled GDP program.

IPM Multi Graph Component

The Multi Graph component provides a comparative view of the bar graphs of all the data sets in the scenario (see Figure 10 - 7). The functionality is the same as that found in GDT Mode Bar Graph; however, there are some menu option differences. See Chapter 3: Integrated Program Modeling Components for information on the menu differences.

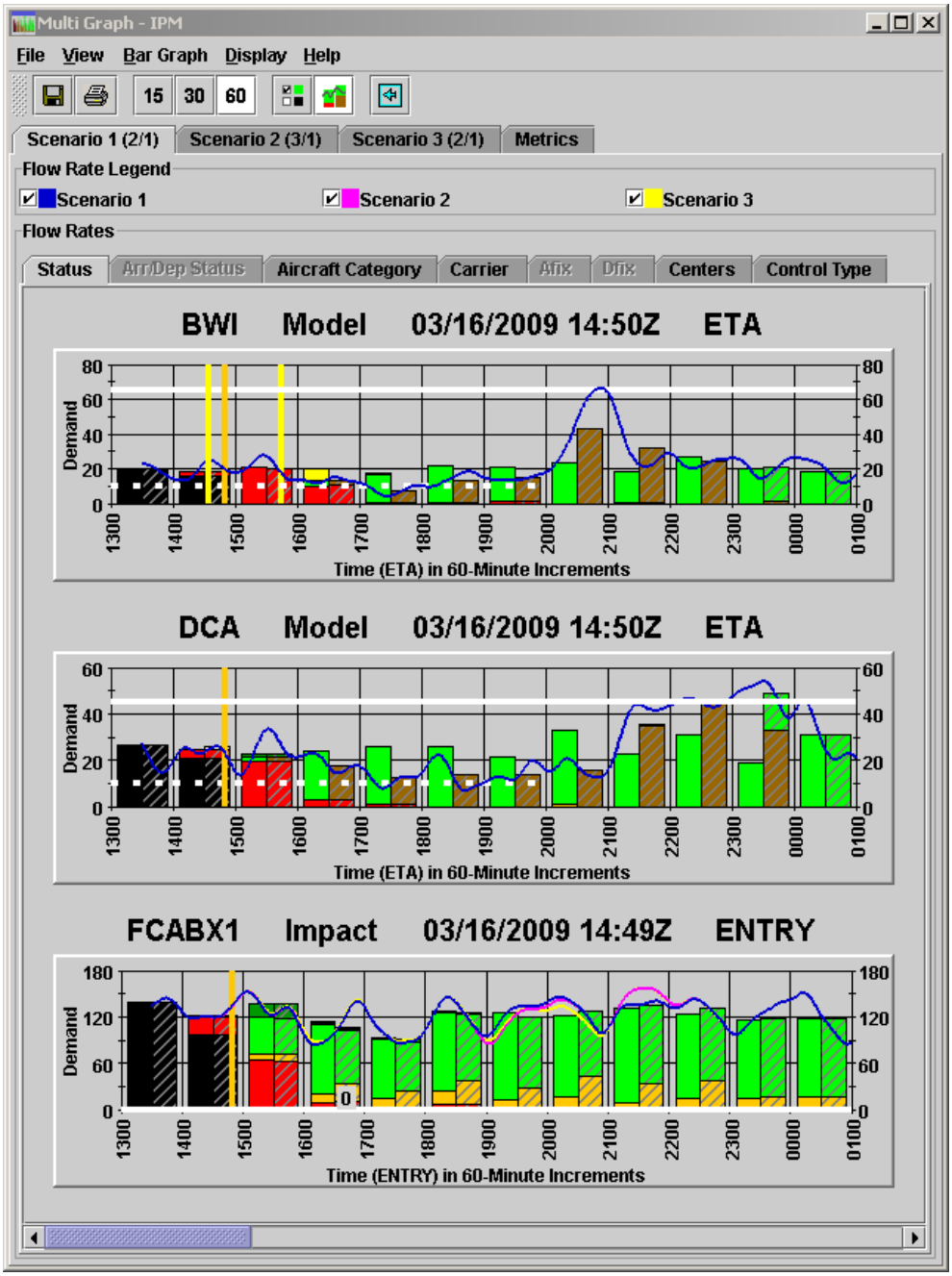
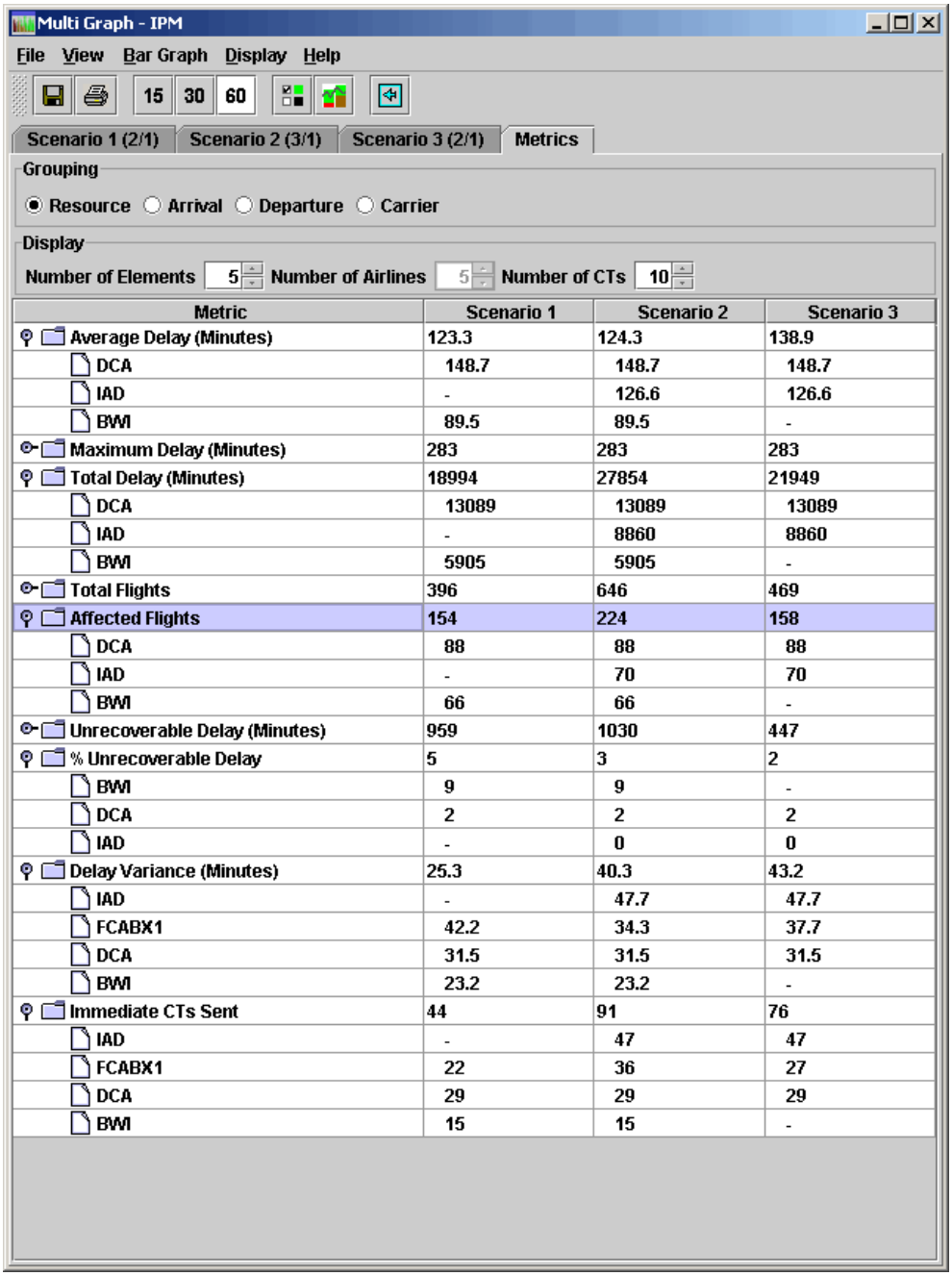


Figure 10 - 7 : IPM Multi Graph View

IPM Metrics Tab

The Metrics grid is accessed on the IPM Multi Graph component. It contains expandable trees to simultaneously display consolidated statistics across all scenarios (see Figure 10 - 8). Use different combinations of the Grouping and Display options to analyze the data.



Metric	Scenario 1	Scenario 2	Scenario 3
Average Delay (Minutes)	123.3	124.3	138.9
DCA	148.7	148.7	148.7
IAD	-	126.6	126.6
BWI	89.5	89.5	-
Maximum Delay (Minutes)	283	283	283
Total Delay (Minutes)	18994	27854	21949
DCA	13089	13089	13089
IAD	-	8860	8860
BWI	5905	5905	-
Total Flights	396	646	469
Affected Flights	154	224	158
DCA	88	88	88
IAD	-	70	70
BWI	66	66	-
Unrecoverable Delay (Minutes)	959	1030	447
% Unrecoverable Delay	5	3	2
BWI	9	9	-
DCA	2	2	2
IAD	-	0	0
Delay Variance (Minutes)	25.3	40.3	43.2
IAD	-	47.7	47.7
FCABX1	42.2	34.3	37.7
DCA	31.5	31.5	31.5
BWI	23.2	23.2	-
Immediate CTs Sent	44	91	76
IAD	-	47	47
FCABX1	22	36	27
DCA	29	29	29
BWI	15	15	-

Figure 10 - 8 : IPM Metrics Tab Grouped by Resource

IPM Time Line Component

To open the IPM Time Line, select **View > IPM Time Line** from the IPM Setup component. You can preview the changes made in the Time Line as a result of running the IPM model (see Figure 10 - 9). A quick glance at the Time Line shows you the distribution of flights, the number of cancelled flights (squares), and the number of delayed flights (triangles).

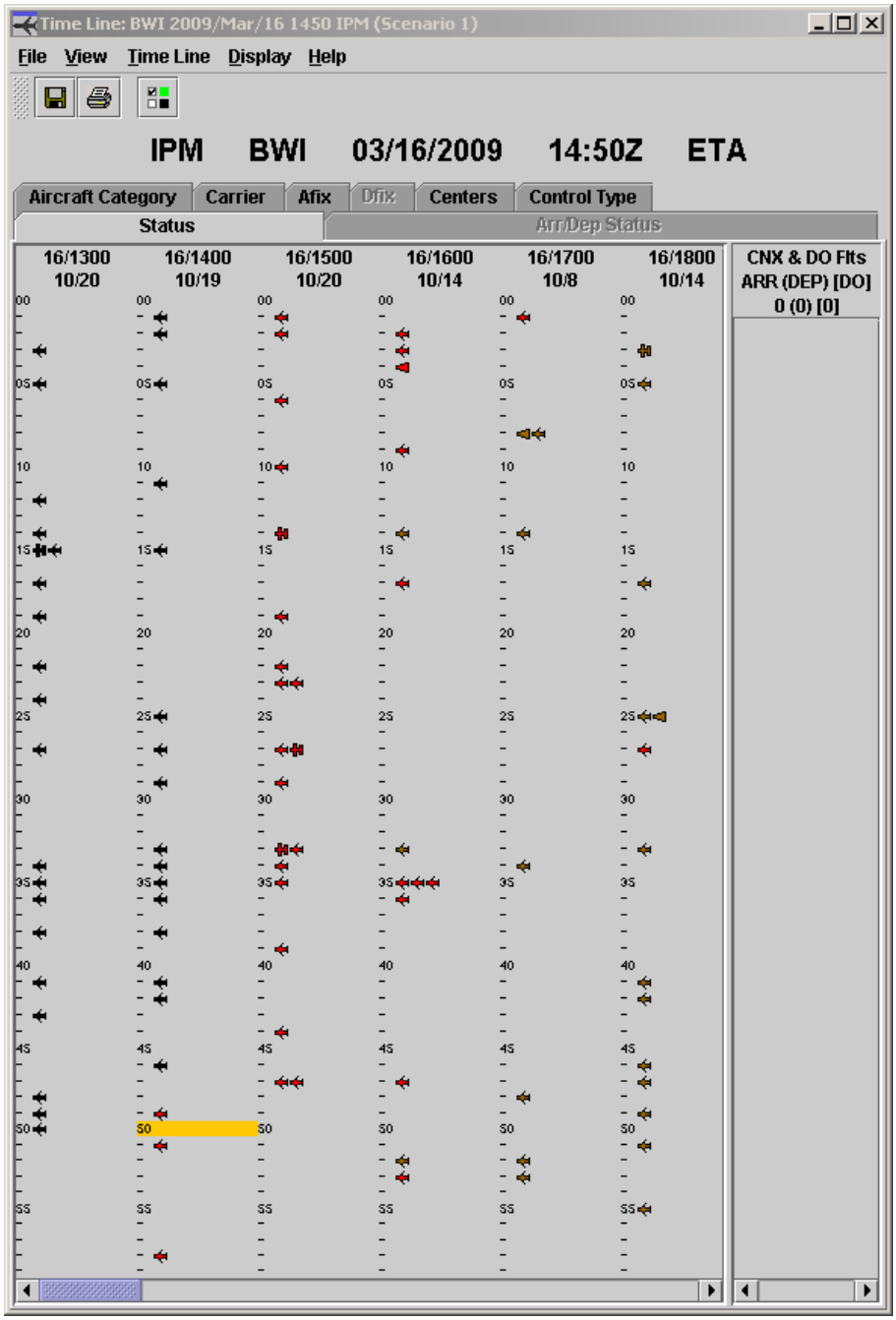


Figure 10 - 9 : IPM Time Line View

IPM Bar Graph Component

By default, the IPM Bar Graph displays both solid and hashed bars. Solid bars represent the original data, while hashed bars represent modeled data. Uncheck **View > Current Data** from the IPM Bar Graph to view only modeled data. The modeled AAR line (dashed white line) is displayed by default when in IPM mode. The Bar Graph can indicate if the

stack at the end of the program is a potential problem and allows you to view the overall impact of the program (see Figure 10 - 10).

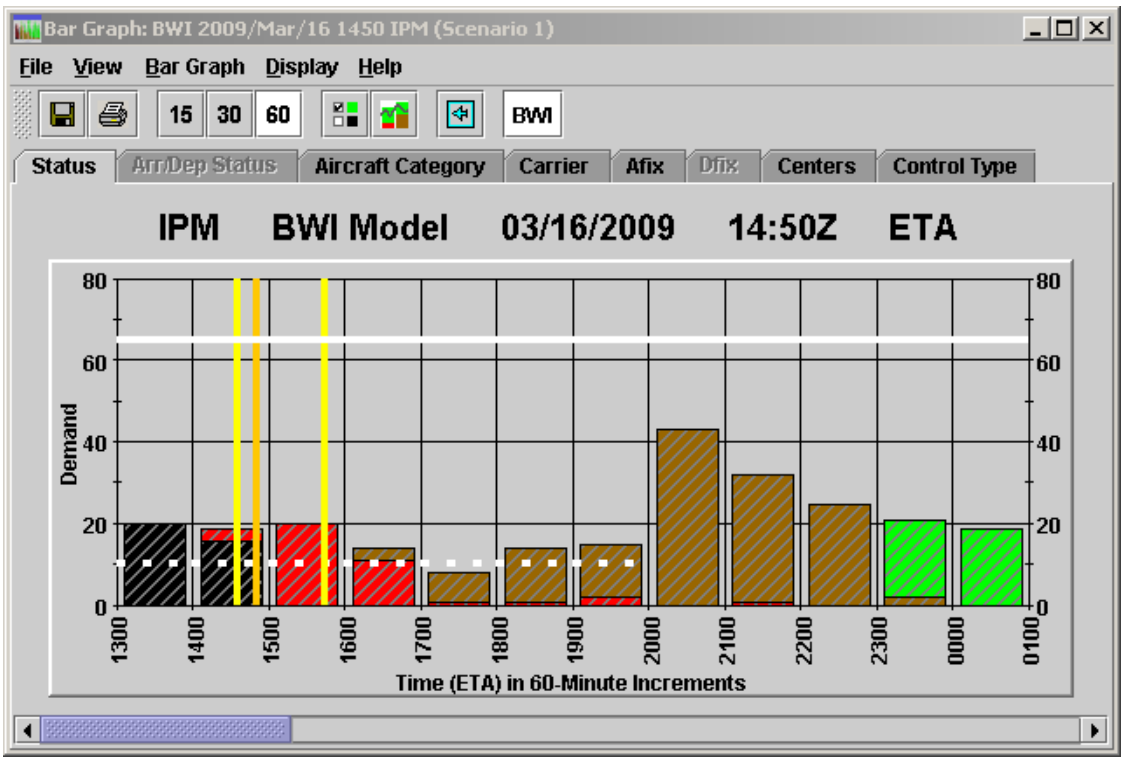


Figure 10 - 10 : IPM Bar Graph View With Current Data Option Unchecked

For more information on the IPM Bar Graph component, see Chapter 3: Understanding Components.

IPM Data Graph Component

The IPM Data Graph provides a visual statistical representation of the modeled GDP. The Power Run option that you ran is displayed on the X-axis (see Figure 10 - 11). Using your mouse, drag the black vertical line to the desired Power Run option or just click the mouse over the desired option to move the line. The delay statistics to the left of the Data Graph reflect the line of delineation of the scenario. Additionally, changing the Power Run option automatically updates all IPM components to reflect the new parameters. Rolling your mouse over any line in the Data Graph gives you the delay statistic count for the colored line that reflects the results of the option.

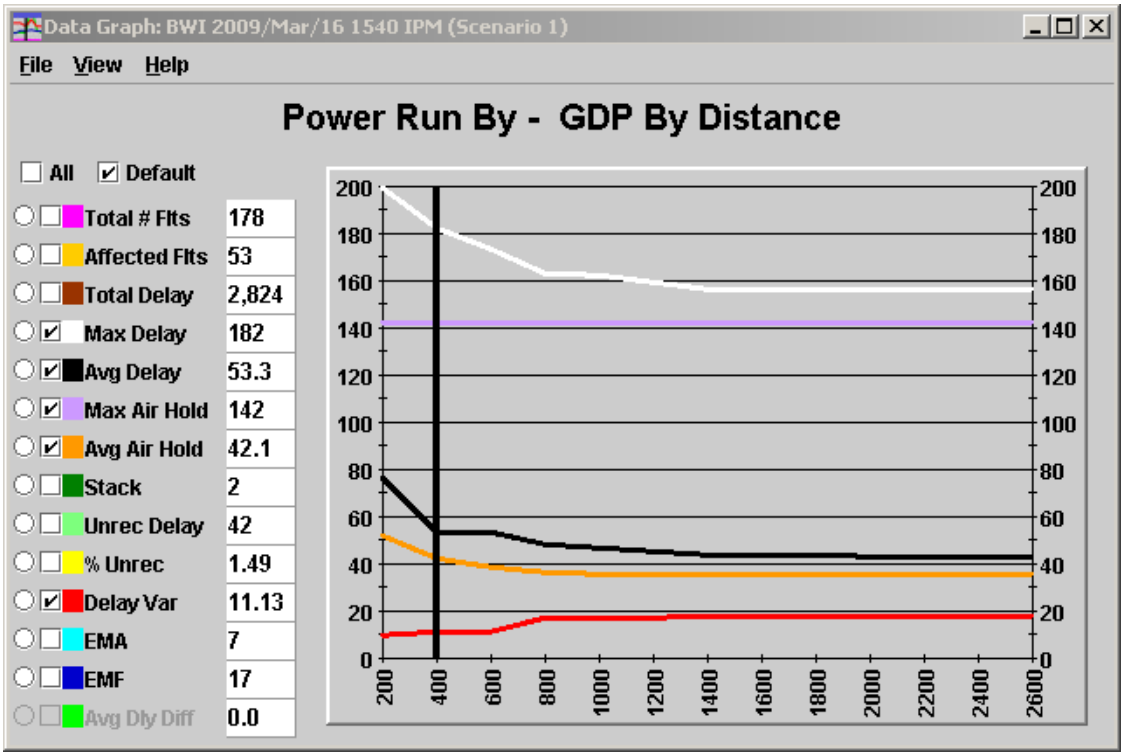


Figure 10 - 11 : IPM Data Graph View

For more information on the IPM Data Graph component, see Chapter 3: Understanding Components.

IPM Map Component

The IPM Map component provides a visual representation of the modeled scope of the GDP (see Figure 10 - 12). The burgundy highlighted areas indicate the scope of Non-Exempt flights. Airports that are colored red are Non-Exempt and Airports colored green are Exempt due to the scope of the modeled GDP. Clicking an Airport or Center will change the scope of the GDP and simultaneously update the IPM Setup component.

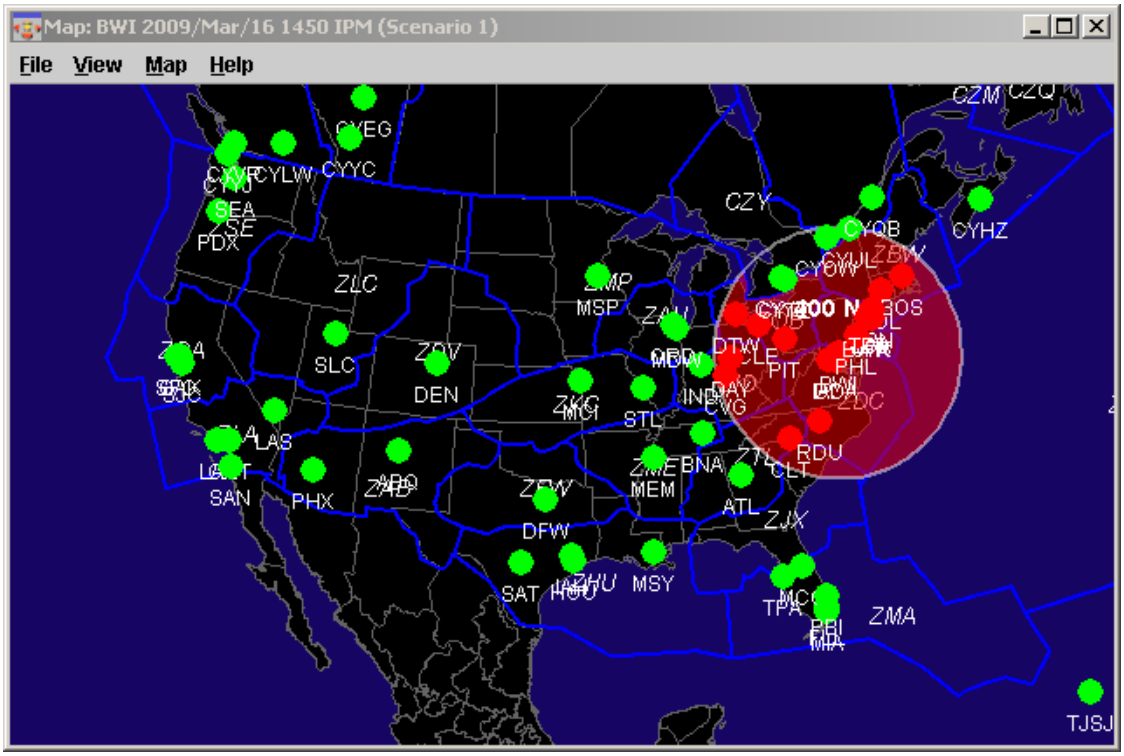
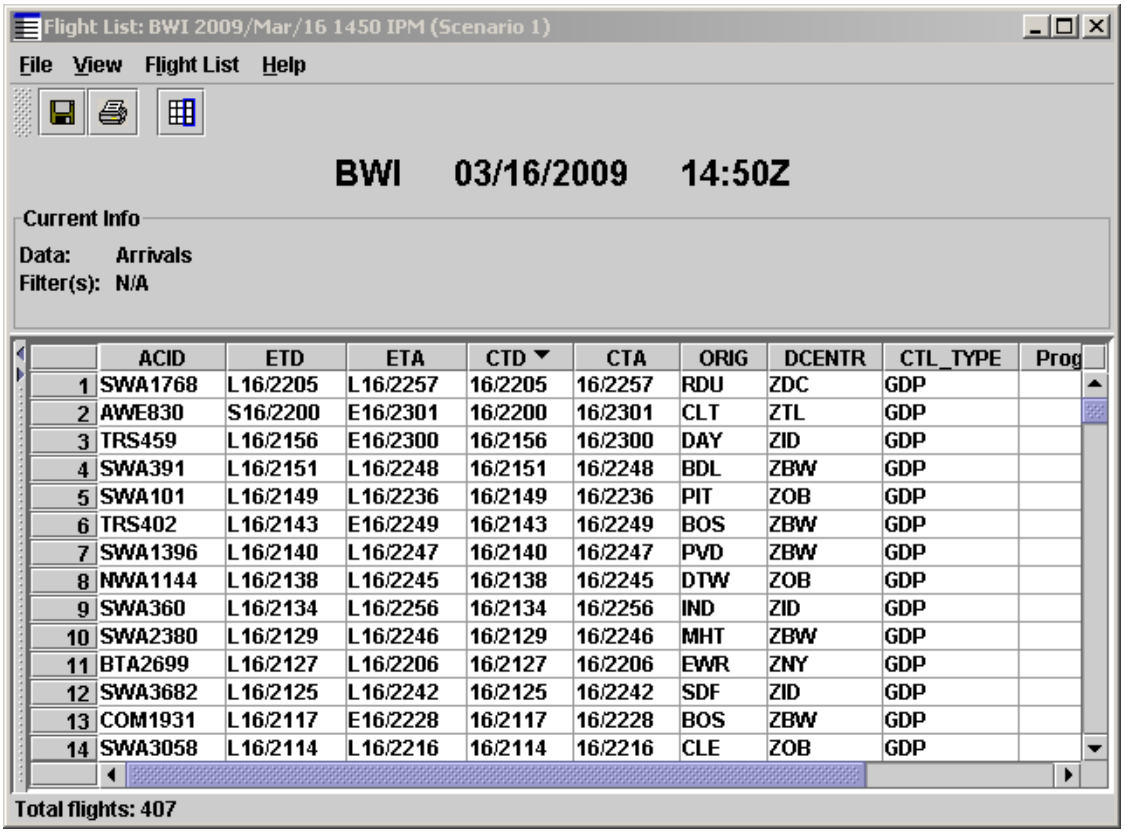


Figure 10 - 12 : IPM Map View

For more information on the IPM Map component, see Chapter 3: Understanding Components.

IPM Flight List Component

To open the IPM Flight List, select **View > Flight List** from the IPM Setup component. The IPM Flight List allows you to view the modeled results for multiple flights (see Figure 10 - 13).



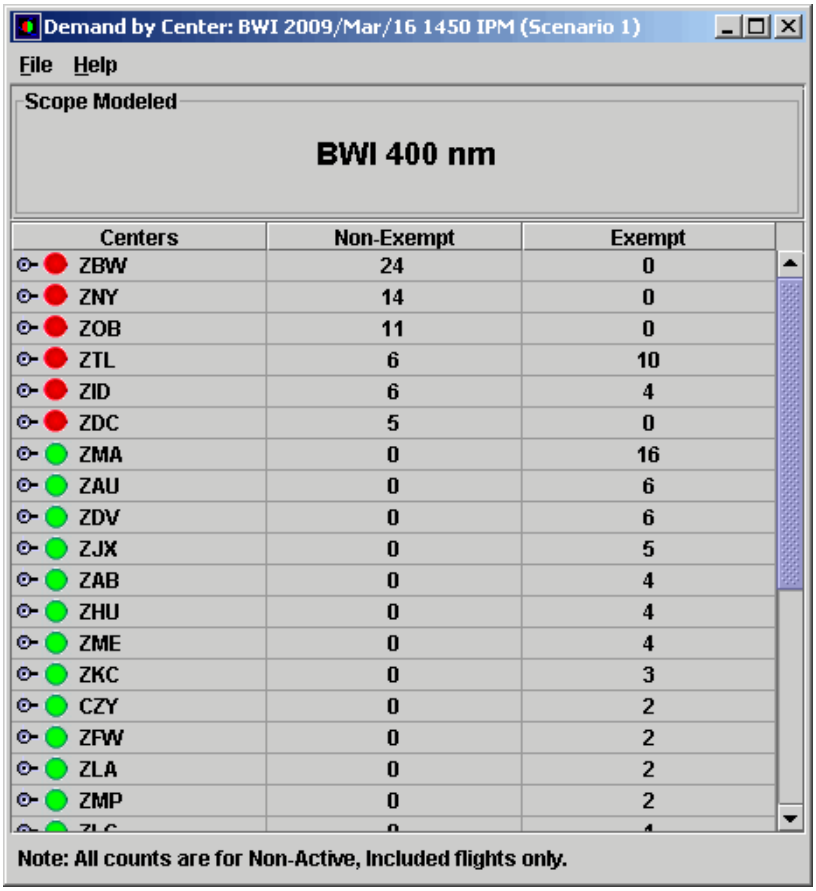
	ACID	ETD	ETA	CTD	CTA	ORIG	DCENTR	CTL_TYPE	Prog
1	SWA1768	L16/2205	L16/2257	16/2205	16/2257	RDU	ZDC	GDP	
2	AWE830	S16/2200	E16/2301	16/2200	16/2301	CLT	ZTL	GDP	
3	TRS459	L16/2156	E16/2300	16/2156	16/2300	DAY	ZID	GDP	
4	SWA391	L16/2151	L16/2248	16/2151	16/2248	BDL	ZBW	GDP	
5	SWA101	L16/2149	L16/2236	16/2149	16/2236	PIT	ZOB	GDP	
6	TRS402	L16/2143	E16/2249	16/2143	16/2249	BOS	ZBW	GDP	
7	SWA1396	L16/2140	L16/2247	16/2140	16/2247	PVD	ZBW	GDP	
8	NWA1144	L16/2138	L16/2245	16/2138	16/2245	DTW	ZOB	GDP	
9	SWA360	L16/2134	L16/2256	16/2134	16/2256	IND	ZID	GDP	
10	SWA2380	L16/2129	L16/2246	16/2129	16/2246	MHT	ZBW	GDP	
11	BTA2699	L16/2127	L16/2206	16/2127	16/2206	EWR	ZNY	GDP	
12	SWA3682	L16/2125	L16/2242	16/2125	16/2242	SDF	ZID	GDP	
13	COM1931	L16/2117	E16/2228	16/2117	16/2228	BOS	ZBW	GDP	
14	SWA3058	L16/2114	L16/2216	16/2114	16/2216	CLE	ZOB	GDP	

Figure 10 - 13 : IPM Flight List View

For more information on the IPM Flight List component, see Chapter 6: Viewing Flight Information.

IPM Demand By Center Component

To open the IPM Demand by Center, select **View > Show Demand** from the IPM Setup component or click **Show Demand** on the Scope tab. The IPM Demand By Center component displays non-active, non-completed, and included flights that are Non-Exempt or Exempt by the modeled GDP (see Figure 10 - 14). Included flights are the combination of both Exempt and Non-Exempt flights included in the modeled GDP. The Demand by Center component lists all Centers and the top five airports, as defined by the number of included flights within each center for the modeled GDP. Click the key icon to the left of the Center coloring to expand the Center selection and display the airports. The Centers are ordered in descending order based on the number of Non-Exempt flights. The red colored Centers indicate that there is at least one Non-Exempt flight within the Center. Using this component can help you make decisions on the scope of your GDP based on the number of Non-Exempt and Exempt flights.



Centers	Non-Exempt	Exempt
ZBW	24	0
ZNY	14	0
ZOB	11	0
ZTL	6	10
ZID	6	4
ZDC	5	0
ZMA	0	16
ZAU	0	6
ZDV	0	6
ZJX	0	5
ZAB	0	4
ZHU	0	4
ZME	0	4
ZKC	0	3
CZY	0	2
ZFW	0	2
ZLA	0	2
ZMP	0	2

Figure 10 - 14 : Demand by Center View

For more information on the Demand by Center component, see Chapter 3: Understanding Components.

11: Issuing an Initial Program

This chapter assumes that you have already modeled your Ground Delay Program (GDP) or Airspace Flow Program (AFP) and you have decided that the modeled parameters are the best Traffic Management Initiative (TMI) to control the demand at the airport you are monitoring. See Chapter 8: Modeling a Ground Delay Program and Chapter 9: Modeling an Airspace Flow Program for more information on how to set and model your parameters.

GDP/AFP Coversheet

Click **Run** after you complete and model your GDP/AFP from the GDT Setup component. Clicking **Run** saves the parameters to a file specified in FSM's configuration file and opens the GDP or AFP Coversheet. Clicking **Run** also generates three reports, the FADT, Analysis, and Carrier Statistics Reports, which you can view by selecting **View > FADT**, **Analysis Report**, or **Carrier Statistics** from the Coversheet menu. See Chapter 21: Understanding and Using FSM Reports for more information on reports.

> **Note:** If you modeled your program, the red border around the GDT Setup Panel no longer is displayed and the **Run** button is enabled. If you change any parameter in the GDT Setup component, you must click **Model** first, and then **Run**. Clicking **Reload** retrieves the most current ADL and models at the same time.

The GDP/AFP Coversheet contains three tabs, General, Program Results, and Delay Assignment. The General tab contains all the GDP or AFP parameters from the GDT Setup panel and an Advisory/Causal Factor section that must be completed before the program is sent to the hub site. The Program Results tab contains flight and stack information. The Delay Assignment tab contains the program's slot allocation and delay distribution for your review. Click **Send GDP** or **Send AFP** from the Coversheet to issue the GDP or AFP and send the Advisory/Causal Factor, as shown in Figure 11 - 1.

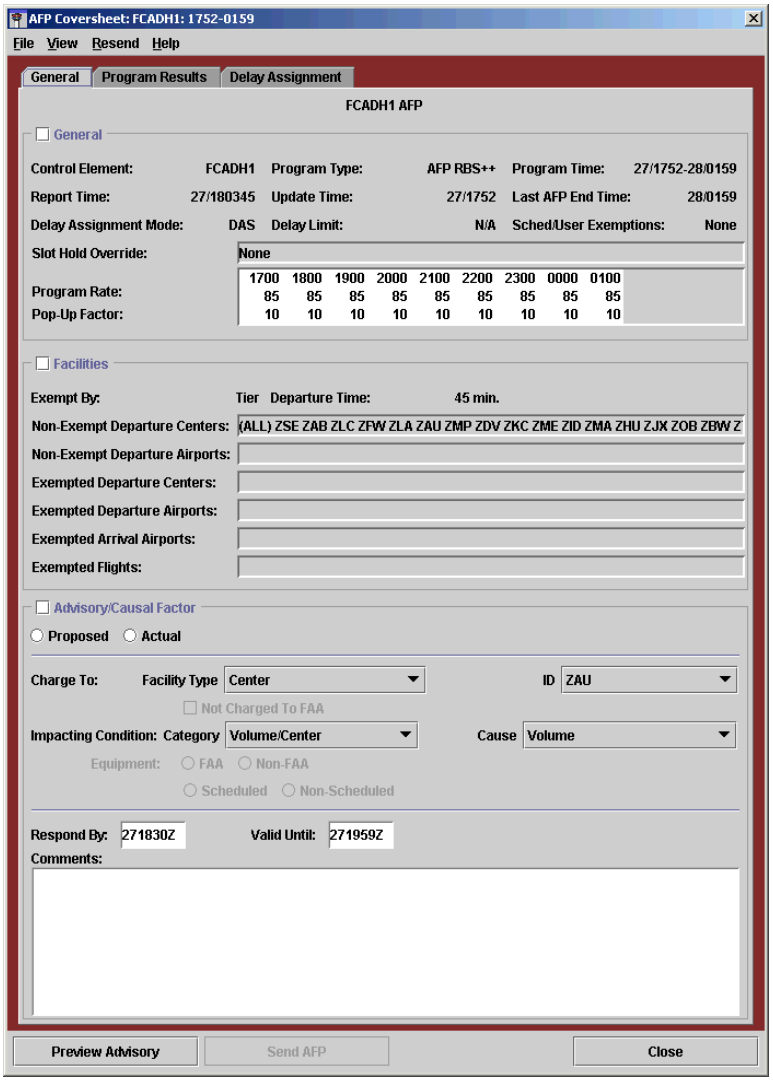


Figure 11 - 1 : AFP Coversheet

For more information on the Coversheet component, see Chapter 3: Understanding Components.

Reviewing Program Parameters

Reviewing the program parameters is important before issuing a program. On the General Tab of the Coversheet, ensure that the General, Facilities, and Advisory/Causal Factor sections accurately reflect all of your inputs entered into the GDT Setup panel. On the Program Results tab, ensure the flights and stack information reflect your inputs into the GDT Setup. On the Delay Assignment tab review the slot allocation and delay distribution.

Creating an Advisory

Before sending a program, you must complete the Advisory/Causal Factor section of the Coversheet. The ***Proposed*** and ***Actual*** radio buttons are left blank by default and you *must* select one or the other to proceed. The ***Respond By*** field is only available during a proposed event. You must complete all enabled fields before attempting to send the program.

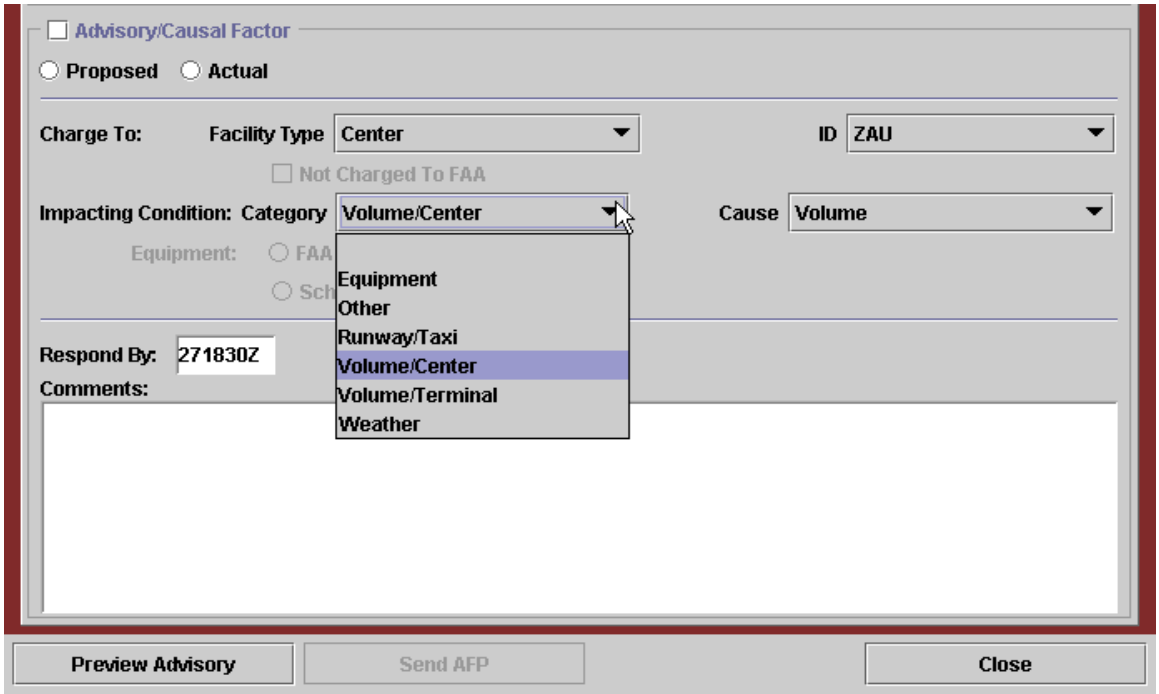


Figure 11 - 2 : Coversheet Advisory Section

Place a checkmark next to each section of the Coversheet after you have reviewed the parameters, facilities, and advisory/causal factor information. To review the Advisory text before sending the event, click **Preview Advisory** located in the lower left-hand corner of the Coversheet. This opens the program Advisory in text format (see Figure 11 - 3).

For more information on the Advisory/Causal Factor section of the Coversheet, see Chapter 3: Understanding Components

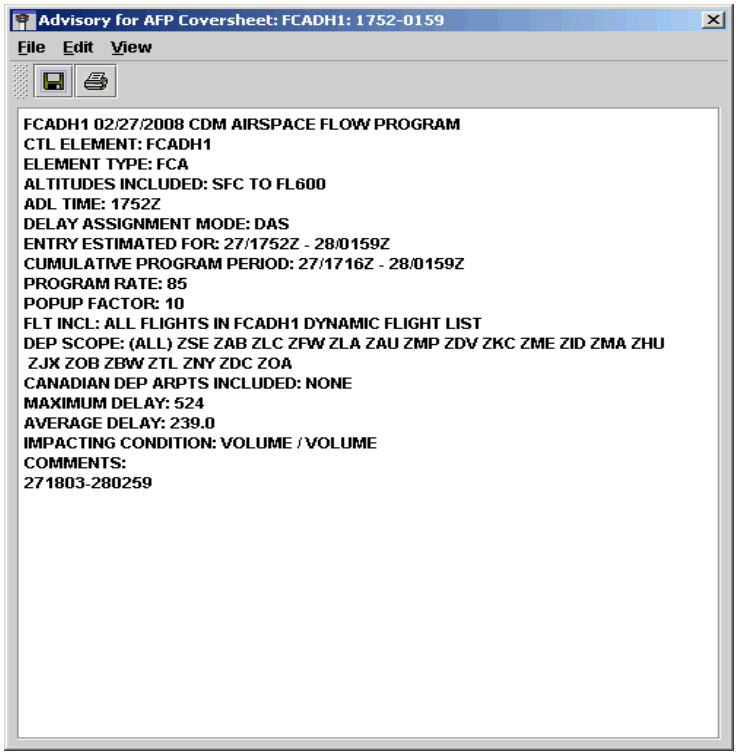


Figure 11 - 3 : Advisory Preview

To send the Program and Advisory click **Send <Program Type>** located at the bottom of the Coversheet. When ***Actual*** is selected in the Advisory/Causal Factor section of the Coversheet, the FSM client interfaces with ETMS Autosend Server and sends the web coversheet XML file to NTML and the FADT file to the hub site. The Autosend Server also invokes ETMS e-mail and sends the Advisory to the specified address list. ETMS e-mail puts the ATCSCC position number and phone number in the Advisory signature line.

When ***Proposed*** is selected in the Advisory/Causal Factor section of the Coversheet, only the proposed parameters and Advisory is sent. No EDCTs are issued for a proposed program.

Click **Close** and no action is taken from the Coversheet window.

Program Manager

Clicking **Send <Program Type>** activates the Autosend process and opens the Program Manager dialog which displays the status window and progress bar at the bottom of the window (see Figure 11 - 4). The Program Manager performs a list of actions based on the type of program sent - proposed or actual. Some actions specify the next action to perform sequentially upon completion of the first action. If an action fails, a dialog is displayed asking if further sequential action should be performed or if the process should be stopped.

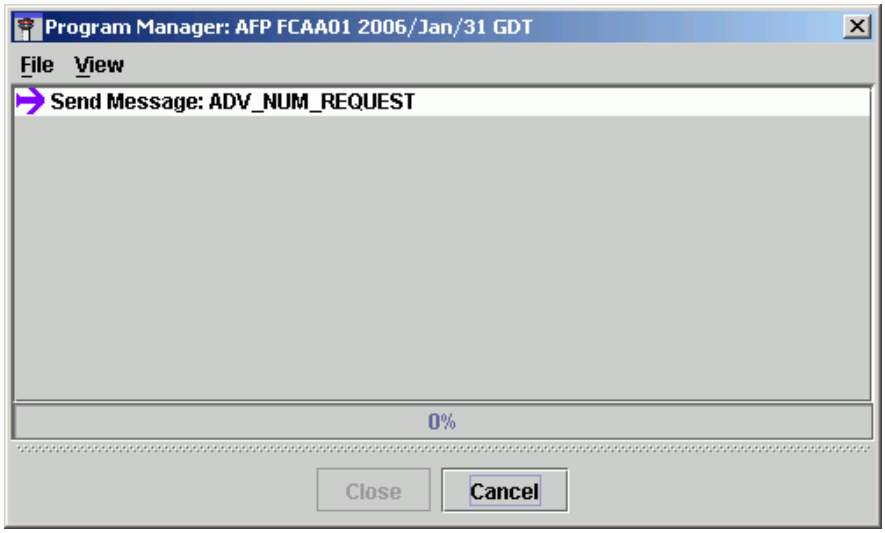


Figure 11 - 4 : Program Manager

For more information on the Program Manager see Chapter 3: Understanding Components.

> **Note:** If you click **Send <Program Type>** more than 15 minutes after modeling your program, it is recommended that you close your Coversheet and **Reload** to get the most recent data from an updated ADL before continuing with the program operation.

Resending Coversheet Information

If your program parameters, advisory, or EDCTs were not properly sent the first time, you can select information you would like to resend from the Coversheet. If the Coversheet is not already open, open the Coversheet from the GDT Setup panel. Select **File > Open Coversheet**. This opens a file selection window for the Reports directory. You should see all Coversheets generated for that airport.

> **Note:** The Coversheet files are saved in the reports directory until you choose to delete them.

FSM generates Coversheet files when you run a new or revised GDP, AFP, GS, Compression, or Blanket. FSM also generates Coversheets when you purge (cancel) a program. You can differentiate among the Coversheet files by looking at the last few letters in the file name:

- GDP indicates a GDP Coversheet.
- AFP indicates an AFP Coversheet.
- GS indicates a Ground Stop Coversheet.
- COMP indicates a Compression Coversheet.
- BLKT indicates a Blanket Coversheet.
- Purge indicates a CNX Coversheet.

FSM names a typical Coversheet file by:

- Type of file (for Coversheets, it is always fsmc)
- Airport or FCA
- 2-character date (just the day)
- Time generated (HHMMSS)
- Rate used
- Type of Coversheet (gdp, afp, gs, comp, blkt, purge)
- Scope included

For example, a file named “fsmc.SFO.28150808.3030.GDPNew.ALL” indicates a New GDP (first GDP of the day) Coversheet generated for SFO airport on the 28th at 1508Z with a 30 rate that includes all centers in the program.

Once you find the appropriate Coversheet file, click the file name to select it and click **Open**. The Coversheet opens in FSM exactly as it appeared the first time FSM generated it

> **Note:** Even though you can open an old Coversheet, enough time may have passed that it would be better to generate a new program and Coversheet.

The **Resend** menu contains four options: **Resend Program**, **Resend Parameters**, **Resend Advisory**, and **Resend Program & Advisory** (see Figure 11 - 5).

> **Note:** The Resend menu options are only available after **Send** has been initially clicked on the Coversheet.

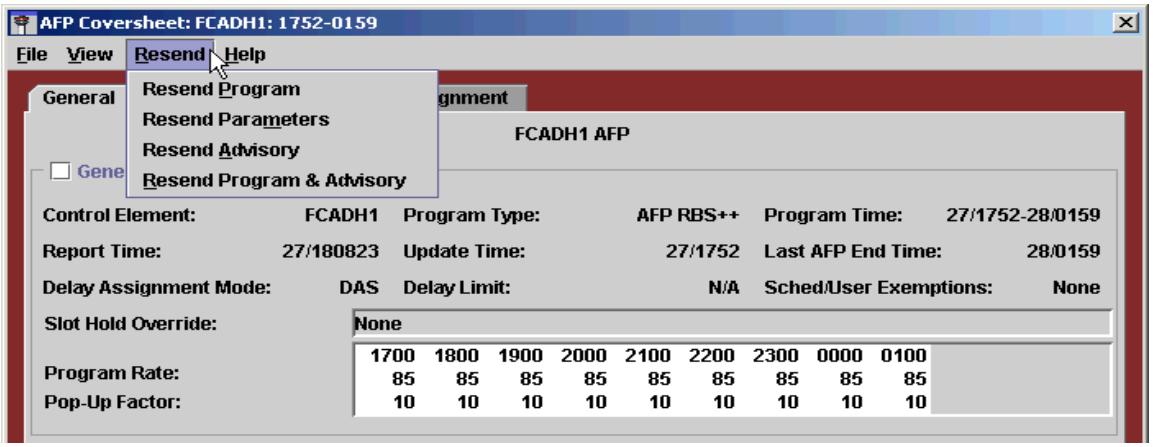


Figure 11 - 5 : Coversheet Resend Menu Options

Below is a description of the Resend menu options and when they are available.

- **Resend Program:** Invokes the ETMS Autosend process to send the FADT file to the hub site and the Coversheet file to NTML, as well as remote copies the files. This option is only available for Actual GDPs and AFPs.

- **Resend Parameters:** Sends the parameters and AAR messages for the program. This option is available for Proposed and Actual GDPs and AFPs, but is not available when Purging a TMI.
- **Resend Advisory:** Uses an existing advisory number (if available) and invokes the ETMS Autosend process to send only the Advisory for the program. This is available for all Proposed and Actual TMIs.
- **Resend Program and Advisory**: This is the same process as clicking the initial Send button from the Coversheet and is only available for Actual Programs.

Purging a Program

To purge (cancel) and release all delay on flights included in a program, use the Purge function from the GDT Setup Component. The Purge option requires no user input; however, for *modeling purposes only* you can change ***Purge Notification (Minutes)*** for ***Taxied***, ***GS*** or ***GDP/AFP*** (see Figure 11 - 6).

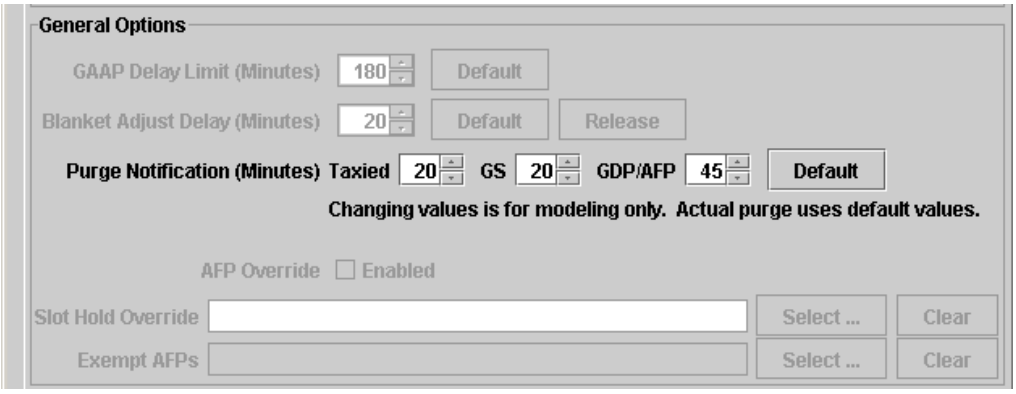


Figure 11 - 6 : Purge Notifications (Minutes) Values

Note: Changing Purge Notification (Minutes) values is for modeling only. The actual purge uses the default values.

Click **Model** and review the Bar Graph to ensure the demand versus capacity are acceptable after running the purge algorithm and then click **Run** to generate the CNX Coversheet (See Figure 11 - 7).

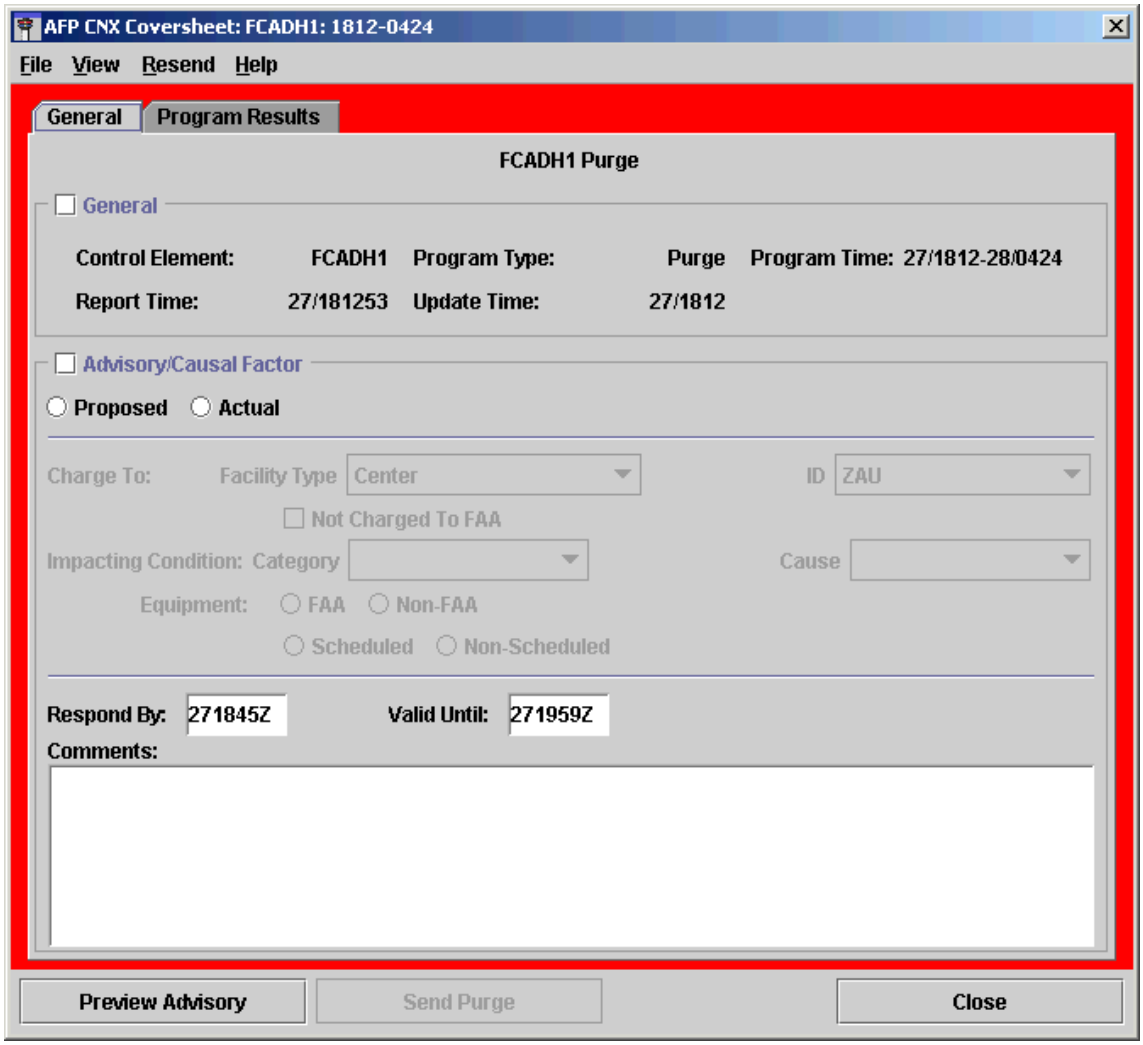


Figure 11 - 7 : Purge Coversheet

Information on the Purge Coversheet includes:

General Tab

- General parameters
- Advisory/Causal Factor Information

Program Results Tab

- Program Results

After you review the information in the General section, select the ***General*** checkbox. The Advisory/Causal Factor section of the Purge Coversheet *must* be completed before you proceed. For more information on the Coversheet component, see Chapter 3: Understanding Components.

Purge Coversheet

From the Purge Coversheet, click **Send Purge** to purge any control times from the ETMS system. Purge works the same as the **Send <Program Type>** function from other Coversheets to send new operation parameters, advisory, and cancellation messages to the Hub site for inclusion in the ADLs.

Viewing Flight Information before Purging a Program

When you model a purge for a program, ETMS sets the minimum notification time to the value of the minimum notification time for flights in a program. For the controlled flights affected by the purge, FSM determines the minimum notification time based on the type of control and taxi status of the flight. If a controlled flight is in a taxi status, without regard to the type of control, then FSM sets the minimum notification time to the value of the minimum notification time for flights in a taxi status.

ETMS models a new estimated departure time based on the flight's control departure time and the minimum notification time based on the following criteria:

- If the flight is active or completed, ETMS sets the ETD to the actual departure time.
- If the CTD of the flight is within the minimum notification time from the current time, the estimated departure time remains set to the CTD.
- If the CTD of the flight is greater than the minimum notification time plus the current time, then ETMS calculates a candidate ETD selected from the following values in order of priority:
  1. Earliest Runway Departure Time
  2. Earliest Runway Arrival Time minus the Estimated Time En route
  3. Original Estimated Departure Time
  4. Initial Gate Departure Time plus the taxi time for the flight
- If this candidate time is greater than the current time plus the minimum notification time, then ETMS sets the ETD to this candidate time.
- If the candidate time is less than the current time plus the minimum notification time, then ETMS sets the ETD to the current time plus the minimum notification time.

Issuing a GDP Example

The section below is an example of how to issue a General Aviation Airport Program (GAAP) GDP. When the known demand does not exceed the capacity at an airport but you think that the unknown demand will exceed capacity, you can use a GDP with a ***Delay Assignment Mode*** of GAAP to control traffic flow into the airport. This situation usually occurs at airports that serve large numbers of General Aviation (GA) flights. The GAAP was designed for this situation. As usual, known flights receive a slot, but ETMS also generates unassigned slots for unknown demand. As flights become known, ETMS assigns them to one of the open slots or gives them DAS delay. The DAS delay time also

differs in that it is one set value for all flights. No flight at a GAAP airport receives a delay longer than the maximum delay limit entered by the user.

To issue a GAAP GDP

1. Click **Open Data Set**.

   The Open Data Set window is displayed.
2. Select the airport for which you want to issue the GAAP GDP.
3. Click **OK**.

   The Time Line and Bar Graph components for the airport are displayed.
4. Click **GDT Mode** on the Control Panel.

   The GDT components for the airport are displayed.
5. Select GDP - GAAP for the ***Program Type***.
6. Select the appropriate values for the Program Time section of the Parameters tab on the GDT Setup Panel.
7. Enter the appropriate Program Rate and Pop-Up Factor for the GAAP GDP in the Program Rate section.
8. Enter the ***GAAP Delay Limit*** appropriate for the GAAP GDP. The default value is 180.
9. Select any ***Slot Hold Override*** that is necessary for the GAAP GDP.
10. Select any ***Exempt AFPs*** that you want to try to keep the AFP flight's CTD equal or close to their current CTD.
11. Set the Scope for the GAAP GDP on the Scope tab. It is recommended to issue an ALL program for GAAP GDPs.
12. Select the Power Run you want FSM from the Modeling Options tab to use for this GAAP GDP.
13. Click **Model**.

    The red border in the GDT Setup Panel no longer is displayed and all the GDT components reflect the modeled GAAP GDP.
14. If the program seems to deal with the traffic flow in the manner you want, click **Run** to generate the Coversheet.

    The Coversheet window is displayed.
15. Carefully examine each section of the Coversheet on the General, Program Results, and Delay Assignment tabs. If the data is correct, select the ***General,*** and ***Facilities*** checkboxes on the General tab.
16. Complete the Advisory section of the Coversheet by selecting either the ***Proposed*** or ***Actual*** radio buttons.
17. Modify the ***Respond By*** time if Proposed was selected.

18. Modify the ***Valid Until*** time if Proposed was selected.
19. Select the ***Category*** for the GAAP GDP.
20. Select the ***Cause***.
21. Select the ***Advisory/Causal Factor*** checkbox.
22. Click **Send GDP**.

    The Program Manager window opens and activates the Autosend process.

The unassigned slots for the GAAP GDP are displayed in the Time Line and Bar Graph components for the airport, an Unassigned slots block is displayed in the ADL, and an UNASSIGNED_SLOTS block is displayed in the FADT.

12: Monitoring Program Delivery

Introduction

When a Ground Delay Program (GDP) or Airspace Flow Program (AFP) is in effect, you want to monitor the progress of the program to ensure the program is affecting NAS operations in the intended manner. You also want to ensure that flights included in the program are complying with the program parameters. FSM generates various reports and statistics for monitoring a program's progress.

Monitoring Delivery Using the Time Line and Bar Graph

Time Line Component

During a program, it is easy to view the Time Line to get a general idea of how evenly the flights are distributed throughout an hour and of how many cancelled or delayed flights are in the program. Filled triangles represent delayed flights and are displayed on the Time Line only when a GDP or AFP is in effect. The filled triangle indicates an open arrival slot due to a delayed flight. ETMS leaves the arrival slot open and makes it available for use by other flights. Clicking this icon also highlights the associated delayed flight.

The filled square icon is displayed only when a GDP or AFP is in effect and represents an arrival slot left open by a cancelled flight. Cancelled flights are displayed in cyan on the Time Line under the CNX heading and are highlighted when you click their associated slot. If there are numerous open slots, or solid triangles and squares, you may need to use a compression or revision to use the empty slots (see Figure 12 - 1).

The white diamond icon is displayed on the Time Line when a GDP with a GAAP delay assignment is in place. This icon represents Unassigned Slots. As pop-up flights become known, ETMS assigns them to one of the unassigned slots or gives them a DAS (formerly FA) delay equal to the delay limit.

Flights that have dropped out (DO) of an AFP but are still operating (rerouted out of the FCA) are displayed in salmon under the CNX/[DO] heading.

Bar Graph Component

During a program, use the Bar Graph component to view the distribution of flights, within each hour. To view how flights are distributed in smaller time increments, click the **15** or **30-minute** bin selection buttons located below the Bar Graph menu bar. The default time increment is set to 60 minutes. In addition to viewing the flight distribution, you can view how many cancelled flights and unassigned slots are in the program. Select the Show Cancellation shortcut button to display the cancelled flights (cyan) on the Bar Graph. During a GAAP GDP it may be useful to select the Control Type tab to monitor how your GAAP GDP is performing (see Figure 12 - 1). Click the **Color Legend** shortcut button to view what the colors represent.

Note: AFP DO flights are not displayed in the Bar Graph because they are not considered demand or potential demand.

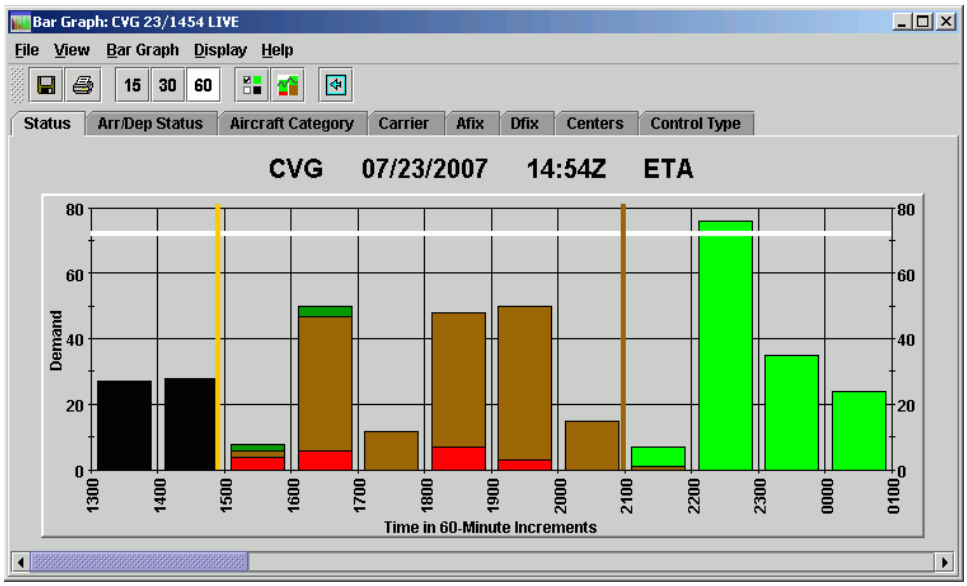
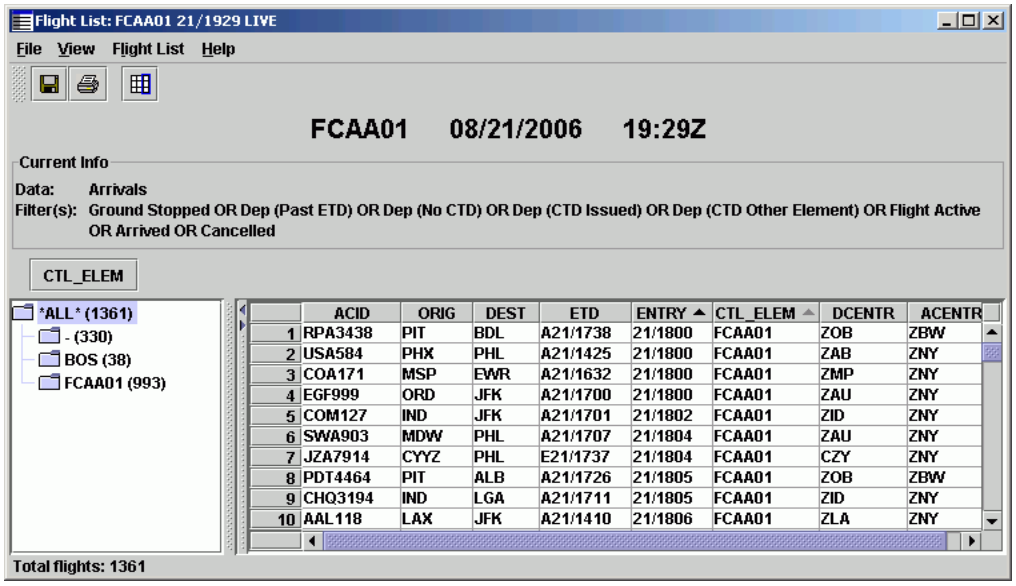


Figure 12 - 1 : Bar Graph displayed by Control Type for a GDP

White sections are displayed on the bars when a GDP or AFP with a GAAP delay assignment is in place. These sections represent Unassigned Slots. As pop-up flights become known, ETMS assigns them to one of the unassigned slots or gives them a DAS delay equal to the Delay Limit.

Flight List Component

During a program, use the Flight List component to view specific information for flights. For example, the Flight List can be useful to view what Control Element flights are controlled by when there are multiple AFPs and GDPs in place. Figure 12 - 2 displays a Flight List for FCA001 AFP grouped by Control Element (CTL_ELEM).



	ACID	ORIG	DEST	ETD	ENTRY	CTL_ELEM	DCENTR	ACENTR
1	RPA3438	PIT	BDL	A21/1738	21/1800	FCAA01	ZOB	ZBW
2	USA584	PHX	PHL	A21/1425	21/1800	FCAA01	ZAB	ZNY
3	COA171	MSP	EWR	A21/1632	21/1800	FCAA01	ZMP	ZNY
4	EGF999	ORD	JFK	A21/1700	21/1800	FCAA01	ZAU	ZNY
5	COM127	IND	JFK	A21/1701	21/1802	FCAA01	ZID	ZNY
6	SWA903	MDW	PHL	A21/1707	21/1804	FCAA01	ZAU	ZNY
7	JZA7914	CYYZ	PHL	E21/1737	21/1804	FCAA01	CZY	ZNY
8	PDT4464	PIT	ALB	A21/1726	21/1805	FCAA01	ZOB	ZBW
9	CHQ3194	IND	LGA	A21/1711	21/1805	FCAA01	ZID	ZNY
10	AAL118	LAX	JFK	A21/1410	21/1806	FCAA01	ZLA	ZNY

Figure 12 - 2 : Flight List Grouped by Control Element

Monitoring Effects on NAS Users

You can open several reports from the **Reports** menu on the Control Panel component. You can use these reports to monitor the effects of the selected program on NAS users.

Surface Delay Report

Select **Reports> Surface Delay** to generate a report that indicates the ground delay imposed on flights. The report contains departure information for both arriving at the control element. See Chapter 6: Flight Lists for more information on Flight Lists.

Priority Flight List

Select **Reports > Priority Flights** to view this report. This report identifies priority flights. It is similar to an FSM Flight List, but lists only those flights tagged as Lifeguard (LFG) or Diversion Recovery (DVT) flights.

Time Out Delay List

Select **Reports > Time Out Delay** to view this report. The Time Out Delay Report quickly provides a picture of which flights are contributing to the Time Out delay problem. The report is in the same format as FSM Flight Lists and includes all flights whose delay status is `TOD.'

Time Out Cancel List

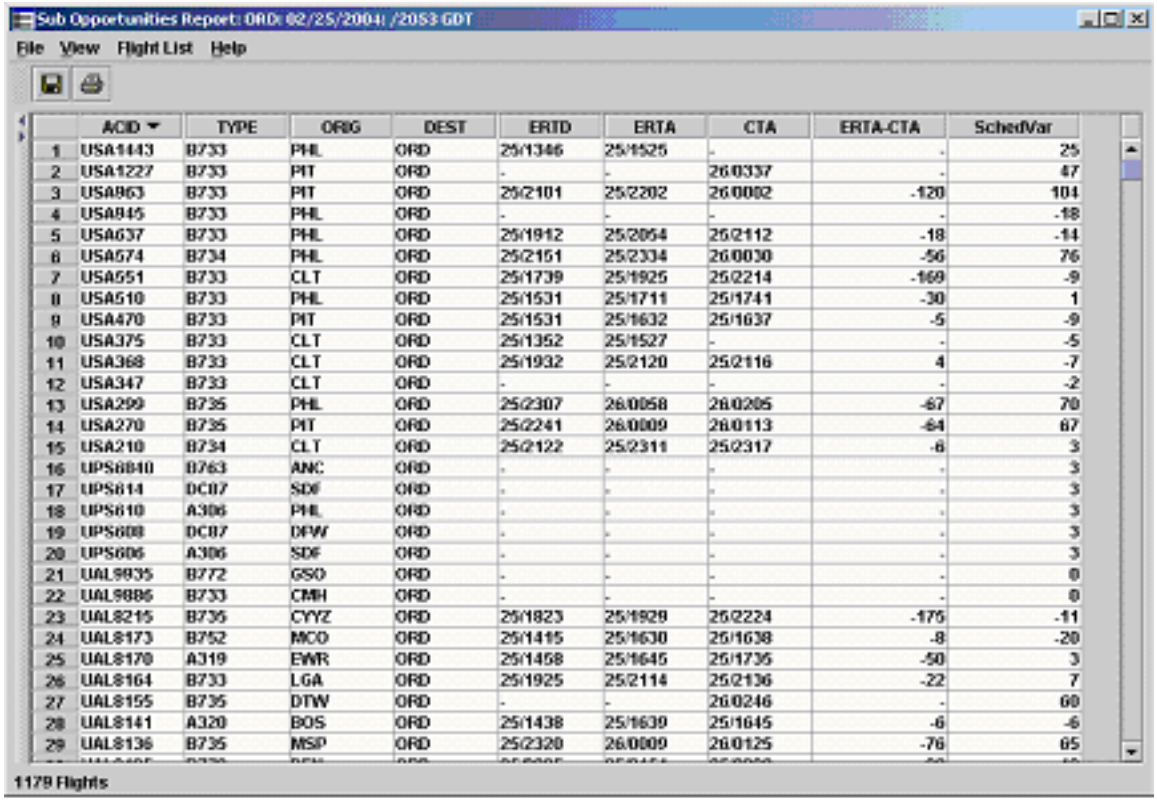
Select **Reports > Time Out Cancel** to view this report. The Time Out Cancel Report provides a picture of which flights are contributing to the Time Out cancel problem. The report is in the same format as FSM Flight Lists and includes all flights whose cancellation status is `TO.'

Slot Hold

Select **Reports > Slot Hold** to view this report. This report generates a flight list of all flights that are currently holding their cancelled slots.

Sub Opportunities (Airline and General Aviation Users Only)

Select **Reports > Sub Opportunities** to view this report. This report generates a flight list to assist airlines and general aviation customers in identifying subbing opportunities. Two columns, ERTA-CTA for Airport data sets or EENTRY - CTA for Airspace data set and SchedVar, help illustrate the most eligible flights to be subbed (see Figure 12 - 3).



	ACID	TYPE	ORIG	DEST	ERTD	ERTA	CTA	ERTA-CTA	SchedVar
1	USA1443	B733	PHL	ORD	25/1346	25/1525	-	-	25
2	USA1227	B733	PIT	ORD	-	-	26/0337	-	47
3	USA863	B733	PIT	ORD	25/2101	25/2202	26/0002	-120	104
4	USA845	B733	PHL	ORD	-	-	-	-	-18
5	USA637	B733	PHL	ORD	25/1912	25/2054	25/2112	-18	-14
6	USA574	B734	PHL	ORD	25/2151	25/2334	26/0030	-56	76
7	USA551	B733	CLT	ORD	25/1739	25/1925	25/2214	-169	-9
8	USA510	B733	PHL	ORD	25/1531	25/1711	25/1741	-30	1
9	USA470	B733	PIT	ORD	25/1531	25/1632	25/1637	-5	-9
10	USA375	B733	CLT	ORD	25/1352	25/1527	-	-	-5
11	USA368	B733	CLT	ORD	25/1932	25/2120	25/2116	4	-7
12	USA347	B733	CLT	ORD	-	-	-	-	-2
13	USA299	B735	PHL	ORD	25/2307	26/0058	26/0205	-67	70
14	USA270	B735	PIT	ORD	25/2241	26/0009	26/0113	-64	67
15	USA210	B734	CLT	ORD	25/2122	25/2311	25/2317	-6	3
16	UPS6840	B763	ANC	ORD	-	-	-	-	3
17	UPS614	DC87	SDF	ORD	-	-	-	-	3
18	UPS610	A306	PHL	ORD	-	-	-	-	3
19	UPS608	DC87	DFW	ORD	-	-	-	-	3
20	UPS606	A306	SDF	ORD	-	-	-	-	3
21	UAL9835	B772	GSO	ORD	-	-	-	-	0
22	UAL9886	B733	CMH	ORD	-	-	-	-	0
23	UAL8215	B735	CYYZ	ORD	25/1823	25/1929	25/2224	-175	-11
24	UAL8173	B752	MCO	ORD	25/1415	25/1630	25/1638	-8	-20
25	UAL8170	A319	EWR	ORD	25/1458	25/1645	25/1735	-50	3
26	UAL8164	B733	LGA	ORD	25/1925	25/2114	25/2136	-22	7
27	UAL8155	B735	DTW	ORD	-	-	26/0246	-	60
28	UAL8141	A320	BOS	ORD	25/1438	25/1639	25/1645	-6	-6
29	UAL8136	B735	MSP	ORD	25/2320	26/0009	26/0125	-76	65

Figure 12 - 3 : Sub Opportunities Report

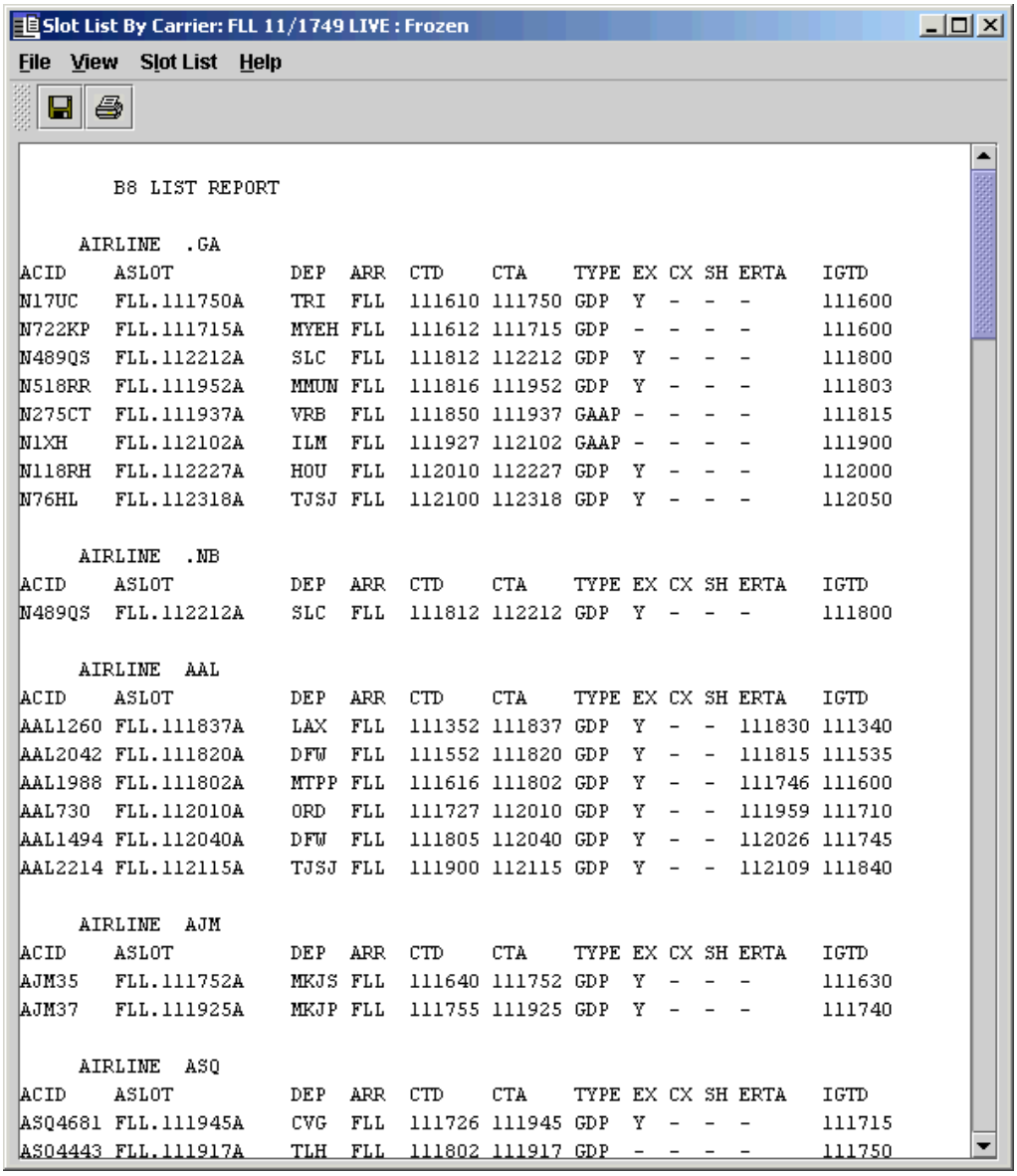
Slot List

You can view the Slot List for airlines or centers with the following two Slot List reports:

- By Carrier
- By Center

Slot List By Carrier

Select **Reports > Slot List > By Carrier** to view this report. The Slot List report generates the second part of the FADT List that FSM generates after a program runs. Included in the Slot List are the Aircraft Identification number (ACID), assigned slot time (ASLOT), departure center (DEP), arrival center (ARR), controlled time of departure (CTD), controlled time of arrival (CTA), aircraft type (TYPE), exemption status (EX), cancellation status (CX), slot hold status (SH), earliest runway time of arrival (ERTA), and initial gate time of departure (IGTD) (see Figure 12 - 4).



B8 LIST REPORT

AIRLINE .GA

ACID	ASLOT	DEP	ARR	CTD	CTA	TYPE	EX	CX	SH	ERTA	IGTD
N17UC	FLL.111750A	TRI	FLL	111610	111750	GDP	Y	-	-	-	111600
N722KP	FLL.111715A	MYEH	FLL	111612	111715	GDP	-	-	-	-	111600
N489QS	FLL.112212A	SLC	FLL	111812	112212	GDP	Y	-	-	-	111800
N518RR	FLL.111952A	MMUN	FLL	111816	111952	GDP	Y	-	-	-	111803
N275CT	FLL.111937A	VRB	FLL	111850	111937	GAAP	-	-	-	-	111815
N1XH	FLL.112102A	ILM	FLL	111927	112102	GAAP	-	-	-	-	111900
N118RH	FLL.112227A	HOU	FLL	112010	112227	GDP	Y	-	-	-	112000
N76HL	FLL.112318A	TJSJ	FLL	112100	112318	GDP	Y	-	-	-	112050

AIRLINE .NB

ACID	ASLOT	DEP	ARR	CTD	CTA	TYPE	EX	CX	SH	ERTA	IGTD
N489QS	FLL.112212A	SLC	FLL	111812	112212	GDP	Y	-	-	-	111800

AIRLINE AAL

ACID	ASLOT	DEP	ARR	CTD	CTA	TYPE	EX	CX	SH	ERTA	IGTD
AAL1260	FLL.111837A	LAX	FLL	111352	111837	GDP	Y	-	-	111830	111340
AAL2042	FLL.111820A	DFW	FLL	111552	111820	GDP	Y	-	-	111815	111535
AAL1988	FLL.111802A	MTPP	FLL	111616	111802	GDP	Y	-	-	111746	111600
AAL730	FLL.112010A	ORD	FLL	111727	112010	GDP	Y	-	-	111959	111710
AAL1494	FLL.112040A	DFW	FLL	111805	112040	GDP	Y	-	-	112026	111745
AAL2214	FLL.112115A	TJSJ	FLL	111900	112115	GDP	Y	-	-	112109	111840

AIRLINE AJM

ACID	ASLOT	DEP	ARR	CTD	CTA	TYPE	EX	CX	SH	ERTA	IGTD
AJM35	FLL.111752A	MKJS	FLL	111640	111752	GDP	Y	-	-	-	111630
AJM37	FLL.111925A	MKJP	FLL	111755	111925	GDP	Y	-	-	-	111740

AIRLINE ASQ

ACID	ASLOT	DEP	ARR	CTD	CTA	TYPE	EX	CX	SH	ERTA	IGTD
ASQ4681	FLL.111945A	CVG	FLL	111726	111945	GDP	Y	-	-	-	111715
ASQ4443	FLL.111917A	TLH	FLL	111802	111917	GDP	-	-	-	-	111750

Figure 12 - 4 : Reports > Slot List > By Carrier

Slot List by Center

Select **Reports > Slot List > By Center** to view this report. This report allows any field facilities to recreate a slot list should the list normally transmitted by the ETMS not be received. The report is based on the current ADL. FSM allows the user to select a center's (or centers') report to view. Users can select US and Canadian Centers.

To generate a Slot List By Center report

1. From the main Control Panel select **Reports > Slot List > By Center**. The Slot List By Center dialog box opens (see Figure 12 - 5).

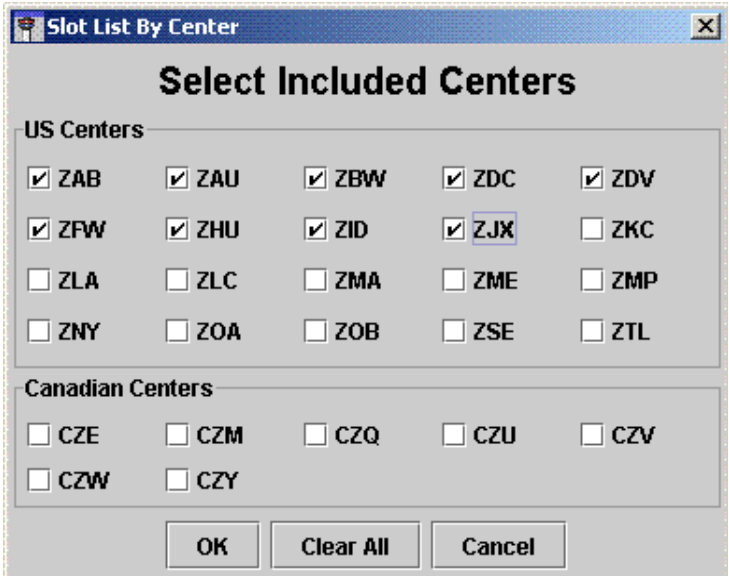
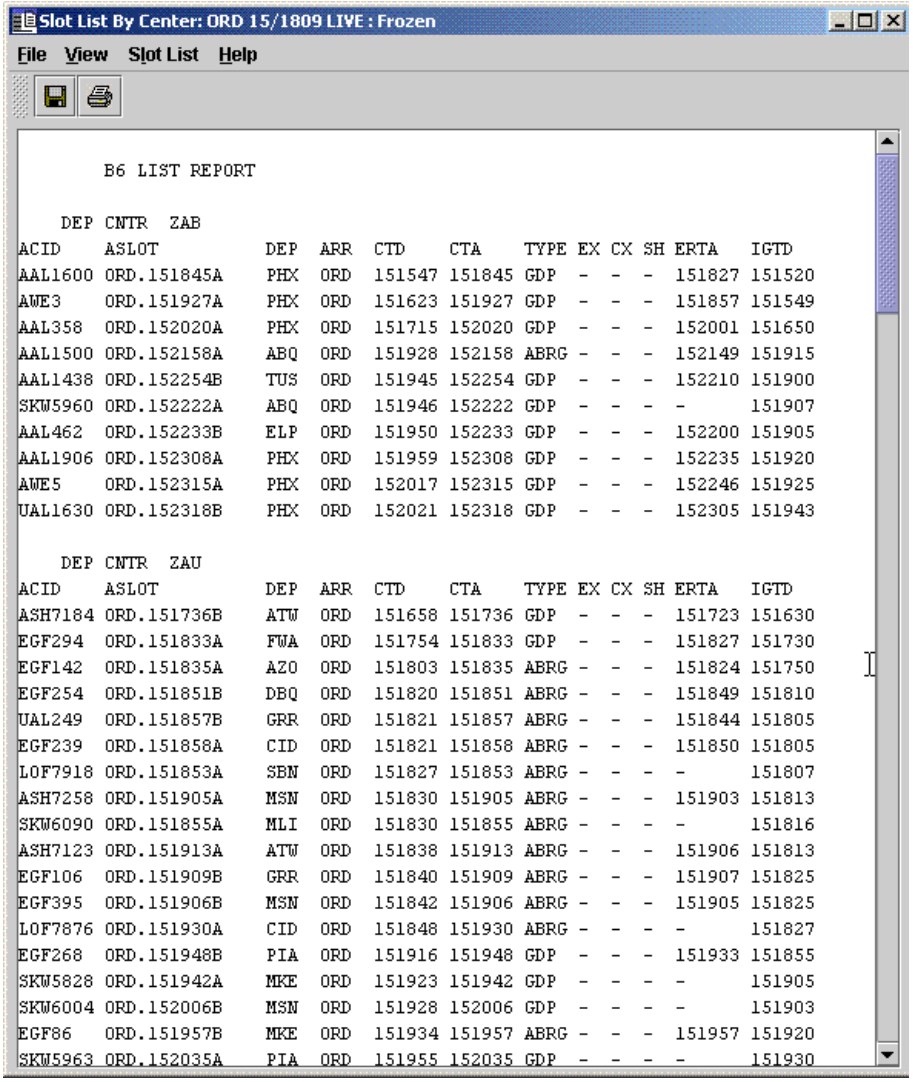


Figure 12 - 5 : Slot List by Center

2. Select the Centers to be included in the report and click **OK**. Clicking **Clear All** erases all selections in the Slot List By Center dialog box. Clicking **OK** after you click **Clear All** returns you to the Time Line window. Clicking **Cancel** closes the Slot List By Center dialog box without taking any action.

3. The data fields and menu options in the Slot List by Center report are the same as the Slot List by Carrier report. Note that the Slot List by Center report title is B6 List Report (see Figure 12 - 6).



B6 LIST REPORT

DEP CNTR ZAB

ACID	ASLOT	DEP	ARR	CTD	CTA	TYPE	EX	CX	SH	ERTA	IGTD
AAL1600	ORD.151845A	PHX	ORD	151547	151845	GDP	-	-	-	151827	151520
AWE3	ORD.151927A	PHX	ORD	151623	151927	GDP	-	-	-	151857	151549
AAL358	ORD.152020A	PHX	ORD	151715	152020	GDP	-	-	-	152001	151650
AAL1500	ORD.152158A	ABQ	ORD	151928	152158	ABRG	-	-	-	152149	151915
AAL1438	ORD.152254B	TUS	ORD	151945	152254	GDP	-	-	-	152210	151900
SKW5960	ORD.152222A	ABQ	ORD	151946	152222	GDP	-	-	-	-	151907
AAL462	ORD.152233B	ELP	ORD	151950	152233	GDP	-	-	-	152200	151905
AAL1906	ORD.152308A	PHX	ORD	151959	152308	GDP	-	-	-	152235	151920
AWE5	ORD.152315A	PHX	ORD	152017	152315	GDP	-	-	-	152246	151925
UAL1630	ORD.152318B	PHX	ORD	152021	152318	GDP	-	-	-	152305	151943

DEP CNTR ZAU

ACID	ASLOT	DEP	ARR	CTD	CTA	TYPE	EX	CX	SH	ERTA	IGTD
ASH7184	ORD.151736B	ATW	ORD	151658	151736	GDP	-	-	-	151723	151630
EGF294	ORD.151833A	FWA	ORD	151754	151833	GDP	-	-	-	151827	151730
EGF142	ORD.151835A	AZO	ORD	151803	151835	ABRG	-	-	-	151824	151750
EGF254	ORD.151851B	DBQ	ORD	151820	151851	ABRG	-	-	-	151849	151810
UAL249	ORD.151857B	GRR	ORD	151821	151857	ABRG	-	-	-	151844	151805
EGF239	ORD.151858A	CID	ORD	151821	151858	ABRG	-	-	-	151850	151805
LOF7918	ORD.151853A	SBN	ORD	151827	151853	ABRG	-	-	-	-	151807
ASH7258	ORD.151905A	MSN	ORD	151830	151905	ABRG	-	-	-	151903	151813
SKW6090	ORD.151855A	MLI	ORD	151830	151855	ABRG	-	-	-	-	151816
ASH7123	ORD.151913A	ATW	ORD	151838	151913	ABRG	-	-	-	151906	151813
EGF106	ORD.151909B	GRR	ORD	151840	151909	ABRG	-	-	-	151907	151825
EGF395	ORD.151906B	MSN	ORD	151842	151906	ABRG	-	-	-	151905	151825
LOF7876	ORD.151930A	CID	ORD	151848	151930	ABRG	-	-	-	-	151827
EGF268	ORD.151948B	PIA	ORD	151916	151948	GDP	-	-	-	151933	151855
SKW5828	ORD.151942A	MKE	ORD	151923	151942	GDP	-	-	-	-	151905
SKW6004	ORD.152006B	MSN	ORD	151928	152006	GDP	-	-	-	-	151903
EGF86	ORD.151957B	MKE	ORD	151934	151957	ABRG	-	-	-	151957	151920
SKW5963	ORD.152035A	PIA	ORD	151955	152035	GDP	-	-	-	-	151930

Figure 12 - 6 : Reports > Slot List > By Center

Carrier Statistics

Select **Reports > Carrier Statistics** to view this report. The report shows delay statistics for all carriers with flights that operate at that particular control element. FSM calculates flights only with assigned slots in the report metrics. That is, flights with a Control Time of Arrival (CTA) are displayed in carrier statistics. If a carrier has no flights with a CTA, the Carrier Statistics report displays “0” or “N/A” in those rows. You can choose the type of delay to view in the report by selecting the ***Delay Type*** of **Program** or **ABS** at the top right of the report. FSM selects the **ATC** delay type by default. ABS Delay is the *absolute delay* on flights, including FAA and airline delay imposed on the flights. FSM calculates absolute delay using Max (0, ETA - [IGTA - Taxi]). Program Delay is the *delay imposed due to a TMI* on flights. FSM calculates it using [Max (0, CTA - BETA)] for a GDP or [Max (0, CTA - BENTRY)] for an AFP. Any time a flight’s CTA is updated, the Program Delay is recalculated.

The report displays delay statistics for all carriers that operate at an airport or that are flying through the selected FCA. Carriers with no presence at the control element do not show up in the Carrier Statistics report (see Figure 12 - 7).

Carrier Statistics: DFW: 08/21/2006: 1931 live : Frozen

File View Help

Element: DFW ADL Update Time: 08/21/06 19:31Z Delay Type: Program ABS

Carrier Name	CDM MBR	#Flights Affected Total/Non_Exempt/Exempt/CNX	On Time %	Delay Total/Total%/ Avg /AffAvg	Delay Max / Min	%Delay / %Traffic
AAL	Y	992 / 878 / 109 / 5	58.0	13943 / 83.7 / 14.1 / 15.9	345 / 0	1.04
ACA	Y	4 / 2 / 2 / 0	50.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
AIP	N	2 / 2 / 0 / 0	100.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
AMT	Y	9 / 8 / 1 / 0	55.6	133 / 0.8 / 14.8 / 16.6	53 / 0	1.09
AMW	N	4 / 4 / 0 / 0	50.0	68 / 0.4 / 17.0 / 17.0	37 / 0	1.25
ASA	Y	5 / 4 / 1 / 0	60.0	31 / 0.2 / 6.2 / 7.8	31 / 0	0.46
BAW	N	2 / 1 / 1 / 0	50.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
CAL	N	1 / 1 / 0 / 0	100.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
COA	Y	22 / 19 / 3 / 0	50.0	346 / 2.1 / 15.7 / 18.2	59 / 0	1.16
CPA	N	1 / 1 / 0 / 0	100.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
DAL	Y	22 / 19 / 3 / 0	50.0	337 / 2.0 / 15.3 / 17.7	59 / 0	1.13
DLH	N	2 / 1 / 1 / 0	50.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
EJA	Y	3 / 2 / 0 / 1	50.0	21 / 0.1 / 10.5 / 10.5	18 / 3	0.77
EVA	N	1 / 0 / 1 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
FDX	Y	5 / 5 / 0 / 0	100.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
FFT	N	10 / 9 / 1 / 0	50.0	136 / 0.8 / 13.6 / 15.1	58 / 0	1.00
KAL	N	2 / 2 / 0 / 0	100.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
MEP	Y	6 / 5 / 0 / 1	40.0	111 / 0.7 / 22.2 / 22.2	53 / 0	1.63
MXA	N	3 / 2 / 1 / 0	66.7	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
NWA	Y	19 / 18 / 1 / 0	52.6	333 / 2.0 / 17.5 / 18.5	54 / 0	1.29
OAE	N	1 / 1 / 0 / 0	100.0	1 / 0.0 / 1.0 / 1.0	1 / 1	0.07
RYN	N	1 / 0 / 1 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
SCX	N	2 / 1 / 1 / 0	50.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
SKW	Y	3 / 3 / 0 / 0	66.7	19 / 0.1 / 6.3 / 6.3	19 / 0	0.47
SQC	N	1 / 0 / 1 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
TAI	N	1 / 1 / 0 / 0	100.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
TCF	N	5 / 5 / 0 / 0	60.0	78 / 0.5 / 15.6 / 15.6	44 / 0	1.15
TRS	Y	18 / 17 / 1 / 0	55.6	367 / 2.2 / 20.4 / 21.6	82 / 0	1.50
UAL	Y	29 / 28 / 1 / 0	65.5	344 / 2.1 / 11.9 / 12.3	62 / 0	0.87
UPS	Y	11 / 11 / 0 / 0	90.9	28 / 0.2 / 2.5 / 2.5	28 / 0	0.19
USA	Y	34 / 30 / 4 / 0	67.6	314 / 1.9 / 9.2 / 10.5	74 / 0	0.68
UVA	Y	4 / 2 / 2 / 0	0.0	41 / 0.2 / 10.2 / 20.5	25 / 16	0.75
Total	NA	1225 /1082 / 136 / 7	58.2	16651 /100.0 / 13.7 / 15.4	345 / 0	NA

Figure 12 - 7 : Carrier Statistics

For more information on the Carrier Statistics Report, see Chapter 22: Using Query Manager.

Monitoring Flight Counts

FSM generates Flight Count reports for monitored data sets currently in a program. Under the **Reports > Counts >** menu option on the main Control Panel there are eight count reports:

- By Demand
- By Center
- By Aircraft Category

- By Aircraft Class
- By Arrival Fix (Airport Data Set only)
- By Departure Fix (Airport Data Set only)
- By User
- By Unassigned Slot

See Chapter 21: Understanding and Using FSM Reports for more information on Flight Counts.

Monitoring Flight Compliance

FSM generates Compliance List reports for monitored data sets currently in a program. Under the **Reports > Compliance >** menu option on the main Control Panel you find five compliance reports:

- By CTD
- By ETE
- By CTA
- Spurious Flight
- Cancel That Flew

See Chapter 21: Understanding and Using FSM Reports for more information on Compliance Reports.

FSM updates the compliance reports automatically with every ADL for all Airport and Airspace data sets for which FSM collects data. Compliance reports include only those flights arriving at the currently monitored data set. The list you generate is for the data set that you were last viewing, therefore ensure that the desired data set is active before selecting the Compliance report. The Compliance reports is displayed in the same format as all FSM Flight Lists, see Chapter 6: Viewing Flight Information for more information on Flight Lists.

Monitoring Delay Histograms

FSM generates two delay histograms for monitored data sets currently in a program. Under the **Reports > Delay Histograms >** menu option on the main Control Panel you find two delay histograms:

- Program Delay
- Absolute Delay

The Program delay histogram displays the amount of delay that non-cancelled, non-active, controlled flights have received due to a Traffic Management Initiative. Program delay is calculated using Max (0, [CTA - BETA]) for a GDP or Max (0, [CTA - BENTRY]) for an AFP, therefore any time a flight's CTA is updated the Program delay is recalculated.

The Absolute delay histogram displays the total amount of delay that non-cancelled flights have received. This includes delays assigned by the National Airspace System (NAS) and

Air Traffic Control (ATC) as well as airline delay. Absolute delay is calculated using Max (0, [ETA - (IGTA - Taxi)]) for a GDP or Max (0, [ENTRY - IENTRY]) for an AFP, therefore any time a flight's ETA or ENTRY time is updated the absolute delay is recalculated.

See Chapter 21: Understanding and Using FSM Reports for more information on Delay Histograms.

Monitoring Program Parameters

You can find the program parameter alerts for all monitored data sets under the **Alerts** menu on the Control Panel component. All monitored data sets are listed in alphabetical order under the **Alerts** menu. When ETMS updates an data set's parameters, the **Alerts** menu is highlighted in red as well as the monitored data set and its corresponding updated parameters. Figure 12 - 8 shows FCAA01 data set active with FADT Parameters, SCS Bridge parameters, and Actual AFP Parameters updated. DFW also has updated parameters. Once you read the updated parameters, the parameter color returns to its original state. FSM lists the parameters of the data set currently active on the main Alerts menu. Clicking the other data sets activates a pop-up box that displays the parameters for the selected data set. If you select another data set, the Alerts menu changes accordingly.

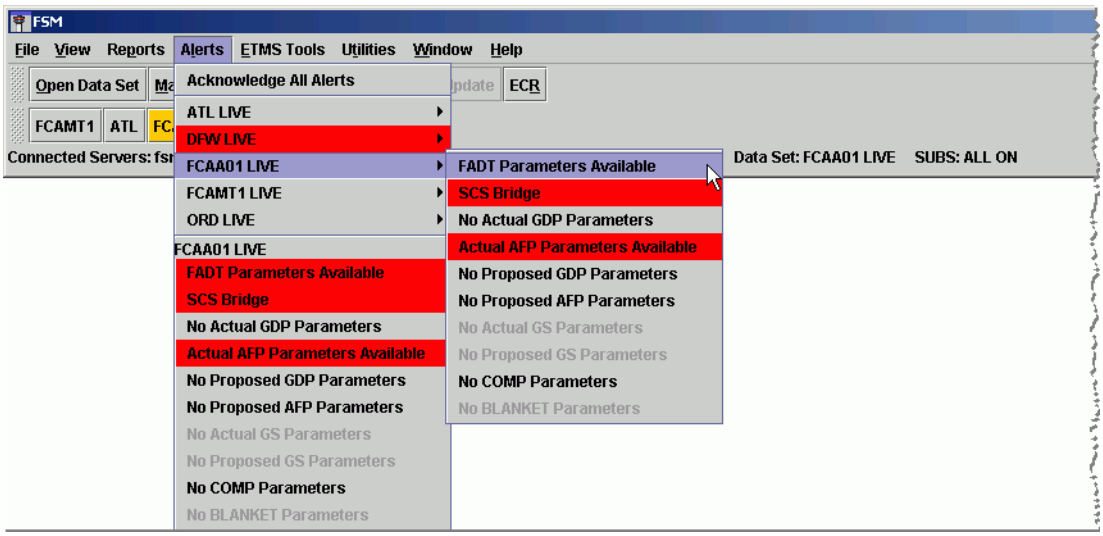


Figure 12 - 8 : Alerts Menu

FADT Parameters Updated

The **Alerts > FADT Parameters Available** menu option is highlighted in red when there is a new FADT. FADTs are reports generated when you run a GDP, AFP, GS, Blanket, or a Compression operation. Selecting **FADT Parameters Available** displays a pop-up window that lists the time the FADT was generated during the day for the selected airport in [ddhhmmss] format (see Figure 12 - 9). This option does not actually give you program parameters.

> **Note:** FSM does not always list the FADTs in chronological order.

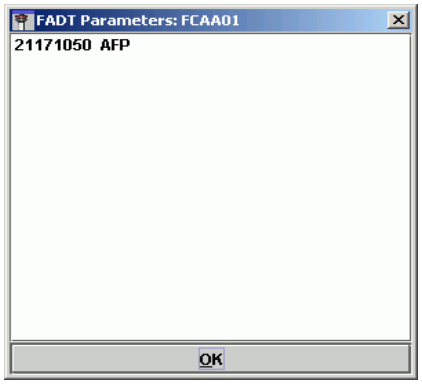


Figure 12 - 9 : FADT Parameters Window

SCS Bridge

Alerts > SCS Bridge is highlighted red in color when there is a new SCS update. Selecting **SCS Bridge** displays the Substitution Flag Block window, which displays the current subbing status (see Figure 12 - 10). The Substitution Flag Block may contain the following keywords:

- **SUBS:** Indicates whether all substitutions are enabled (ON) or disabled (OFF)
- **SCS:** Indicates whether slot credit substitutions for all operators are enabled (ON) or disabled (OFF)
- **ADPT**: Indicates whether adaptive compression is enabled (ON) or disabled (OFF).
- **BRIDGING:** Indicates whether bridging subs are disabled (OFF) for a particular operator (Airline, GA, or Military). If bridging is off for an airline, any flight that has a MAJOR field or carrier code (from ACID) that matches the airline name is not used for an SCS bridge. If bridging is enabled for an operator, no line is displayed, that is, the only allowed value for this keyword is OFF.

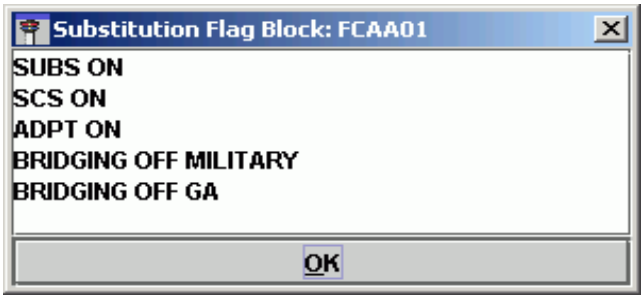


Figure 12 - 10 : SCS Flag Block Window

Note: By default, Military and GA bridging is disabled.

GDP or AFP Parameters

Alerts > Actual GDP/AFP Parameters Available is highlighted in red when FSM receives Actual GDP/AFP Parameters through the ADL. First-time Parameters, new Parameters, and deleted Parameters all trigger this Alert. Select **Actual GDP/AFP Parameters Available**

to view the parameters that FSM takes from the FADT file and displays in a static GDT Setup window (see Figure 12 - 11). Tab navigation allows you to view all the parameters, although you cannot make changes to this window. If no Actual Parameters exist, the text reads **No Actual GDP/AFP Parameters**.

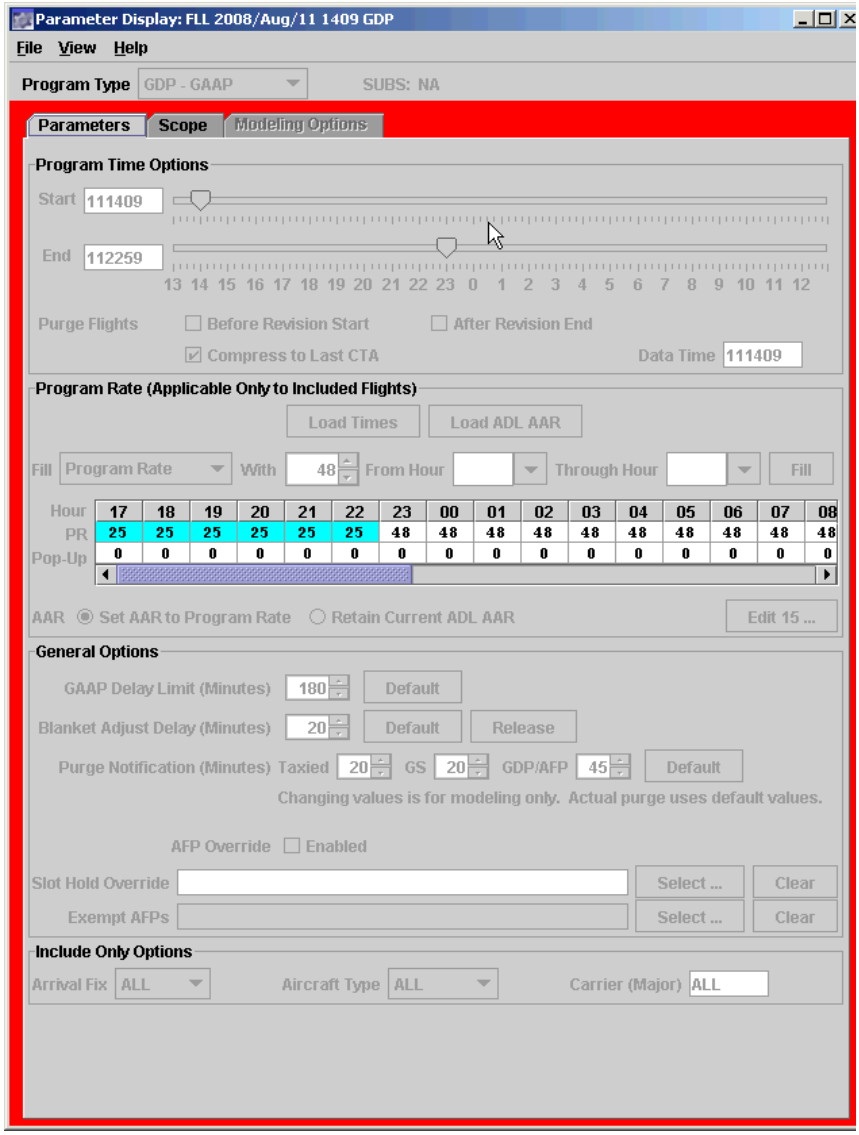


Figure 12 - 11 : Actual GDP Parameter Display Window

Alerts > Proposed GDP/AFP Parameters Available is highlighted in red when parameters for a Proposed GDP or AFP arrive through the ADL. Select **Proposed GDP/AFP Parameters Available** to view the proposed parameters, which FSM takes from the FADT file and displays in a static GDT Setup window. Tab navigation allows you to view all the proposed parameters, although you cannot make changes to this window. If no Proposed GDP or AFP Parameters exist, the text reads **No Proposed GDP/AFP Parameters**.

GS Parameters

Alerts > GS Parameters Active is highlighted in red when the FAA issues a Ground Stop and FSM receives its parameters through the ADL. First-time GS Parameters, new GS Parameters, and deleted GS Parameters all trigger this Alert. Select **GS Parameters Available** to view the parameters, which FSM takes from the FADT file and displays in a static GDP Setup window (see Figure 12 - 12). Tab navigation allows you to view all the GS Parameters, although you cannot make changes to this window. If no GS Parameters exist, the text reads **No GS Parameters**.

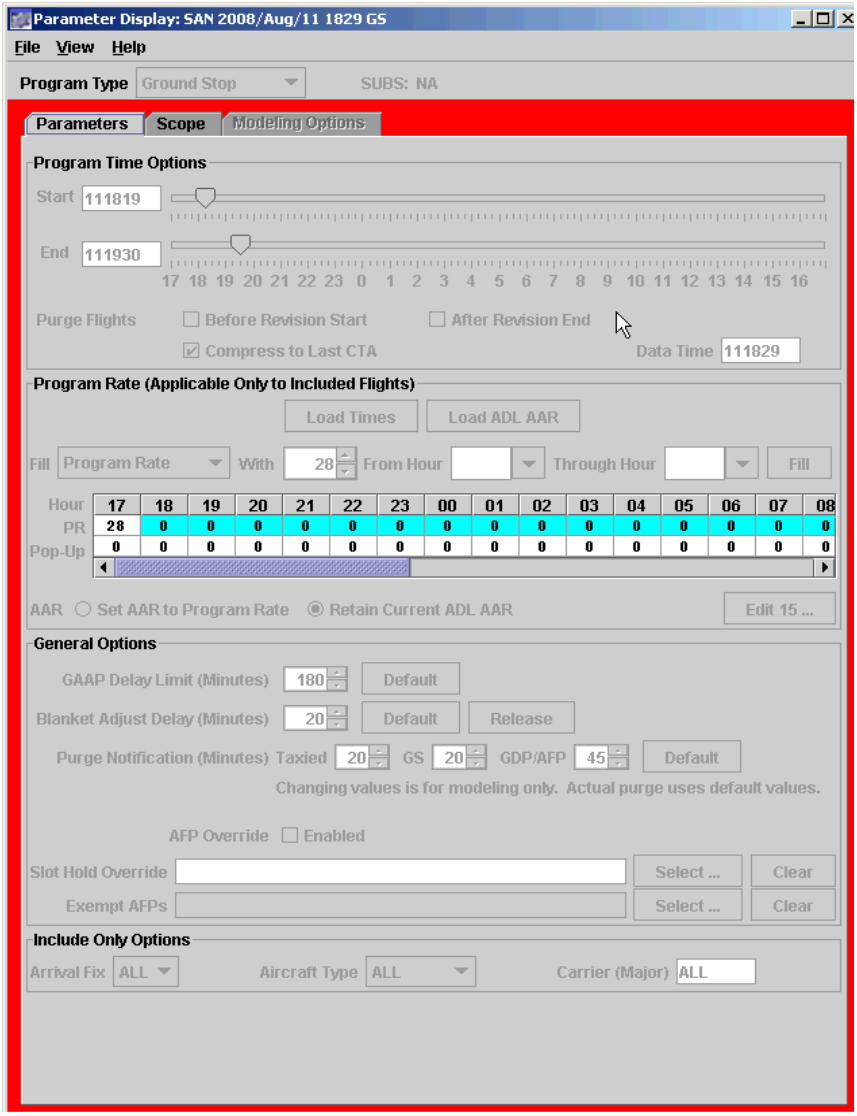


Figure 12 - 12 : Actual GS Parameters Window

Compression Parameters

When FSM receives parameters for the compression function through the ADL, it triggers the **Alerts > COMP Parameters Available**. When Compress Flights or Compress Slots

Parameters arrive, **COMP Parameters Available** is highlighted in red for the corresponding airport. Select **COMP Parameters Available** to view the new parameters, which FSM takes from the FADT file and displays in a static GDT Setup window. Tab navigation allows you to view Compression Parameters, although you cannot make changes to this window. If no Compression Parameters exist, the text reads **No COMP Parameters**.

Blanket Parameters

When the FAA lifts or adds delay to flights in a ground delay program, FSM triggers the **Alerts > BLANKET Parameters Available**. When FSM receives the message through the ADL to add or remove delay for all flights, it highlights the **BLANKET Parameters Available** text in red. Select this menu option to view the new parameters, which FSM takes from the FADT file and displays in text format in the Blanket Parameters window. If no Blanket Parameters exist, the text reads **No BLANKET Parameters**.

Parameters Block

You can view the parameters block for a program by opening the static Parameter Display window from the **Alerts** menu on the Control Panel. From the Parameter Display window, select **View> Parameters Block** to see the parameter block for the program (see Figure 12 - 13).

> **Note:** For programs with a Delay Assignment Mode of GAAP, the Parameters Block includes Unassigned Slots information.

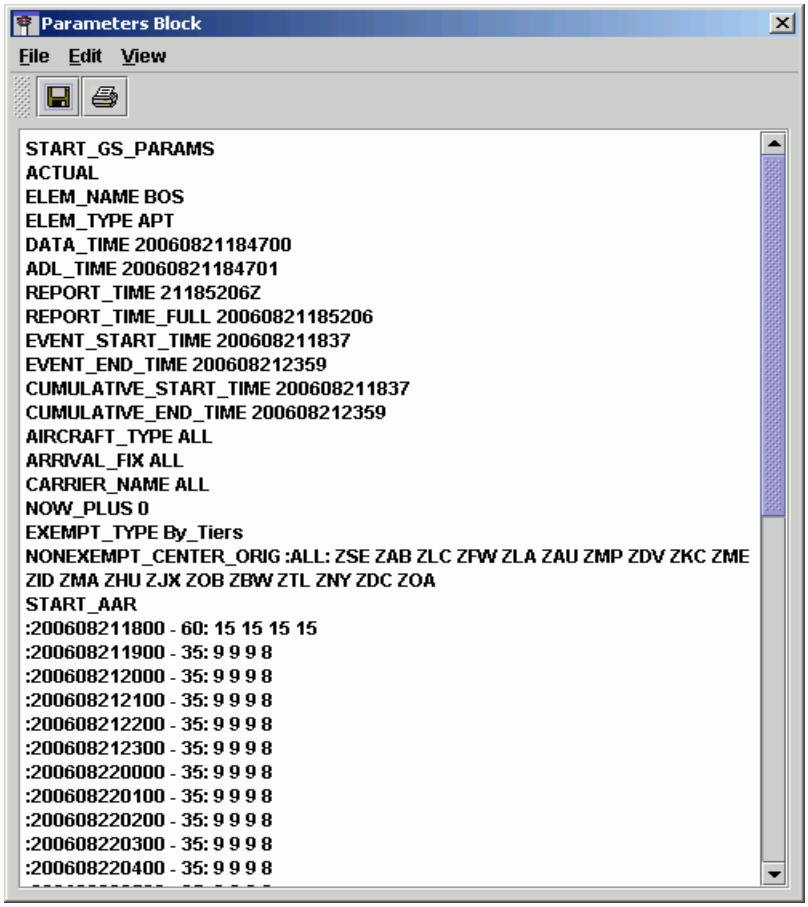


Figure 12 - 13 : Parameters Block

13: Monitoring EDCT Compliance

Estimated Departure Clearance Time (EDCT) compliance impacts the success of a Ground Delay Program (GDP) or Airspace Flow Program (AFP). Real-time monitoring of EDCTs is possible through FSM to identify problem areas as they occur, therefore reducing EDCT compliance issues. This chapter introduces several options for monitoring EDCT compliance of a program.

The Reports menu on the FSM Control Panel contains five compliance flight lists:

- CTD Compliance
- Actual ETE vs. Original ETE Compliance
- CTA Compliance
- Spurious Flight Compliance
- Cancel That Flew Compliance

The functionality of compliance flight lists is identical to all other FSM Flight Lists. This chapter focuses on CTD compliance for monitoring EDCT compliance of a program. See Chapter 21: Understanding and Using FSM Reports for more information on other compliance reports.

To view a list of flights that had non-complaint EDCTs, select **Reports > Compliance > By CTD** from the Control Panel component (see Figure 13 - 1). The CTD Compliance list includes all flights in a delay program that violate departure compliance. The default departure boundaries are:

More than five minutes before their EDCT or more than five minutes after their EDCT.

Any flight that has an ARTD of five minutes earlier or five minutes later than the most recent OrigEDCT is displayed in the **Reports > Compliance > By CTD** list.

> **Note:** Ensure that the data set for which you want to view the compliance report is active. If no data set is active, FSM displays an error message- “No current data set”.

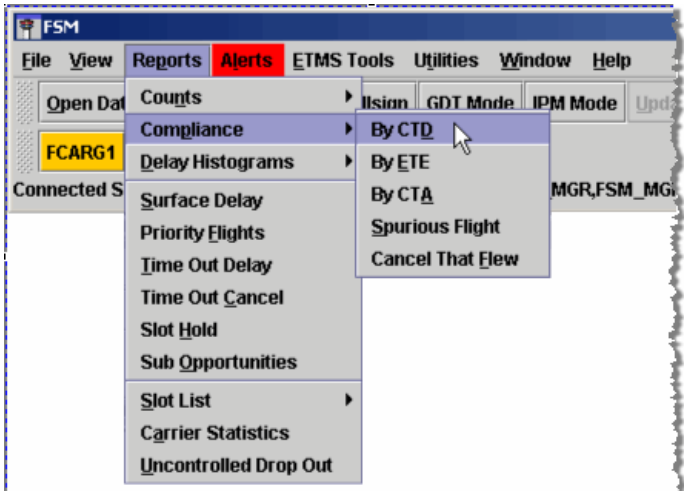
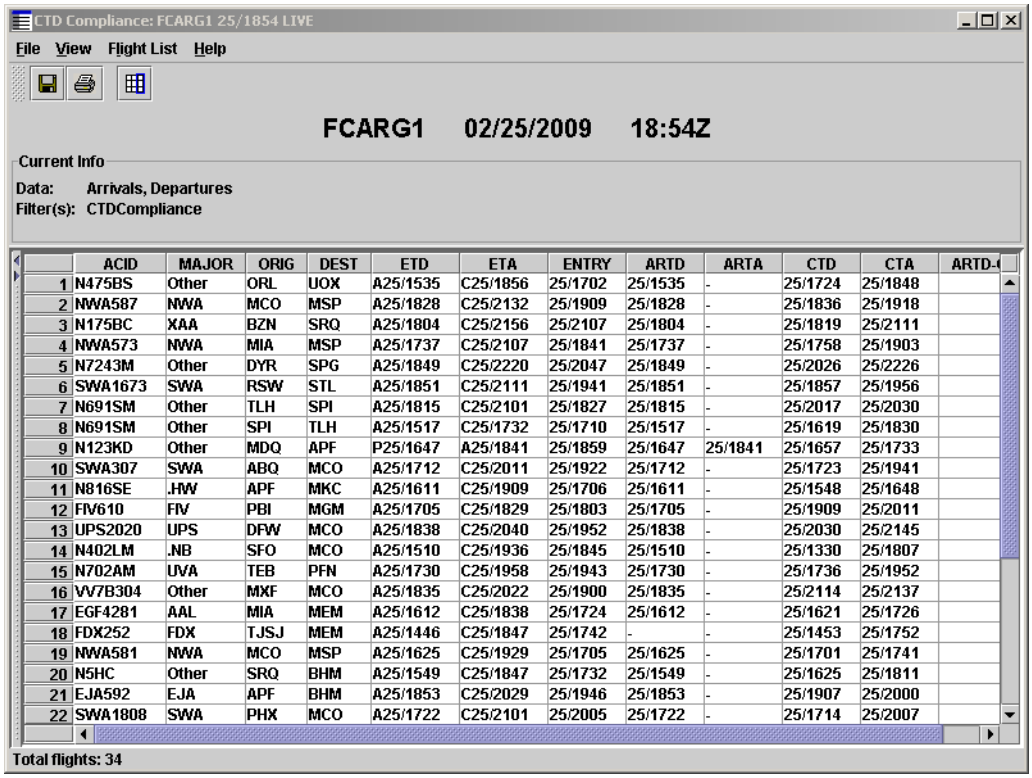


Figure 13 - 1 : Accessing the CTD Compliance List

When you open the CTD Compliance list, FSM displays by default the flights' ***ACID***, ***ORIG***, ***DEST***, ***ETD***, ***ETA***, ***ARTD***, ***ARTA***, ***CTD***, ***CTA***, and ***ARTD-CTD*** are displayed. The ***ETD*** has a prefix "A", which indicates that the flights' ***ETD*** is the Actual time of departure (see Figure 13 - 2). The total count of all CTD non-compliant flights is displayed in the lower left-hand portion of the CTD Compliance window. The CTD Compliance window automatically updates when FSM receives a new ADL.

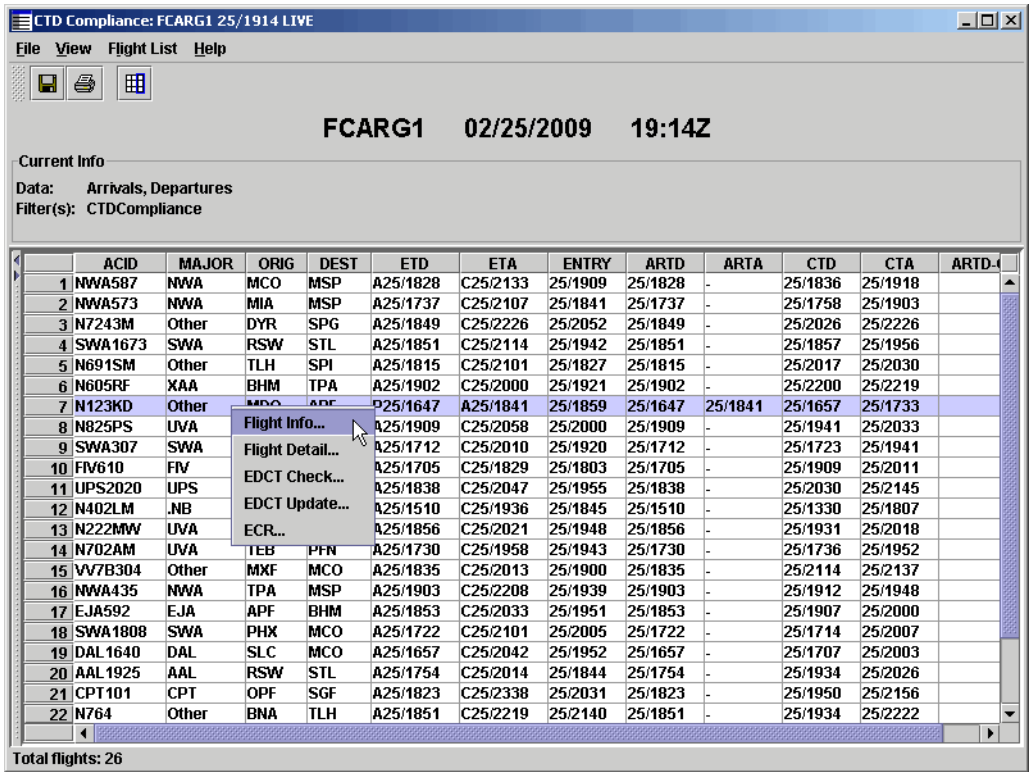


	ACID	MAJOR	ORIG	DEST	ETD	ETA	ENTRY	ARTD	ARTA	CTD	CTA	ARTD-(
1	N475BS	Other	ORL	UOX	A25/1535	C25/1856	25/1702	25/1535	-	25/1724	25/1848	
2	NWA587	NWA	MCO	MSP	A25/1828	C25/2132	25/1909	25/1828	-	25/1836	25/1918	
3	N175BC	XAA	BZN	SRQ	A25/1804	C25/2156	25/2107	25/1804	-	25/1819	25/2111	
4	NWA573	NWA	MIA	MSP	A25/1737	C25/2107	25/1841	25/1737	-	25/1758	25/1903	
5	N7243M	Other	DYR	SPG	A25/1849	C25/2220	25/2047	25/1849	-	25/2026	25/2226	
6	SWA1673	SWA	RSW	STL	A25/1851	C25/2111	25/1941	25/1851	-	25/1857	25/1956	
7	N691SM	Other	TLH	SPI	A25/1815	C25/2101	25/1827	25/1815	-	25/2017	25/2030	
8	N691SM	Other	SPI	TLH	A25/1517	C25/1732	25/1710	25/1517	-	25/1619	25/1830	
9	N123KD	Other	MDQ	APF	P25/1647	A25/1841	25/1859	25/1647	25/1841	25/1657	25/1733	
10	SWA307	SWA	ABQ	MCO	A25/1712	C25/2011	25/1922	25/1712	-	25/1723	25/1941	
11	N816SE	.HW	APF	MKC	A25/1611	C25/1909	25/1706	25/1611	-	25/1548	25/1648	
12	FIV610	FIV	PBI	MGM	A25/1705	C25/1829	25/1803	25/1705	-	25/1909	25/2011	
13	UPS2020	UPS	DFW	MCO	A25/1838	C25/2040	25/1952	25/1838	-	25/2030	25/2145	
14	N402LM	.NB	SFO	MCO	A25/1510	C25/1936	25/1845	25/1510	-	25/1330	25/1807	
15	N702AM	UVA	TEB	PFN	A25/1730	C25/1958	25/1943	25/1730	-	25/1736	25/1952	
16	VV7B304	Other	MXF	MCO	A25/1835	C25/2022	25/1900	25/1835	-	25/2114	25/2137	
17	EGF4281	AAL	MIA	MEM	A25/1612	C25/1838	25/1724	25/1612	-	25/1621	25/1726	
18	FDX252	FDX	TJSJ	MEM	A25/1446	C25/1847	25/1742	-	-	25/1453	25/1752	
19	NWA581	NWA	MCO	MSP	A25/1625	C25/1929	25/1705	25/1625	-	25/1701	25/1741	
20	N5HC	Other	SRQ	BHM	A25/1549	C25/1847	25/1732	25/1549	-	25/1625	25/1811	
21	EJA592	EJA	APF	BHM	A25/1853	C25/2029	25/1946	25/1853	-	25/1907	25/2000	
22	SWA1808	SWA	PHX	MCO	A25/1722	C25/2101	25/2005	25/1722	-	25/1714	25/2007	

Figure 13 - 2 : CTD Compliance Window

Viewing a Single Flight

You can access more information on a single flight in two ways from the CTD Compliance window. Right-click a single flight row or use the **View** menu. Right-click a flight and select either **Flight Info** or **Flight details** for more information on the selected flight (see Figure 13 - 3), or click a single flight to highlight the entire row and then select **View > Flight Info** or **Flight Details** to access the same information.



	ACID	MAJOR	ORIG	DEST	ETD	ETA	ENTRY	ARTD	ARTA	CTD	CTA	ARTD-(
1	NWA587	NWA	MCO	MSP	A25/1828	C25/2133	25/1909	25/1828	-	25/1836	25/1918	
2	NWA573	NWA	MIA	MSP	A25/1737	C25/2107	25/1841	25/1737	-	25/1758	25/1903	
3	N7243M	Other	DYR	SPG	A25/1849	C25/2226	25/2052	25/1849	-	25/2026	25/2226	
4	SWA1673	SWA	RSW	STL	A25/1851	C25/2114	25/1942	25/1851	-	25/1857	25/1956	
5	N691SM	Other	TLH	SPI	A25/1815	C25/2101	25/1827	25/1815	-	25/2017	25/2030	
6	N605RF	XAA	BHM	TPA	A25/1902	C25/2000	25/1921	25/1902	-	25/2200	25/2219	
7	N123KD	Other	[illegible]	[illegible]	P25/1647	A25/1841	25/1859	25/1647	25/1841	25/1657	25/1733	
8	N825PS	UVA	[illegible]	[illegible]	A25/1909	C25/2058	25/2000	25/1909	-	25/1941	25/2033	
9	SWA307	SWA	[illegible]	[illegible]	A25/1712	C25/2010	25/1920	25/1712	-	25/1723	25/1941	
10	FIV610	FIV	[illegible]	[illegible]	A25/1705	C25/1829	25/1803	25/1705	-	25/1909	25/2011	
11	UPS2020	UPS	[illegible]	[illegible]	A25/1838	C25/2047	25/1955	25/1838	-	25/2030	25/2145	
12	N402LM	.NB	[illegible]	[illegible]	A25/1510	C25/1936	25/1845	25/1510	-	25/1330	25/1807	
13	N222MW	UVA	[illegible]	[illegible]	A25/1856	C25/2021	25/1948	25/1856	-	25/1931	25/2018	
14	N702AM	UVA	TEB	PFN	A25/1730	C25/1958	25/1943	25/1730	-	25/1736	25/1952	
15	VV7B304	Other	MXF	MCO	A25/1835	C25/2013	25/1900	25/1835	-	25/2114	25/2137	
16	NWA435	NWA	TPA	MSP	A25/1903	C25/2208	25/1939	25/1903	-	25/1912	25/1948	
17	EJA592	EJA	APF	BHM	A25/1853	C25/2033	25/1951	25/1853	-	25/1907	25/2000	
18	SWA1808	SWA	PHX	MCO	A25/1722	C25/2101	25/2005	25/1722	-	25/1714	25/2007	
19	DAL1640	DAL	SLC	MCO	A25/1657	C25/2042	25/1952	25/1657	-	25/1707	25/2003	
20	AAL1925	AAL	RSW	STL	A25/1754	C25/2014	25/1844	25/1754	-	25/1934	25/2026	
21	CPT101	CPT	OPF	SGF	A25/1823	C25/2338	25/2031	25/1823	-	25/1950	25/2156	
22	N764	Other	BNA	TLH	A25/1851	C25/2219	25/2140	25/1851	-	25/1934	25/2222	

Figure 13 - 3 : Accessing Flight Information

Select **Flight Info** and the Flight Info for the selected flight is displayed (see Figure 13 - 4).

Figure 13 - 4 : Flight Info for Selected Flight

Adding ADL Fields

Adding ADL fields in the CTD Compliance Report is the same as adding fields to the Flight List. For more information see Chapter 6: To add data column information to a Flight List.

Column Positioning

Column positioning in the CTD Compliance Report is the same as column positioning in the Flight List. For more information see Chapter 6: To rearrange columns in a Flight List.

Sorting Information in the CTD Compliance List

Sorting Information in the CTD Compliance Report is the same as sorting information in the Flight List. For more information see Chapter 6: Sorting Information in the Flight List.

Multi-Level Sorting

Multi-level sorting in the CTD Compliance Report is the same as multi-level sorting in the Flight List. For more information see Chapter 6: Multi-Level Sorting.

Compliance List Menu

The menu bar in the Flight List component contains four options: File, View, Flight List and Help. The functionality of compliance flight lists is identical to all other FSM Flight Lists.

1. File Menu
   - **File > Save As** – Saves the Compliance List to an Excel spreadsheet, which you can open later and use again.

- **File > Print** – Prints the Compliance List information viewed on the screen.
- **File > Close** – Closes the Compliance list window.

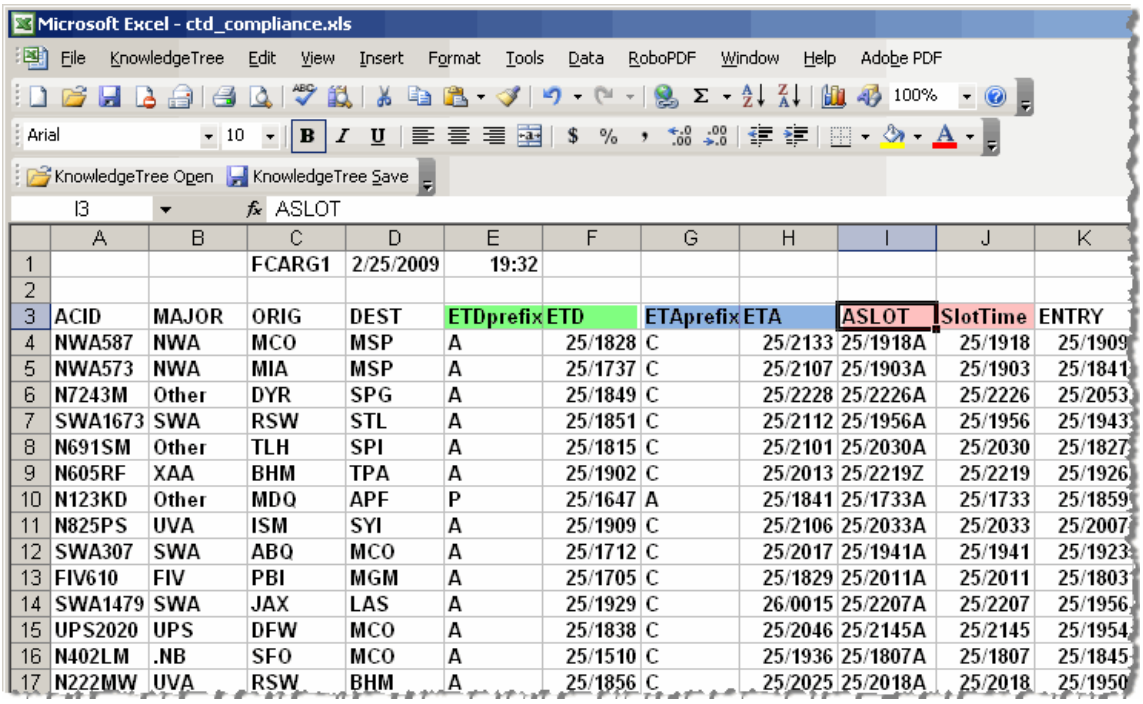
2. View Menu
   - **View > Rename Window** – Displays the Rename Window dialog box and allows you to change the title bar name.
   - **View > Add/Remove Columns** – Allows you to add or delete ADL data fields to the Flight List.
   - **View > Group Flights** – Allows you to group ADL data fields to the Flight List in ascending or descending order.
   - **View > Sort Flights** – Allows you to sort ADL data fields to the Flight List in ascending or descending order.
   - **View > Apply Filter** – Allows you to apply a filter to the data fields in the Flight List.
   - **View > Clear Filter** – Allows you to clear a filter from the data fields in the Flight List.
   - **View > Flight Info** – Opens the Flight Info window.
   - **View > Flight Detail** – Opens the Flight Detail window.
3. Flight List Menu
   - **Flight List > Set Time** – Sets the time for the Flight List component in Historical mode only.
   - **Flight List > Search by Call sign** – Opens the Search by Call sign window.
4. Help Menu
   - **Help > CTD Compliance** – Accesses the web-based on-line help for the CTD Compliance Report.

Exporting Compliance List to an Excel Spreadsheet

1. From the Compliance window menu bar, select File > Save As. The Save Compliance As dialog box opens.
2. Enter a name in the File Name field.
3. Microsoft Office Excel Worksheet (*.xls) is the default file type in the Files of Type dropdown menu. Click **Save**.
4. The exported report is compatible with Microsoft Office Excel 2003 or later and Open Office 1.x or later. See Figure 13 - 5.

   Note: All time values are saved as native time/date fields; therefore, ADL fields that combine date/time with text are exported as multiple cells. The date/time portion of the field is saved in one cell and the text portion is saved in another. For example, the

ETD column becomes ETDprefix and ETD, the ETA column becomes ETAprefix and ETA, and the ASLOT column becomes ASLOT and SlotTime.



	A	B	C	D	E	F	G	H	I	J	K
1			FCARG1	2/25/2009	19:32						
2											
3	ACID	MAJOR	ORIG	DEST	ETDprefix	ETD	ETAprefix	ETA	ASLOT	SlotTime	ENTRY
4	NWA587	NWA	MCO	MSP	A	25/1828	C	25/2133	25/1918A	25/1918	25/1909
5	NWA573	NWA	MIA	MSP	A	25/1737	C	25/2107	25/1903A	25/1903	25/1841
6	N7243M	Other	DYR	SPG	A	25/1849	C	25/2228	25/2226A	25/2226	25/2053
7	SWA1673	SWA	RSW	STL	A	25/1851	C	25/2112	25/1956A	25/1956	25/1943
8	N691SM	Other	TLH	SPI	A	25/1815	C	25/2101	25/2030A	25/2030	25/1827
9	N605RF	XAA	BHM	TPA	A	25/1902	C	25/2013	25/2219Z	25/2219	25/1926
10	N123KD	Other	MDQ	APF	P	25/1647	A	25/1841	25/1733A	25/1733	25/1859
11	N825PS	UVA	ISM	SYI	A	25/1909	C	25/2106	25/2033A	25/2033	25/2007
12	SWA307	SWA	ABQ	MCO	A	25/1712	C	25/2017	25/1941A	25/1941	25/1923
13	FIV610	FIV	PBI	MGM	A	25/1705	C	25/1829	25/2011A	25/2011	25/1803
14	SWA1479	SWA	JAX	LAS	A	25/1929	C	26/0015	25/2207A	25/2207	25/1956
15	UPS2020	UPS	DFW	MCO	A	25/1838	C	25/2046	25/2145A	25/2145	25/1954
16	N402LM	.NB	SFO	MCO	A	25/1510	C	25/1936	25/1807A	25/1807	25/1845
17	N222MW	UVA	RSW	BHM	A	25/1856	C	25/2025	25/2018A	25/2018	25/1950

Figure 13 - 5 : Exported Compliance List

Confirming an EDCT

The **ETMS Tools > EDCT Commands > EDCT Check** option is available from the Control Panel and displays an unfilled EDCT Check dialog box. To confirm a flight's EDCT, type in the flight's callsign, its Origin and Destination Airport, and then click **Send**. In addition to using the ETMS Tools menu, right-clicking on a single flight icon in the Time Line or flight row in any Flight List window opens a pop-up window that allows you to select EDCT Check to display the EDCT Check dialog box. The right-click method automatically populates the flight information (see Figure 13 - 6). Click **Send** to submit the request to ETMS. ETMS then sends a response with the flight's current EDCT.

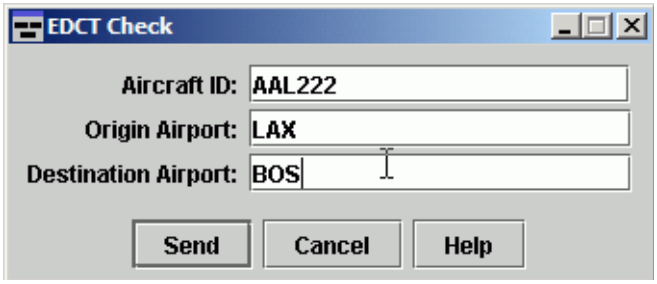


Figure 13 - 6 : EDCT Check Dialog Box

Adjusting an EDCT

If you are an ATCSCC specialist and you select the **ETMS Tools > EDCT Command > EDCT Check** option from the main Control Panel, you can adjust the control times for individual flights. This command displays an unfilled EDCT Update dialog box. You must type in the flight's callsign, Origin and Destination Airports. You can also update EDCTs through the ECR component, see Chapter 14: EDCT Change Request (ECR) for more details.

In addition to using the **ETMS Tools** menu, right-clicking a single flight in the Time Line or Flight List window displays a pop-up menu that allows you to select **EDCT Update** to open the EDCT Update dialog box. The right-click method automatically populates the flight's information, requiring you to fill in only the new control times for the flight (see Figure 13 - 7). Click **Send** to submit the update to ETMS. ETMS then sends a response confirming the fight's new EDCT, which is displayed in the next ADL.

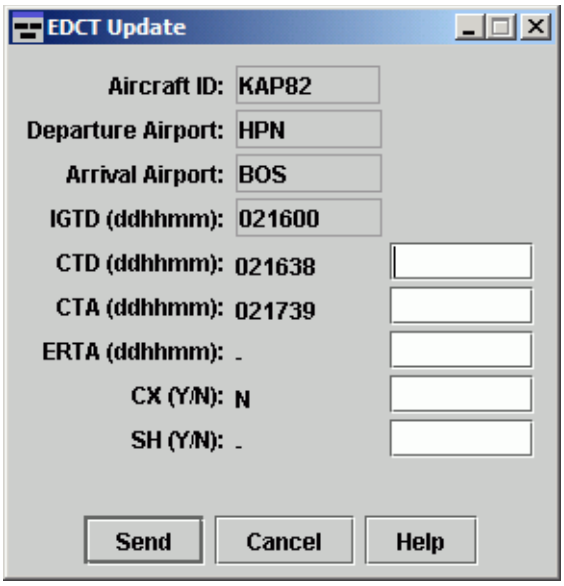


Figure 13 - 7 : EDCT Update Dialog Box

14: EDCT Change Request (ECR)

The EDCT Change Request (ECR) tool is part of the FAA's CDM Ground Delay Program Enhancements (GDPE) effort. ECR has been operational at the FAA's ATCSCC since April 2002. ECR displays current flight information using real-time data culled from CDM participants and aggregated by the Hub site. It allows you to change Estimated Departure Clearance Times (EDCTs) for controlled flights and keep traffic flowing as smoothly as possible.

ECR is available for all CDM participants; however, access is based on the user type:

- NAS users can access only the ***SCS*** Update Option.
- Field users can access the ***SCS*** and ***Unlimited*** Update Options.
- ATCSCC users can access the ***SCS***, ***Limited***, ***Unlimited***, and ***Manual*** Update Options.

Note: Unavailable options are hidden from the user.

The ECR component allows you to search for a flight, view current flight information, model suggested update times for flights, and display options for updating control times. The ECR title bar displays the data set, date, ADL time, and monitor mode (see Figure 14 - 1).

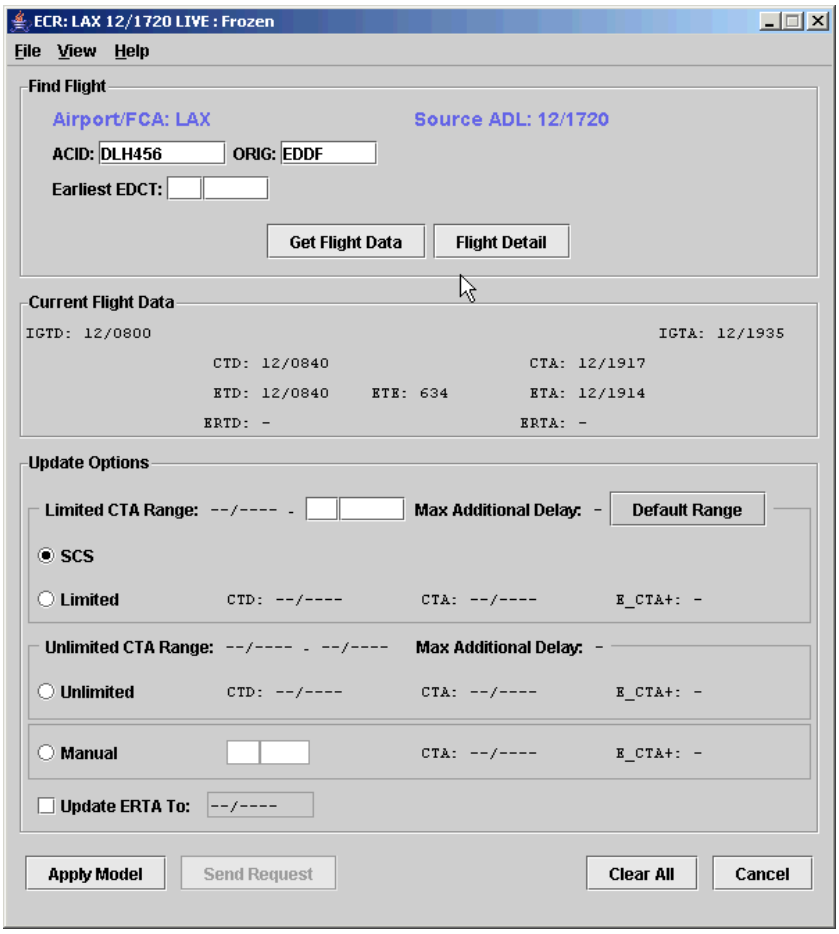


Figure 14 - 1 : Airport Data Set ECR Component

The functionality of ECR components for Airspace data sets is the same as for Airport data sets. The difference for an ECR component opened for an Airspace data set is that the ENTRY data replaces traditional airport arrival information in the Flight Information section. For example, instead of displaying ETA for a flight, the ENTRY time is displayed. ENTRY is the estimated time that the flight will enter the FCA. In addition to ENTRY information, the FCA_ETE data replaces the traditional ETE. The FCA_ETE is a flight's Estimated Time En Route from departure to entry into the FCA (see Figure 14 - 2).

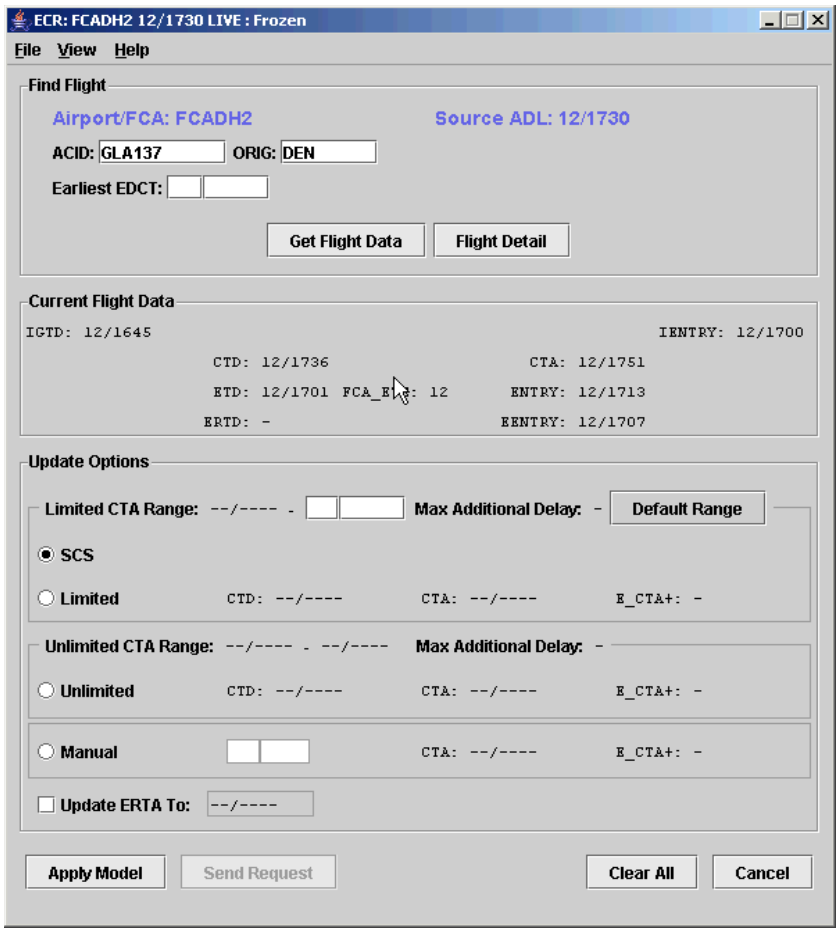


Figure 14 - 2 : Airspace Data Set ECR Component

ECR Menu Bar

The *ECR* menu bar contains three options: File, View, and Help.

1. File menu
   - **File > Close** – Closes the *ECR* component.
2. View menu
   - **View > Rename Window** – Displays the Rename Window dialog box that allows you to change the component name of the title bar. Enter the desired

component name then click **OK** to change the title bar heading. Click **Cancel** to close the Rename Window dialog box without making any changes.

3. Help menu
   - **Help > ECR** - Opens the on-line help for the *ECR* component.

Opening ECR

Use one of the following five methods to open ECR:

Note: Ensure that the correct Data Set is active.

1. Select the ECR checkbox in the Open With panel of the Open Data Set component and click **Apply** (see Figure 14 - 3).

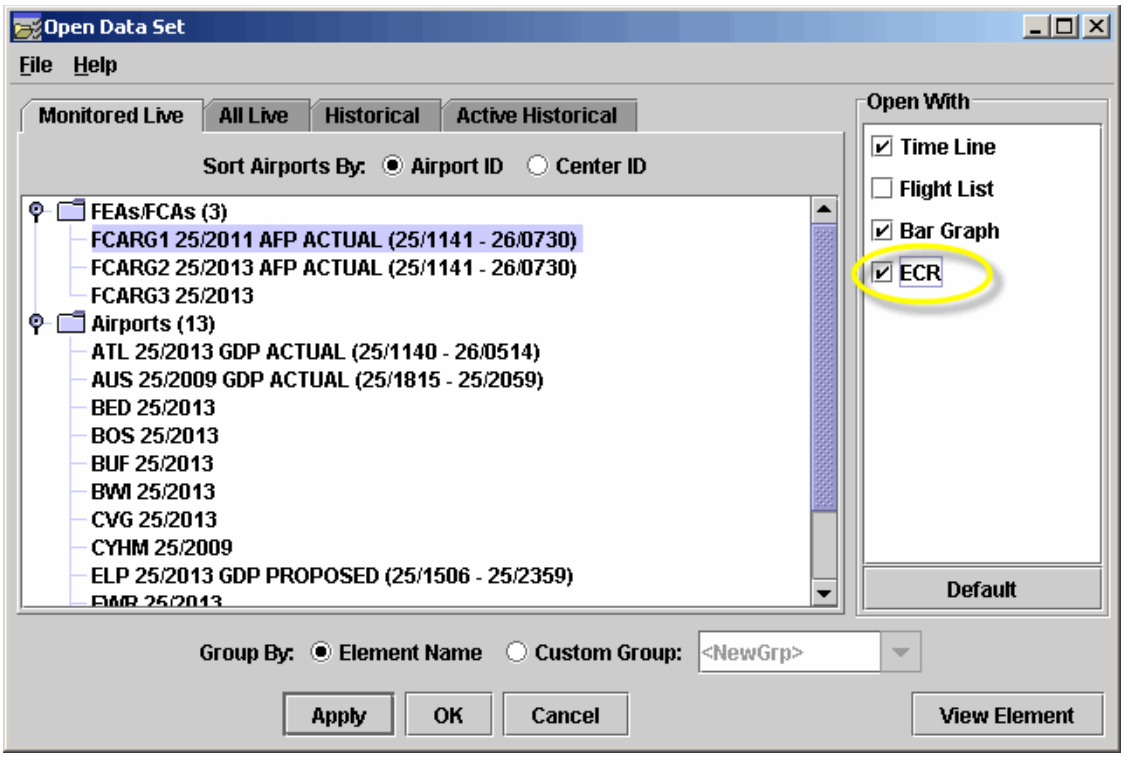


Figure 14 - 3 : Select ECR from Open With Panel

2. Click **ECR** from the Control Panel (see Figure 14 - 4).

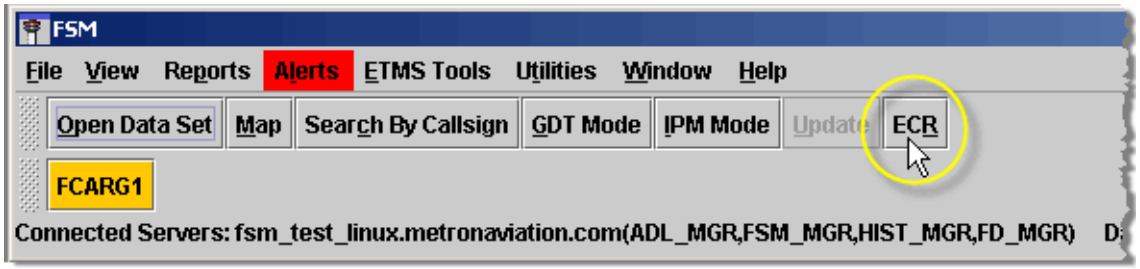


Figure 14 - 4 : Opening ECR from the Control Panel

3. Select **Utilities > ECR** from the Control Panel (see Figure 14 - 5).

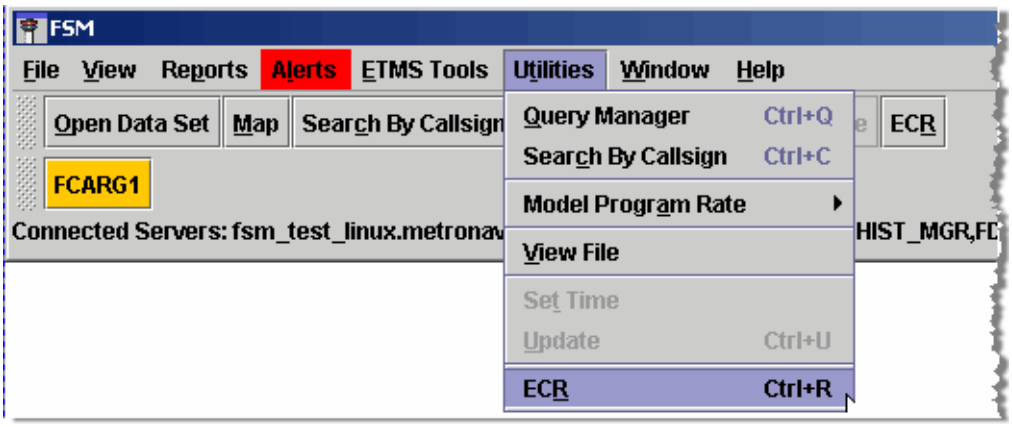


Figure 14 - 5 : Select ECR from Utilities Menu

4. Right-click a flight icon in the Time Line or a row in a Flight List and select **ECR** from the pop-up menu (see Figure 14 - 6). The ACID, ORIG, and flight information automatically display in the ECR component when you open it from the Time Line.

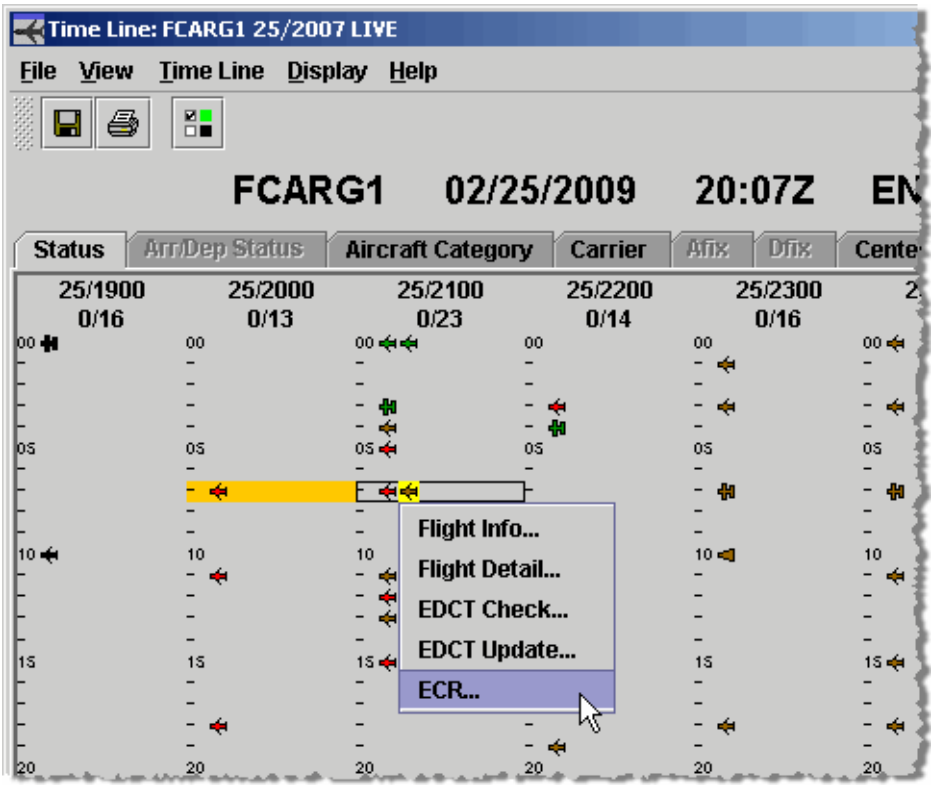


Figure 14 - 6 : Opening ECR from the Time Line

5. Select an Airport or FCA on the Monitor Live map to turn it white, then right-click and select **ECR** from the pop-up menu.

Locating a Flight

To begin updating an EDCT, enter a flight ACID in the ECR window. Verify that your Airport/FCA identifier (***Airport/FCA***) and the last ADL Update time (***ADL Update***) for the correct data set are displayed in purple text, as shown in Figure 14 - 7.

Note: You can open only one ECR component per data set.

Use one of the following two methods to find a flight in ECR:

1. Open ECR from the Time Line or Flight List by right-clicking a flight icon or flight row and selecting the **ECR** option. ECR automatically finds flight information and populates the appropriate fields in the ECR component.
2. Enter a flight's aircraft identifier in ***ACID*** and click **Get Flight Data**.

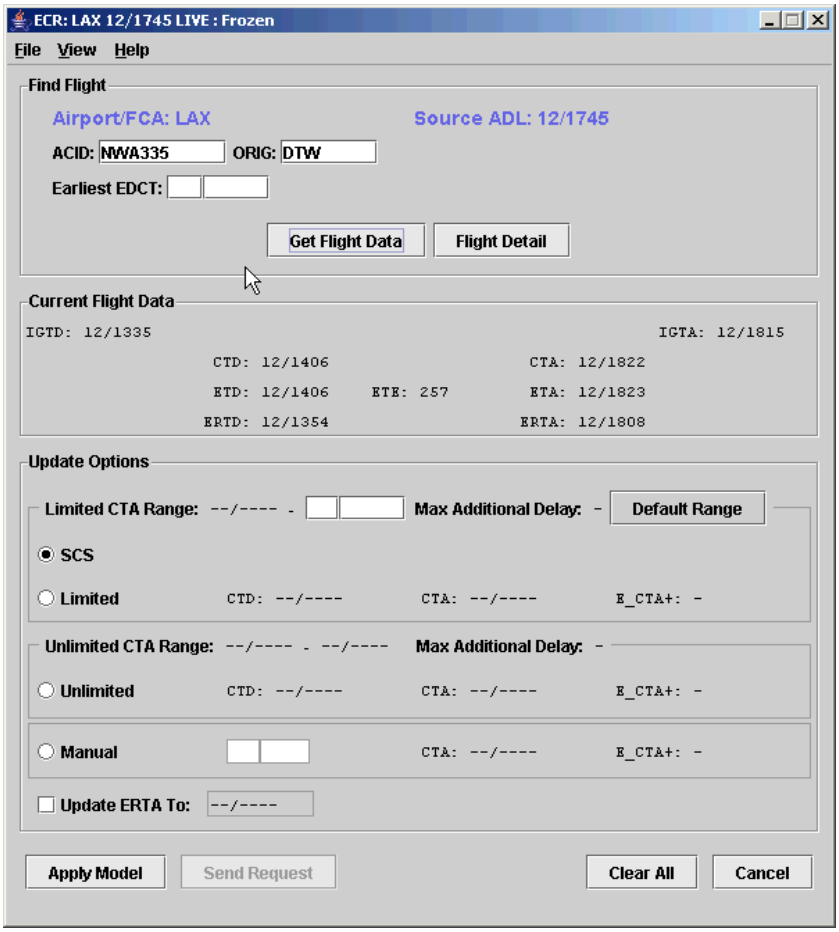


Figure 14 - 7 : Updating an EDCT using ECR

Viewing Flight Information

After ECR finds a flight, the current information is displayed under the Flight Information section. The tables below illustrate the fields listed in the current data section for Airport and Airspace data sets.

Airport Data Set Current Flight Data			
IGTD	Initial gate time of departure	IGTA	Initial gate time of arrival
CTD	Current control time of departure	CTA	Current control time of arrival
ETD	Estimated time of departure	ETA	Estimated time of arrival
ETE		Estimated time en route (departure to arrival)	
ERTD	Earliest runway time of departure	ERTA	Earliest runway time of arrival

Airspace Data Set Current Flight Data			
IGTD	Initial gate time of departure	IENTRY	Initial FCA ENTRY time

CTD	Current control time of departure	CTA	Current control time of arrival at FCA
ETD	Estimated time of departure	ENTRY	Estimated time of arrival at FCA
FCA_ETE		Estimated time en route (departure to FCA entry)	
ERTD	Earliest runway time of departure	EENTRY	Earliest FCA ENTRY time

Updating an EDCT for a Flight

After finding and displaying the flight's current information, enter the flight's new ***Earliest EDCT*** in the Find Flight section of the ECR component.

1. Enter the earliest EDCT to which the flight can comply in ***Earliest EDCT***.
2. Click **Apply Model** at the bottom of the screen to populate the Current Flight Data section and to model different update parameters based on the new Earliest EDCT data.

Update Options			
CTA Range	Interval between the New Earliest CTA and the sum of the New Earliest CTA and Maximum Additional Delay	Max Additional Delay	The maximum additional amount of delay (in minutes)
CTD	Current control time of departure	CTA	Current control time of arrival
E_CTA	New earliest CTA requested		

Note: If you need to reset the ECR to its default state, click **Clear All**.

3. Select the desired update option. For Limited CTA Range, select ***SCS*** or ***Limited***. For Unlimited CTA Range, select ***Unlimited***. You also can select ***Manual***. FSM selects the ***SCS*** radio button by default when SCS is a valid option (NAS Users can access only the ***SCS*** Update Option, Field users can access the ***SCS*** and ***Unlimited*** Update Options, and ATCSCC users can access the ***SCS***, ***Limited***, ***Unlimited***, and ***Manual*** Update Options).

   Note: You can also set the ERTA. For more information see Chapter 14: Adjusting the CTA Range.

4. Click **Send Request** to send the request to the Hub site. The ECR component is disabled while it waits for a response.
5. Click **Cancel** to end the request, if you decide you no longer need the ECR. Clicking **Cancel** closes the ECR component.
6. Click **Clear All** to remove the information from the ECR component so that you can enter a different ACID. If a request is successful, FSM clears all of the ECR fields. If a request is unsuccessful, FSM clears all information *except* the Find Flight information.

Adjusting the CTA Range

You may manually adjust the CTA range for SCS and Limited Update Options. FSM sends the SCS and Limited CTA range parameters as entered in ECR to the hubsite. Adjusting the CTA range will change the Max Additional Delay from the default value.

1. Find the Flight in ECR.
2. Enter the ***Earliest EDCT*** to the earliest EDCT to which the flight can comply and click **Apply Model**. FSM will calculate the Limited and Unlimited CTA range for the flight and the Earliest CTA (EDCT + ETE).
3. If you would like to change the Limited CTA range, enter the new value in the ***Limited CTA Range*** field. The value may not be less than 30 minutes of Max Additional Delay.
4. The Max Additional Delay is recalculated based on the CTA range value that you entered. If you need to reset the Max Additional Delay to its default value, click the **Default Range** button (See Figure 14 - 8).

Figure 14 - 8 : Manually Adjusting CTA Range for ECR

5. Click **Apply Model** again so FSM can recalculate the update options based on the newly specified Limited CTA range.

6. Select the desired update option (***SCS***, ***Limited***, ***Unlimited***, or ***Manual***). FSM selects the SCS radio button by default when SCS is a valid option (NAS Users can access only the ***SCS*** Update Option, Field users can access the ***SCS*** and ***Unlimited*** Update Options, and ATCSCC users can access the ***SCS***, ***Limited***, ***Unlimited***, and ***Manual*** Update Options).
7. Click **Send Request** to send the request to the Hubsite. The ECR component is disabled while it waits for a response.

Setting the ERTA

To set the flight's ERTA using the ECR component, select the ***Update ERTA To*** checkbox. FSM determines the default selection of the ERTA based on whether or not the flight can be subbed. The following are the default possibilities:

- Flights that cannot be subbed - checkbox selected
- Flights that can subbed - checkbox not selected

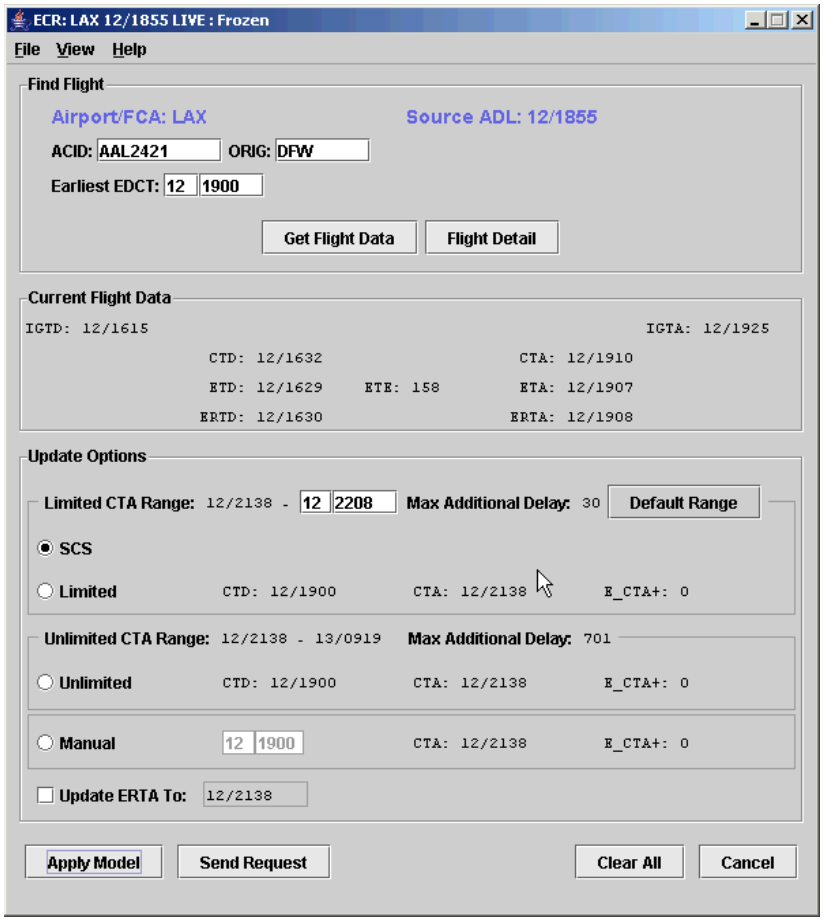


Figure 14 - 9 : ECR with Update ERTA To Selected

ECR sets, or updates, the flight's ERTA when ***Update ERTA To*** is selected and determines the ERTA according to the following formula (see Figure 14 - 9):

(Earliest EDCT + (ETA-ETD))

This can result in an ERTA that is earlier than the CTA/ASLOT issued by ECR. Basically, the ERTA is set to the earliest potential arrival time based on the Earliest Departure time, even if the earliest arrival slot that ECR could identify for that flight is later. This ensures that FSM Compression, GDP/AFP Revisions, and Hubsite Bridging (for SCS and AC) can still provide delay relief to the flight should an earlier slot become available.

ECR sends a message to ETMS to update the ERTA when you select ***Update ERTA To*** and click **Send**. When you select the ***Unlimited***, ***Limited*** or ***Manual*** update options and click **Send**, FSM uses the EDCT UPDATE message to set/update the flight's ERTA. When you select the ***SCS*** update option and click **Send**, FSM sends an Update ERTA message using an EDCT UPDATE message to ETMS after FSM receives an accepted SCS message for the flights from the Hubsite.

Flight Placement for Limited and Unlimited Update Options

ECR uses a queue-based model where the arrival time of a flight is based on the ETA projected by the TFMS-Core. To determine a flight's placement, projected demand is compared to the AAR. The flight is queued and modeled as arrived based on the capacity projected using the AAR. FSM creates pseudo slots (PSLOT) based on the current AAR. Note that the PSLOTs are used for internal modeling only and are not visible to the user.

When you select the ***Limited*** update option, FSM compares the current demand (based on flights' ETAs) to the AAR to determine the best place for a flight between the new Earliest CTA and (New Earliest CTA + Max Additional Delay).

When determining Limited Option flight placement, FSM assigns the flight to a pseudo slot (PSLOT) within the CTA Range based on the following rules:

- The first available free PSLOT within Limited CTA Range; if no free PSLOT is found within the limited CTA Range, then;
- The flight is placed in the minute within the Limited CTA range where there are the least number of flights in the airborne-holding queue.

When you select the ***Unlimited*** update option, FSM compares the current demand (based on flights' ETAs) to the AAR to determine the best place for a flight between the new Earliest CTA and the end time of the program.

When determining Unlimited Option flight placement, FSM assigns the flight to a pseudo slot (PSLOT) within the CTA Range based on the following rule:

- The first available free PSLOT within Unlimited CTA Range is assigned. Note: The Unlimited option will always find a free PSLOT, even though that may cause the flight to incur substantial additional delay.

Note: The AAR is not automatically adjusted with the Program Rate. It is important to remember that the Limited and Unlimited update algorithms use the AAR and not the Program Rate; therefore, it is necessary to ensure that the AAR is set correctly.

Update Options

There are four options for updating an EDCT using ECR: ***SCS***, ***Unlimited***, ***Limited***, and ***Manual***. NAS Users can access only the ***SCS*** Update Option, Field users can access the ***SCS*** and ***Unlimited*** Update Options, and ATCSCC users can access the ***SCS***, ***Limited***, ***Unlimited***, and ***Manual*** Update Options.

- ***SCS*** – The ECR tool sends a Slot Credit Substitution (SCS) request via a Simplified Subs Packet to ETMS, using the window reflected in the CTA range. FSM selects the SCS Request option by default (all users).

  Note: You can use SCS only when you request a later EDCT. If the New Earliest EDCT is before the current CTD, FSM grays out the SCS radio button.

- ***Unlimited*** – The ECR tool shows the EDCT, CTA, and the delay past the New Earliest CTA for the optimal EDCT update for between the New Earliest CTA and the last CTA of the program (Field and ATCSCC users only).
- ***Limited*** – The ECR tool shows the EDCT, CTA and delay past the New Earliest CTA for the optimal EDCT update within the CTA range (ATCSCC users only).
- ***Manual*** – The Manual field is automatically populated with the value you entered in the Earliest EDCT in the Find Flight section of the ECR component. Edit the flight's EDCT in the space provided (DD/ hhmm) and the ECR tool calculates the CTA by adding the flight's ETE or FCA_ETE (ATCSCC users only).

Viewing SCS Response

After requesting a Slot Credit Substitution (SCS), the Hub site sends back a response. If the SCS request is successful, the response is a slot list of the flights affected including new control times and control types (see Figure 14 - 10).

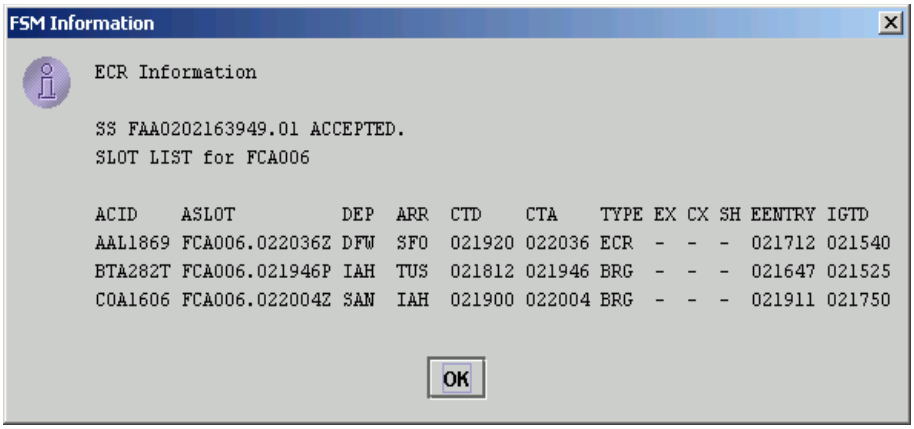


Figure 14 - 10 : SCS Response

Control Types Associated with ECR

Control Type	Control Time Change Origin
ECR	SCS Request submitted by the ATCSCC
SCS	SCS Request submitted by all customers other than ATCSCC (airline user or general aviation customers)
UPD	ATCSCC EDCT update (Changes made by Unlimited, Limited, or Manual options)
BRG	Bridged up to accommodate an SCS request

15: Revising/Extending a Ground Delay Program or Airspace Flow Program

Once a Ground Delay Program (GDP) or Airspace Flow Program (AFP) is already in place, the conditions that originally necessitated the program may change. The weather may improve or get worse, a runway may shut down or its configuration change, the AAR may increase or decrease, or the demand may have changed since the original program was issued. When these cases arise, you may find it necessary to revise the original program.

Getting Current Demand and Weather Information

Before you revise, you want to ensure you have the most current ADL. From the FSM *Control Panel* component, select **ETMS Tools > ADL Request**. Enter the data set's identifier in the ETMS ADL Request Dialog box and click **Send**. FSM sends the request immediately to ETMS and all live mode windows for that data set update when FSM receives the new ADL (see Figure 15 - 1).

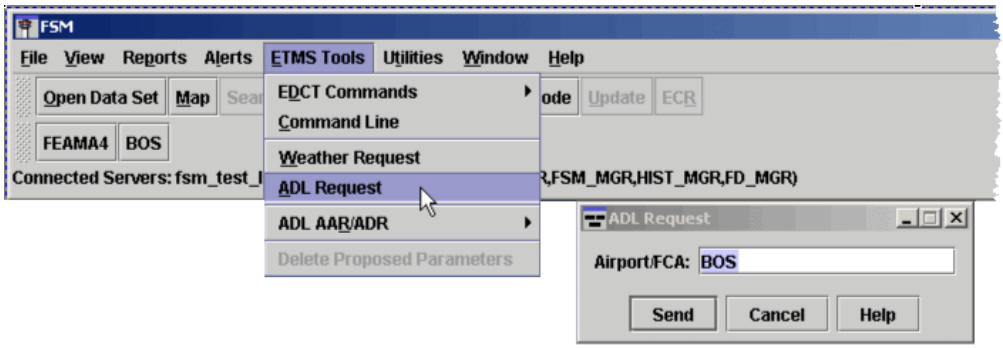


Figure 15 - 1 : ETMS ADL Request and ETMS ADL Request Dialog Box

You also want to ensure you have the most recent weather information when monitoring an Airport data set. Select **ETMS Tools > Weather Request** from the Control Panel. ETMS Weather is the option directly above the ADL Request (see Figure 15 - 2). Enter the three-character airport ID (for multiple airport weather reports, enter airport identifiers separated by spaces or commas) in the ETMS Weather dialog box (see Figure 15 - 2). FSM sends the request immediately to ETMS and the current METAR and TAF are displayed in a text window on your screen. Weather Request is not an option for Airspace data sets.

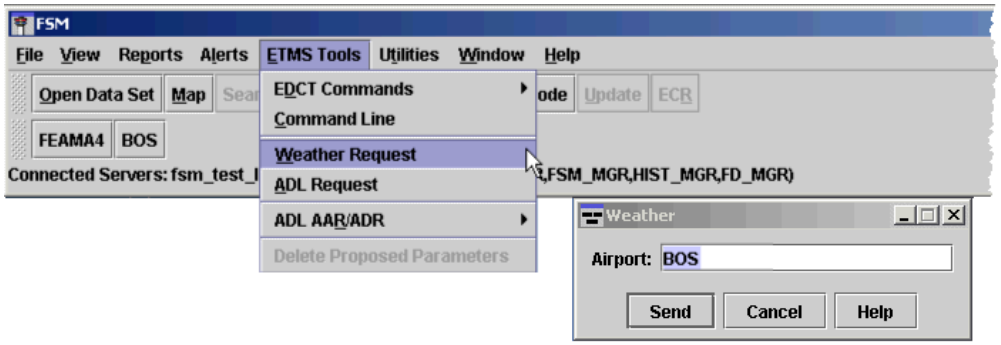


Figure 15 - 2 : ETMS Weather Request and ETMS Weather Request Dialog Box

Deciding When to Revise a Program

There are several tools available to help you decide if a revision is necessary. The Live Time Line and Bar Graph components allow you to visually compare the data sets capacity (AAR) vs. its demand. If the Time Line shows a large number of delayed flights (solid triangles) or cancelled flights (solid squares) and/or the Bar Graph shows that demand is under or over the AAR for certain hours, a revision can help reallocate the slots. In addition to delayed or cancelled flights, monitoring the number of Drop Out flights shown under the Time Line CNX/[DO] column during an AFP can help determine if a revision is needed. When a revision is necessary, the FSM Modeling Options tab in the GDT Setup component is helpful for analyzing different options. For more information on how to use Power Run, see Chapter 8: GDT Data Graph Component.

Revising a GDP

You can change a number of parameters during a revision to meet the change of conditions at the data set monitored. For example, you may need to revise any one or combination of the following parameters: you may need to increase/decrease the AAR, increase/decrease the number of centers involved, expanded/reduced the distance range of the GDP, revise from a GAAP GDP into a normal GDP, or extend the length of the program. To change any of the program parameters, open the data set in GDT mode. To load the current parameters select **File > Load Actual Parameters > Ground Delay Program** in the GDT Setup component.

Revising an AFP

Revising an AFP is similar to revising a GDP with a few additional parameters to be aware of. For example, you may need to revise any one or combination of the following parameters: you may need to increase/decrease the AAR, increase/decrease the number of departure centers involved, increase/decrease the number of arrival airports involved, revise from a GAAP AFP into a normal AFP, give priority to the revised AFP over existing AFPs, or extend the length of the program. To change any of the program parameters, open the data set in GDT mode. To load the current parameters select **File > Load Actual Parameters > Airspace Flow Program** in the GDT Setup component. If you

want the revised AFP to take priority over other existing AFP control times, check the ***AFP Override*** checkbox.

> **Note:** It is advised to use AFP Override in only extreme or crisis scenarios.

Extending the Program

To extend the length of the AFP or GDP, change the ***End*** time from the Parameters tab or click and drag the ***End time*** slide bar to adjust the duration. You can extend the program without changing any other parameters or you can extend the program in conjunction with any other number of parameter modifications, as shown in Figure 15 - 3.

> **Note:** You can model an AFP past the End time of the underlying FCA, but **Send** is disabled from the Coversheet. To extend an AFP past the End time of the underlying FCA, the FCA must first be extended in TSD.

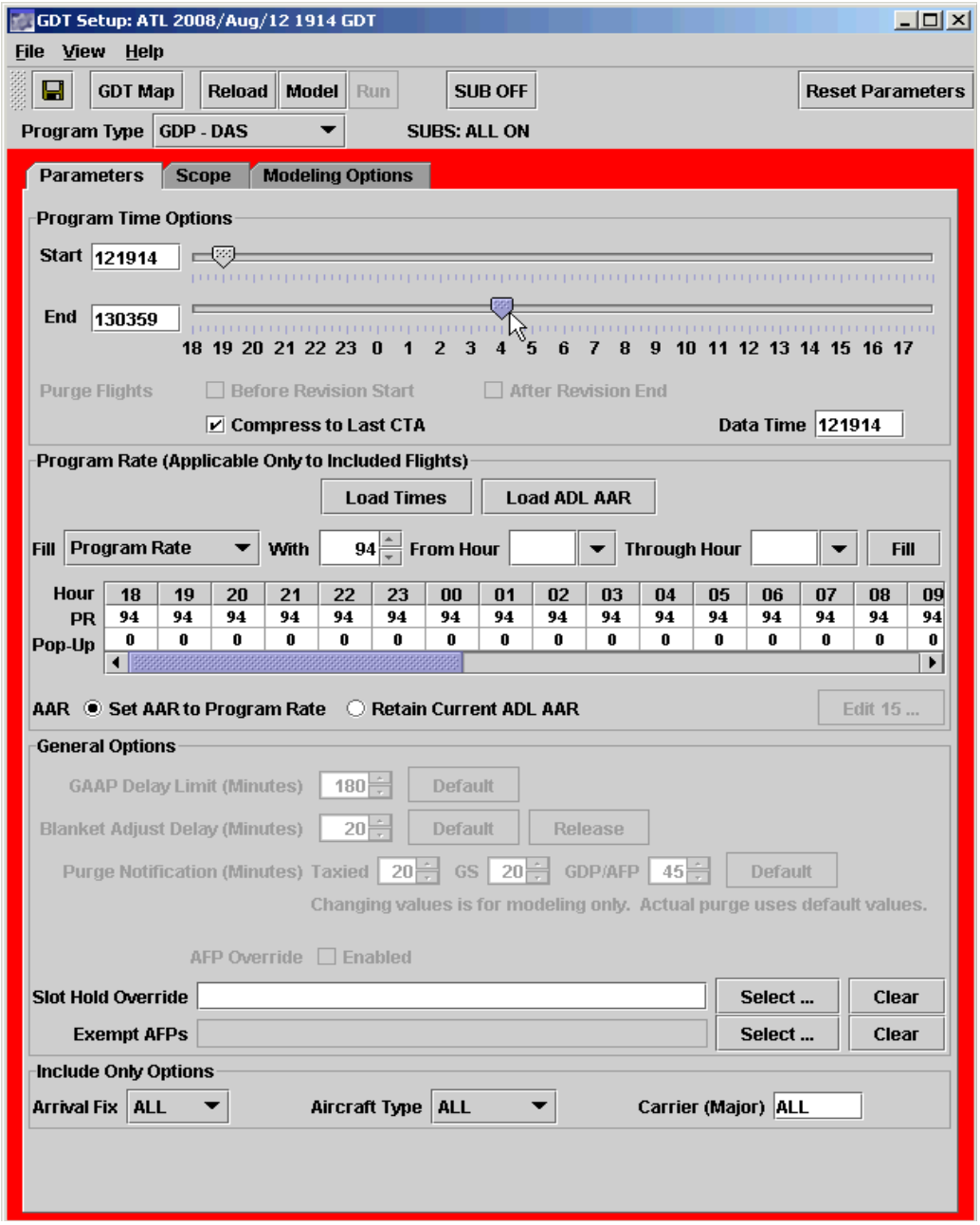


Figure 15 - 3 : Modifying the Program Duration

Modifying the Program Rate

Select the Parameters Tab in the GDT Setup component. The current Program Rate is displayed for the hours of the current program. To increase/decrease the Program Rate, use either the **Fill** method or change each hour manually. For more information on the Parameters Tab, see Chapter 3: Understanding Components.

If a Pop-up Factor is being used, it is suggested to manually adjust the Program Rate to a higher rate for two hours past the Data time to compensate for the Pop-up Factor value

entered. Typically, unknown demand has already materialized for the two hours past the Data time.

Reducing/Expanding the Scope of a GDP

You can reduce or expand the scope of your tier or distance-based GDP. Select the Scope tab on the GDT Setup panel, and select either ***Select By*** Tier or Distance. If you prefer to use the Tier based GDP, you can select a new center group or manually add or delete centers by selecting the center checkboxes. Newly selected centers are now non-exempt (receive departure delay) in the program. If you release a center from program delay, the flights originating from that center run through the release delay algorithm. FSM adjusts distance based programs based on the distance radius. You can expand the distance range to capture more airports in the program or decrease the distance radius to release delay on previously delayed airports.

Reducing/Expanding the Scope of an AFP

You can reduce or expand the scope of your tier-based AFP. Select the Scope tab on the GDT Setup panel. You can manually add or delete departure centers by selecting the center checkboxes. Newly selected centers are now non-exempt (receive departure delay) in the program. If you release a center from program delay, the flights originating from that center runs through the release delay algorithm. In additional to departure facilities, arrival airports can be exempted. To exempt an arrival airport from departure delay, enter the airport ID in the ***Exempt Airports*** field in the Arrival Facilities section. Any flight arriving to an Exempt arrival airport is exempt from departure delay.

Purging Flights Outside of the Revised Program Parameters

When you revise an existing AFP, GDP, or GS, you can purge flights outside of the new program time frame, thus removing them from the program's control. The Purge Flights section on the Parameters tab of the GDT Setup panel allows you to purge flights that arrive before the new start time or after the new end time. This section is enabled when modeling an AFP or GDP revision, for an initial AFP/GDP and all other program types the Purge Flights options are disabled.

To purge flights prior to the new Start time

1. Adjust your ***Start*** time in the GDT Setup panel's Parameters tab
2. Select ***Before Revision Start*** in the Purge Flights section. When this box is selected, FSM logic determines which flights are no longer controlled due to the change in the new event Start time entered in the GDT Setup panel.

   Note: The logic for which flights are included is unchanged; this new process simply means that when the time frame is reduced, FSM re-determines which flights are in the program.

3. Click **Model**.

The cumulative start time is displayed as a solid goal post in the Bar Graph. The new Start time of the program will be displayed as a dotted goal post once the revision is displayed in the ADL.

Note: By default the cumulative time indicators are enabled, but you have the option to toggle the display. Select **View > Cumulative Indicators** from the Bar Graph to turn the cumulative time indicators on/off.

4. If the program appears to meet your needs, click **Run** and submit the program. For more information, see Chapter 15: Issuing the Revision. Advisories are sent to all users to indicate that the time frame of the program has changed. The ETMS system notifies users of flights that are no longer controlled by the program.

To purge flights after to the new End time

1. Adjust your ***End*** time in the GDT Setup panel's Parameters tab.
2. Select ***After Revision End*** in the Purge Flights section. When this box is selected, FSM logic determines which flights are no longer controlled due to the change in the new event End time entered in the GDT Setup panel.

   Note: The logic for which flights are included is unchanged; this new process simply means that when the time frame is reduced, FSM re-determines which flights are in the program.

3. Click **Model**.

   The cumulative end time is displayed as a solid goal post in the Bar Graph. The new end time of the program is displayed as a dotted goal post once the revision is displayed in the ADL.

   Note: By default the cumulative time indicators are enabled, but you have the option to toggle the display. Select **View > Cumulative Indicators** from the Bar Graph to turn the cumulative time indicators on/off.

4. If the program appears to meet your needs, click **Run** and submit the program. Advisories are sent to all users to indicate that the time frame of the program has changed. The ETMS system notifies users of flights that are no longer controlled by the program.

Revising a GAAP Program

To revise a program from a GAAP to a DAS, from Parameters tab > ***Program Type*** dropdown menu, select GDP/AFP DAS.

Sending a Proposed Program and Advisory

After modifying the parameters of the program and if the modeled results are favorable, it is recommended that you send out a Proposed Advisory. A Proposed program revision is a

program suggested by the FAA, but not immediately implemented. Click **Run** from the GDT Setup panel to open the program Coversheet. Review all parameters and place a checkmark next to each section of the Coversheet you have reviewed. Before sending the Proposed program, the Advisory/Causal Factor section of the Coversheet must be completed. Select the ***Proposed*** radio button and select the appropriate causal factor information (see Figure 15 - 4).

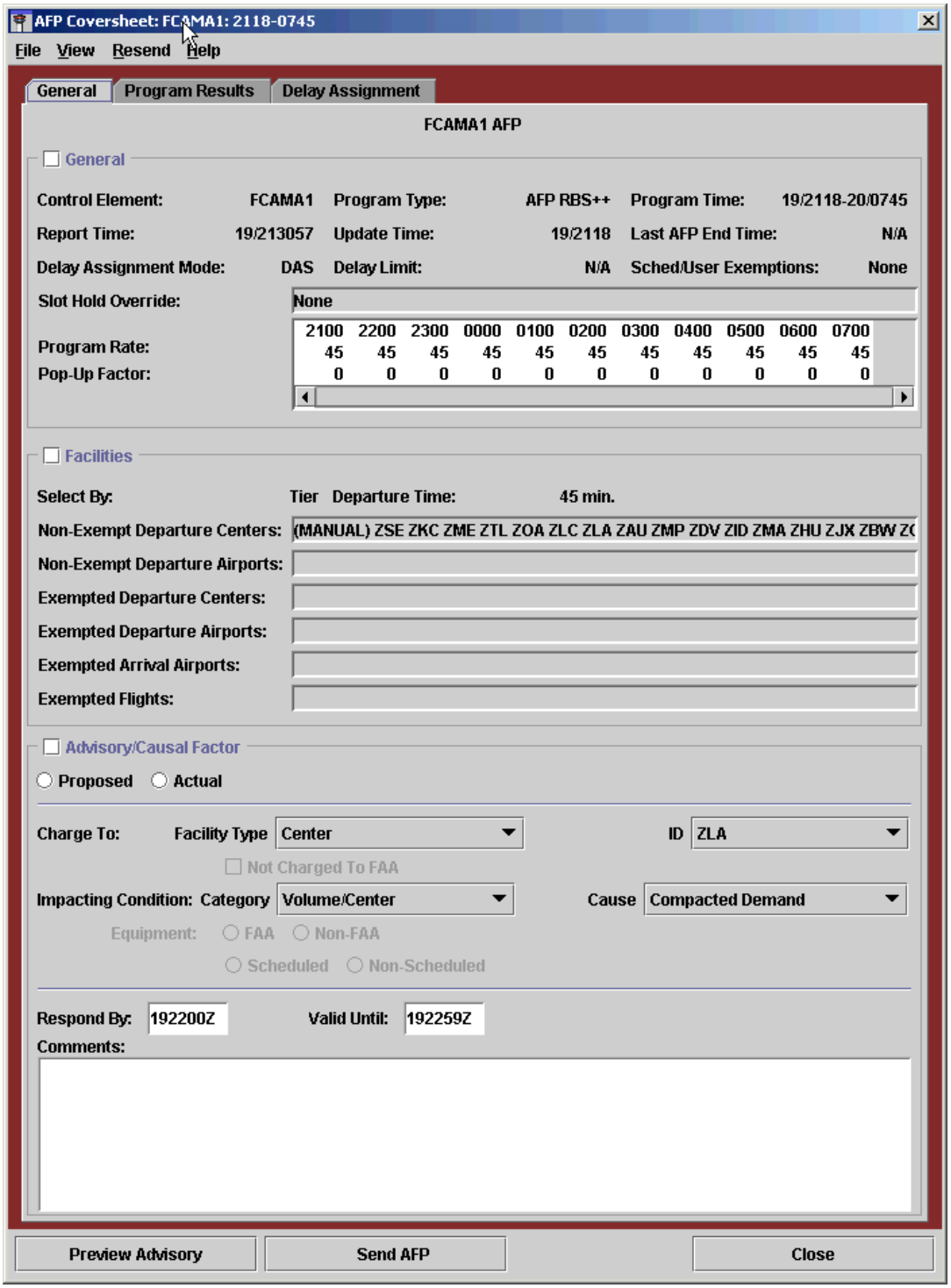


Figure 15 - 4 : AFP Coversheet

After you complete the Advisory/Causal Factor section, place a checkmark next to the Advisory/Causal Factor section of the Coversheet. To review the Advisory text before sending the proposed event, click **Preview Advisory** located in the lower left-hand corner of the Coversheet. This opens the Advisory in text format.

Note: The first line of the Advisory states that it is a Proposed revision (see Figure 15 - 5).

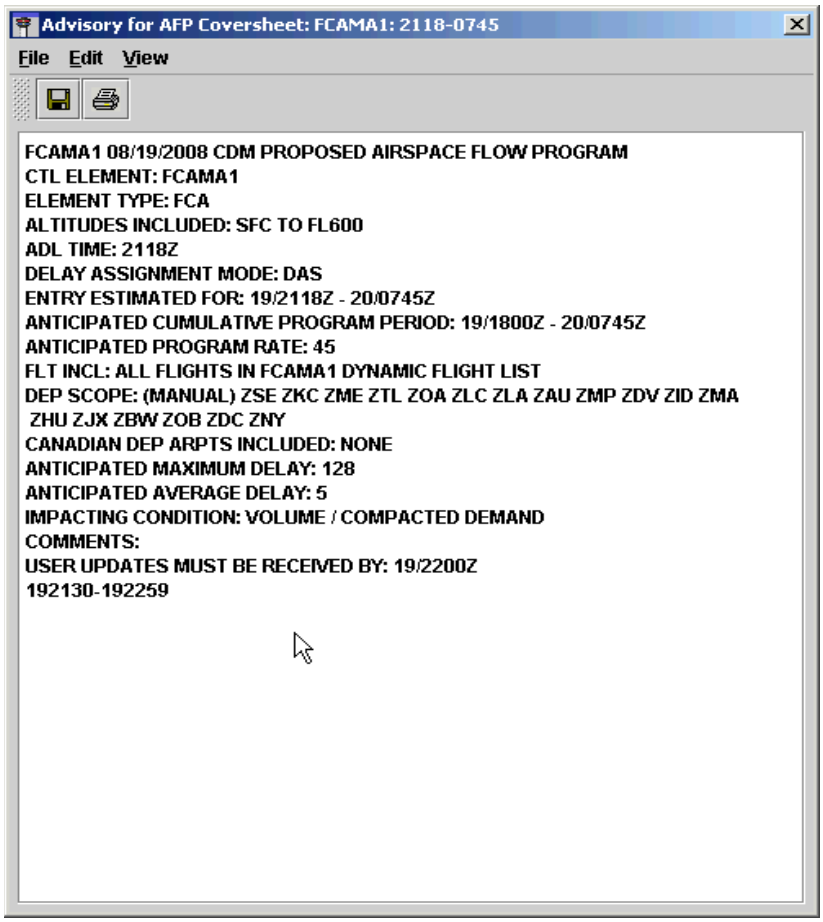


Figure 15 - 5 : Proposed AFP Advisory Preview

Click **Send <Program Type>** to distribute the proposed program parameters and Advisory to all FSM users. A Proposed program revision allows NAS users enough time to comment on the proposed parameters even though they may change before the FAA implements an actual program.

Suspend Airline Substitutions and Slot Credit Substitutions

Now you are ready to issue the revised program but before issuing the revision, you need to suspend the acceptance of airline substitutions and Slot Credit Substitutions (SCS) messages temporarily. From the FSM Control Panel, select the **ETMS Tools > EDCT Commands > EDCT Sub Off** option to turn substitutions off or when in GDT mode click the **SUB OFF** button from the GDT Setup component, as shown in Figure 15 - 6. The data set identifier is already entered in the EDCT SubOff dialog box when opened from the GDT Setup component, otherwise enter the data set ID and click **Send <Program Type>** to suspend substitutions for that airport. Airlines' substitution or SCS messages are no longer accepted after FSM sends the SubOff message to ETMS.

Note: Ensure that the SUBS OFF indicator is displayed on the GDT Setup panel after you have sent the EDCT Sub Off message. If SUBS ON is displayed, click **Reload** to model the program with the most recent ADL.

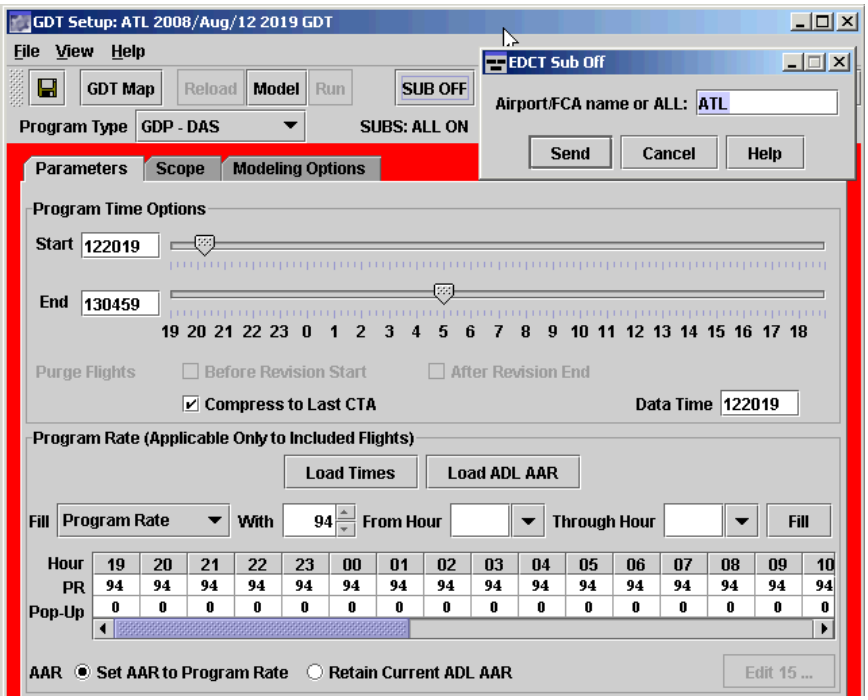


Figure 15 - 6 : Turn Subs OFF

Issuing the Revision

Once you have determined the program parameters for an Actual program, turned off substitutions, and reloaded the most current ADL you are ready to send your program revision.

Click **Run** from the GDT Setup component to open the program Coversheet with the revised parameters. If substitutions are currently turned on for the selected data set, the Subs On Warning dialog box is displayed before the coversheet opens (see Figure 15 - 7). The warning gives you the opportunity to turn off substitutions without having to reload.

Figure 15 - 7 : SUBS ON Warning

If you click **Ignore**, the Subs OFF warning closes and the coversheet opens. If you click **Turn Subs OFF**, the Subs OFF message is sent to the hubsite/TFM Processing Center (TPC), and an informational message is displayed (see Figure 15 - 8).

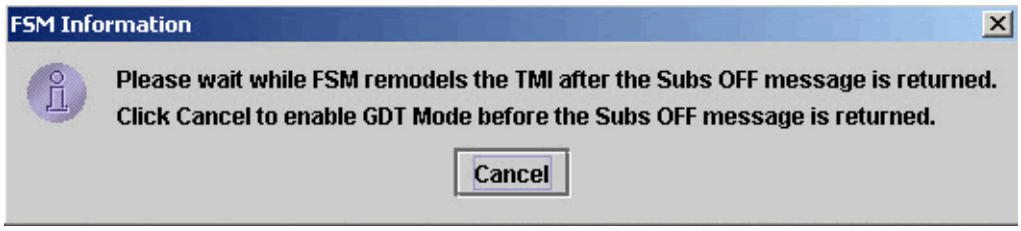


Figure 15 - 8 : FSM Modeling Information Message

Click **Cancel** to continue without waiting for FSM to automatically remodel the TMI. If you did not click **Cancel**, FSM remodels the TMI after the Subs Off message is returned by the TPC and the FSM Information message closes. ***SUBS: ALL OFF*** is then displayed on the GDT setup panel.

Review the Coversheet parameters and program results, complete the Advisory section, and click **Send <Program Type>** from the Coversheet to implement the revision.

Completing a revision is similar to sending an initial program. For more information, see Chapter 11: Issuing an Initial Program.

Exempt AFP Flights from GDP

When an airport goes into a GDP the GDP takes control of all arrivals at the airport within the duration of the program, including any flights currently controlled by AFPs. You have the option of exempting flights currently controlled by AFPs. When an AFP is selected as an Exempt AFP in the GDT Setup panel, the AFP-exempt flights in the GDP will be treated as previously controlled regardless of their AFP exemption status and given the first available airport arrival slot after their estimated arrival time, which is based on their current AFP EDCT and any airline submitted flight delays. FSM will make an effort not to change the assigned departure time (CTD) for the flight, subject to capacity constraints at the airport and any known flight delays. This minimizes the number of changes to control time for flights that are now controlled by the GDP, as well as to minimize the change in the demand at the AFP.

Exempting an AFP from a GDP

1. Go into GDT Mode for an airport that has AFP controlled flights.
2. Set up your desired GDP Parameters as normal (see Figure 15 - 9).

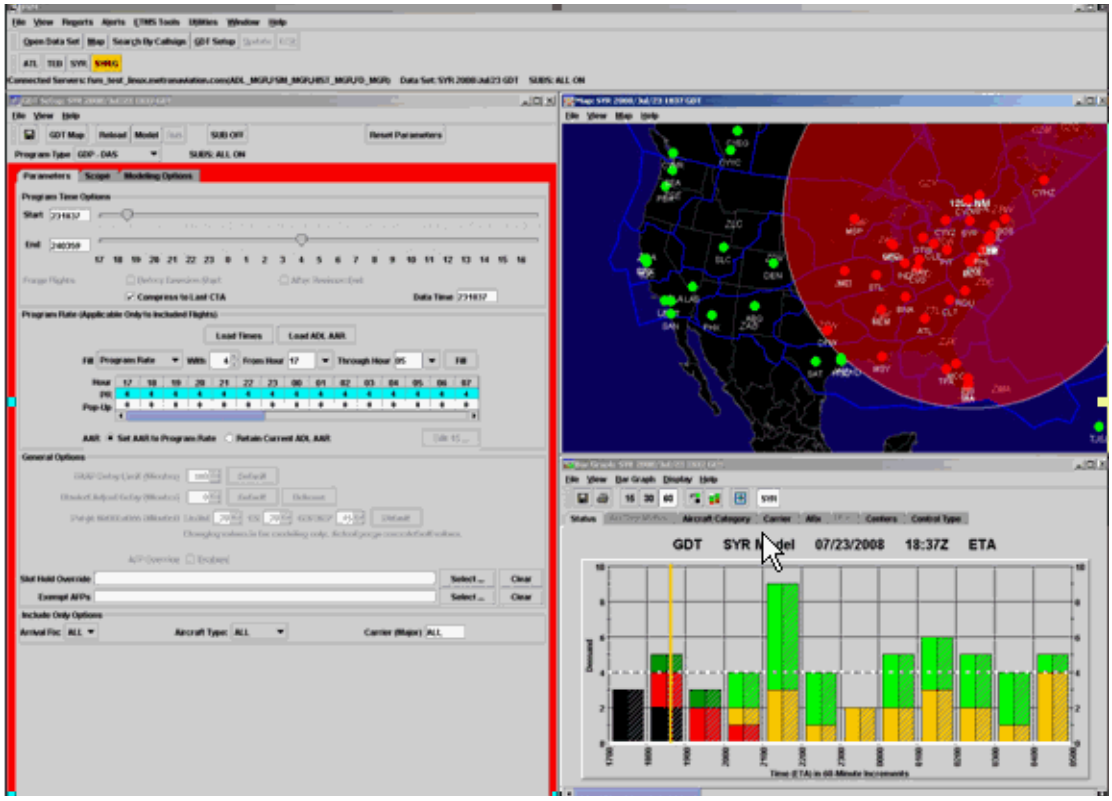


Figure 15 - 9 : SYR GDP Parameters Selected

3. In the General Options of the Parameter tab on the GDT Setup component, click **Select**… located to the right of the ***Exempt AFPs*** field.
4. The Exempt AFPs dialog box opens, which displays information for each AFP controlling flights within the domain of the GDP (see Figure 15 - 10).

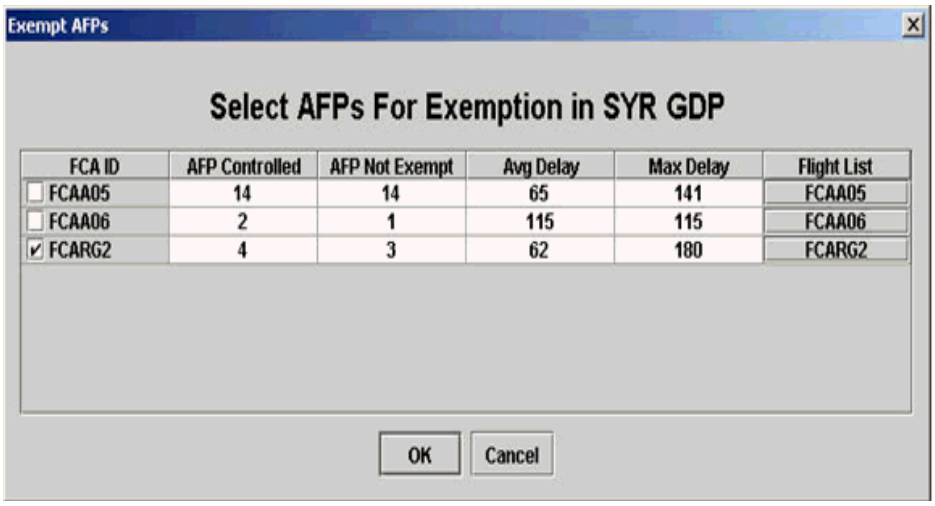


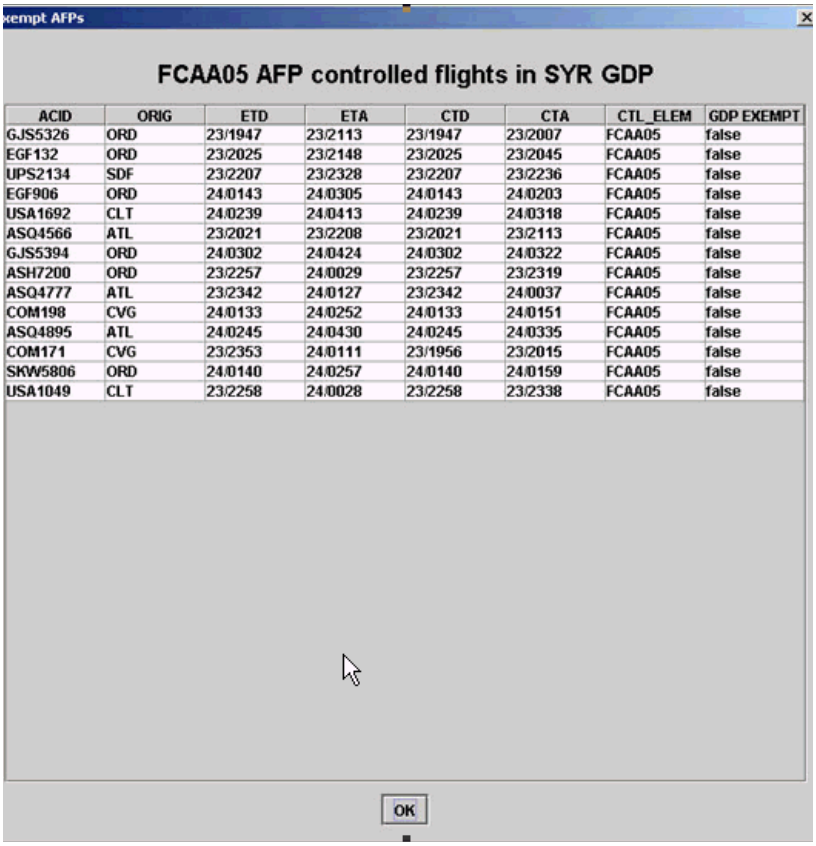
Figure 15 - 10 : Exempt AFPs Dialog Box

See Table 15-1 for the information displayed in the Exempt AFPs dialog box.

Table 15-1: Exempt AFPs Dialog Information

Header Label	Description
FCA ID	The name of the FCA on which the AFP is based.
AFP Controlled	The total number of flights that would be controlled by the GDP whose current control element is the indicated AFP.
AFP Not Exempt	The subset of flights listed in AFP Controlled column that would not be exempted by the current GDP exemption criteria.
Avg Delay	The current average delay for all flights listed in the AFP Not Exempt column.
Max Delay	The maximum delay for a flight listed in the AFP Not Exempt column.
Flight List	Clicking the button labeled with the AFP's FCA ID displays a flight list with all the flights that will be controlled by the GDP.

5. To view a Flight List of all the AFP controlled flights arriving within your GDP parameters, click the Flight List button. Click **OK** to close the Flight List (see Figure 15 - 11).



ACID	ORIG	ETD	ETA	CTD	CTA	CTL_ELEM	GDP EXEMPT
GJS5326	ORD	23/1947	23/2113	23/1947	23/2007	FCAA05	false
EGF132	ORD	23/2025	23/2148	23/2025	23/2045	FCAA05	false
UPS2134	SDF	23/2207	23/2328	23/2207	23/2236	FCAA05	false
EGF906	ORD	24/0143	24/0305	24/0143	24/0203	FCAA05	false
USA1692	CLT	24/0239	24/0413	24/0239	24/0318	FCAA05	false
ASQ4566	ATL	23/2021	23/2208	23/2021	23/2113	FCAA05	false
GJS5394	ORD	24/0302	24/0424	24/0302	24/0322	FCAA05	false
ASH7200	ORD	23/2257	24/0029	23/2257	23/2319	FCAA05	false
ASQ4777	ATL	23/2342	24/0127	23/2342	24/0037	FCAA05	false
COM198	CVG	24/0133	24/0252	24/0133	24/0151	FCAA05	false
ASQ4895	ATL	24/0245	24/0430	24/0245	24/0335	FCAA05	false
COM171	CVG	23/2353	24/0111	23/1956	23/2015	FCAA05	false
SKW5806	ORD	24/0140	24/0257	24/0140	24/0159	FCAA05	false
USA1049	CLT	23/2258	24/0028	23/2258	23/2338	FCAA05	false

Figure 15 - 11 : Exempt AFPs Flight List

6. To Exempt one or all AFPs listed, select the checkbox to the left of the FCA ID.
7. Click **OK** to accept the Exempt AFP selection or click **Cancel** to close the dialog without accepting the selected AFP exemption. The selected AFP is then listed in the ***Exempt AFPs*** field on the GDT Setup Parameters tab (see Figure 15 - 12).

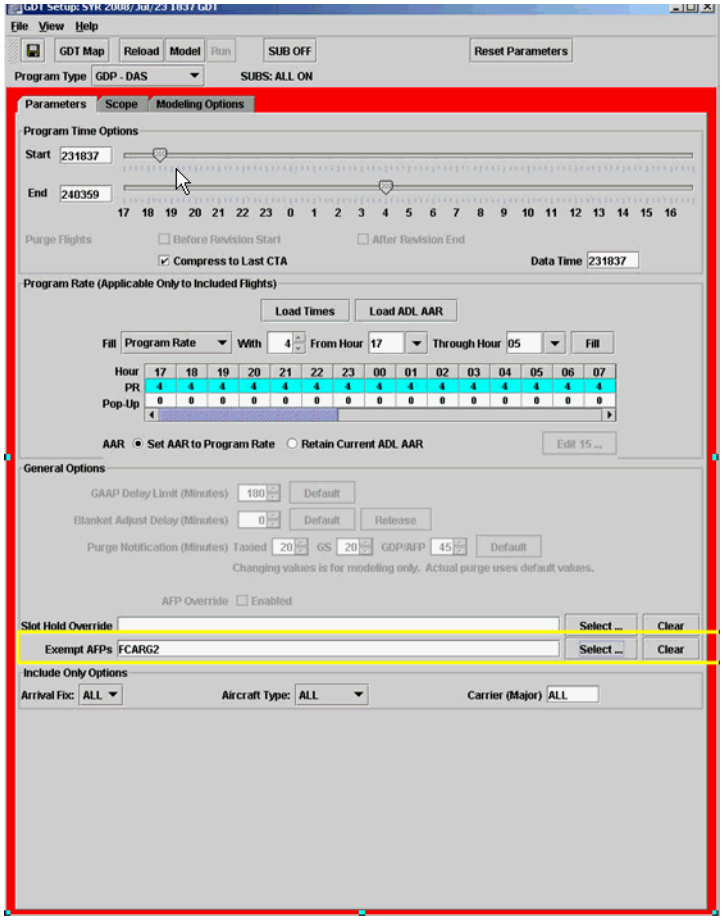


Figure 15 - 12 : AFP FCARG2 Entered in the *Exempt AFPs* Field

8. Click **Reload** or **Model**.
9. Flights that were controlled by the selected AFP will now be controlled by the GDP control element, but will retain their previous EDCT (from the AFP) to the degree possible based on airport slot availability and airline submitted delay information. The CTA of the flight will be adjusted for the airport GDP.

Example Revision

The section below is an example of how to revise a GDP with a GAAP Delay Assignment Mode to a DAS Delay Assignment Mode. If you change Delay Assignment Mode to DAS, all unassigned slots are removed from the program and from the ADL and FADT.

To revise a Program with a GAAP Delay Assignment Mode

1. Click **Open Data Set**.

   The Open Data Set window opens.
2. Select the data set for which you want to revise the program with a GAAP Delay Assignment Mode.

3. Click **OK**.

   The Time Line and Bar Graph components for the data set opens.

4. Click **GDT Mode**.

   The GDT components for the data set open. Select **File > Load Actual Parameters > Ground Delay Program** to load the current parameters for the data set.

5. Make any additional changes to the program that are needed.

6. Select the Power Run you want FSM to use for this program.

7. Click **Model** or **Reload** if available.

   The red border in the GDT Setup Panel no longer is displayed and the GDT components reflect the modeled program.

8. If the program appears to deal with the traffic flow in the manner you want, click **Run** to generate the Coversheet.

9. Carefully examine each section of the Coversheet on the General, Program Results, and Delay Assignment tabs. If the data is correct, select the ***General,*** and ***Facilities*** checkboxes on the General tab.

10. Complete the Advisory section of the Coversheet by selecting either ***Proposed*** or ***Actual***.

11. Modify the ***Respond By*** time if Proposed was selected.

12. Modify the ***Valid Until*** time if Proposed was selected.

    Note: The program inherits its Causal Factor information from the original program you are revising but you can modify some or all of the information.

13. Select the ***Advisory*** checkbox.

14. Click **Send GDP**.

    The Program Manager opens and activates the Autosend process.

16: Issuing Compress Flight Program

At certain times during a GDP or AFP, you may find it favorable to run a Compression. The Compression function exchanges delayed flights with open slots to lessen the delay on flights. Compression attempts to fill all available slots with flights that, although delayed from their OETA or OENTRY, can still arrive at the available slot time. Compression tries to place flights from the same airline that created the slot in the new slot, however, if this is not possible, it uses other airlines' flights to fill the arrival slots. A pure Compression can be beneficial to the performance of a program when there is limited pop-up traffic and non-compliance issues with flights in the stack hours.

In addition to the traditional Compression program, FSM has a background process called Adaptive Compression that automatically runs for GDPs and AFPs. Adaptive compression helps ensure that all slots are used. A background process at the ETMS Hub monitors a GDP or AFP for open slots, identifies those that are in danger of going unused, moves other flights earlier to take advantage of those slots, and consequently moves the open slots later. The benefits are higher utilization of the airport capacity, reduced delay for the flights operating to that airport, and reduced workload for the ATCSCC specialist.

The adaptive compression process:

- Identifies the slots that should be compressed
- Determines the flights that should be moved to use the slot
- Updates the databases with the changes
- Sends notification to the flight operators about the changes

For more information on Adaptive Compression, please review the ETMS Reference Manual.

The ETMS Hub performs Adaptive Compression processing and has little effect on FSM other than to:

- Display the status of whether Adaptive Compression is on or off for an Element.
- Provide a method through which an EDCT command can be sent from FSM to turn Adaptive Compression on or off.

Adaptive Compression in FSM

When there is an AFP or GDP in place, the subs indicator located on the FSM Control Panel and the GDT Setup panel indicates the status of Adaptive Compression. If Adaptive Compression is ON the display reads ADPT ON. If Adaptive Compression is OFF the display reads ADPT OFF. The status of Adaptive Compression is displayed in the Substitution Flag Block. Select **Alerts > SCS Bridge** for the selected Element and the Substitution Flag Block opens (See Figure 16 - 1).

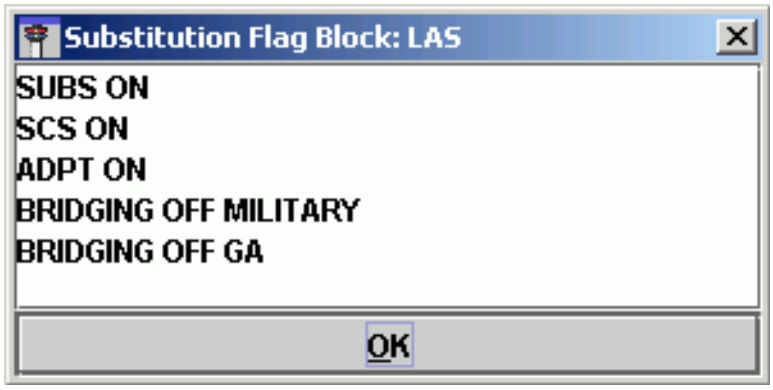


Figure 16 - 1 : Substitution Block

Note: If there is no AFP/GDP in place, the Subs indicator does not display any Adaptive Compression status.

Authorized FAA users will be able to turn Adaptive Compression on and off through EDCT commands. Select **ETMS Tools > EDCT Commands > AC ON/OFF** to turn Adaptive Compression at the ETMS Hub site on or off.

Suspending Airline Substitutions and Slot Credit Substitutions

Before issuing a Compression, you need to suspend, temporarily, the acceptance of airline substitutions and Slot Credit Substitutions (SCS) messages. From the FSM Control Panel, select the **ETMS Tools > EDCT Commands > EDCT Sub Off** option to turn substitutions off or when in GDT mode click the **SUB OFF** button from the GDT Setup component, as shown in Figure 16 - 2. The data set identifier is already entered in the EDCT SubOff dialog box when opened from the GDT Setup component, otherwise enter the data set ID and click **Send** to suspend substitutions for that airport. Airlines' substitution or SCS messages are no longer accepted after FSM sends the SubOff message to ETMS.

Ensure that the SUBS OFF indicator is displayed on the GDT Setup panel after you have sent the EDCT Sub Off message. If SUBS ON is displayed, click **Reload** to model the program with the most recent ADL.

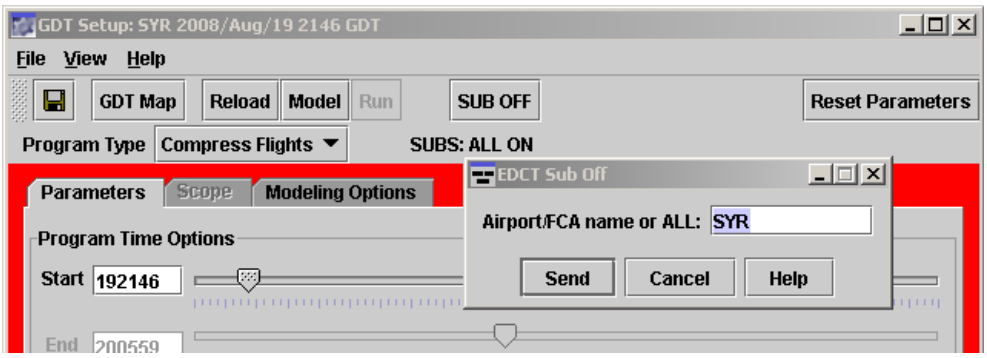


Figure 16 - 2 : Turn Subs OFF

Opening GDT Mode

Open Ground Delay Tools (GDT) mode by selecting a monitored data set and then clicking **GDT Mode** from the Control Panel. The four default GDT components automatically open for the selected airport. To perform the Compression function, select the **Program Type > Compress Flights** option from the FSM GDT Setup component.

When you select the ***Program Type*** Compress Flights, the Parameters and Modeling Options tabs are the only tabs available for entering parameters (see Figure 16 - 3).

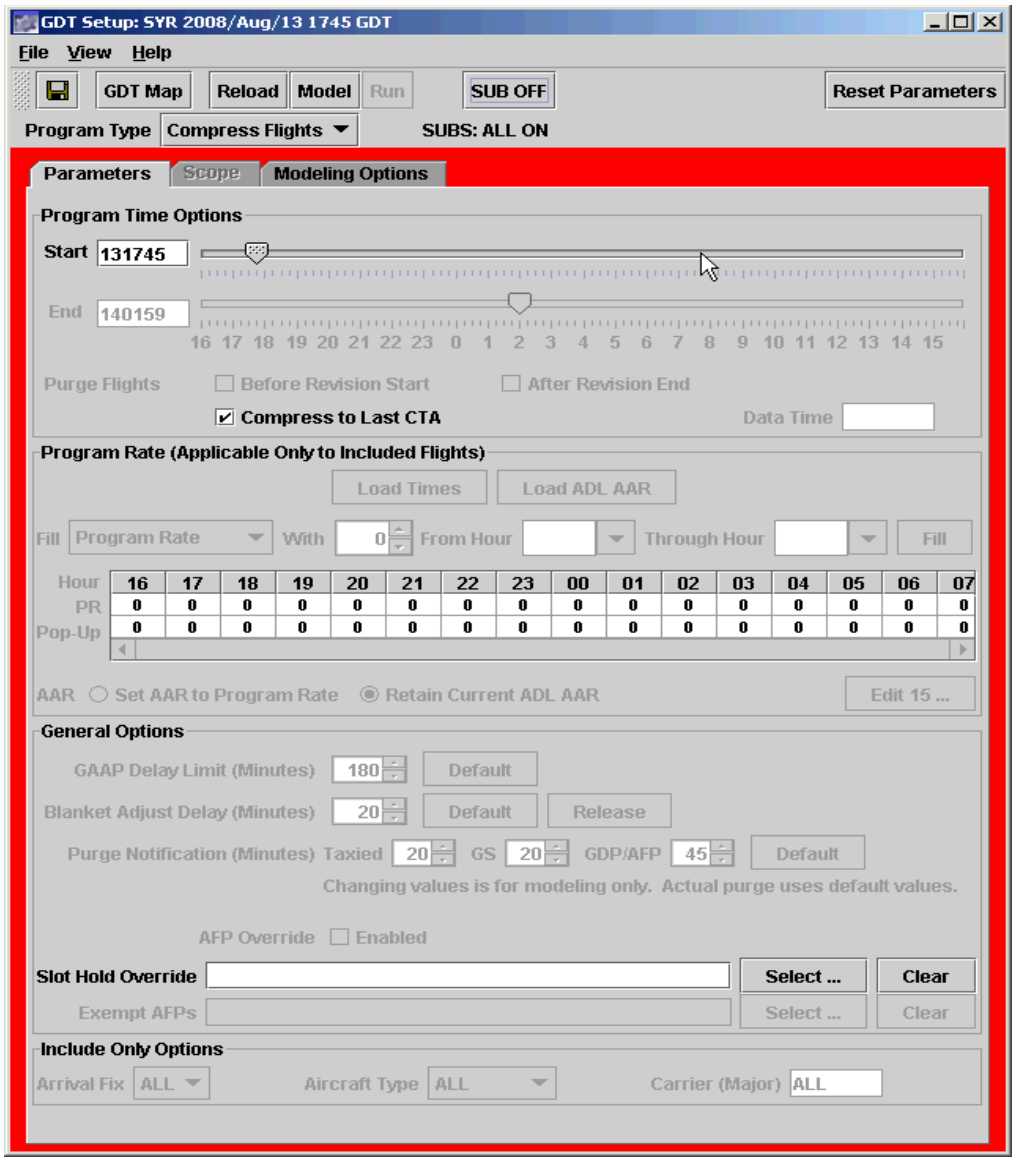


Figure 16 - 3 : Compress Flights Setup

Entering Parameters

On the Parameters tab, adjust the time range by clicking and dragging the pointers on the ***Start*** and ***End*** time lines or by entering a new time (ddhhmm) in the textboxes. When you select the ***Compress to Last CTA*** checkbox, the end time and duration fields are disabled. ***Compress to Last CTA*** indicates that FSM includes all flights with control times in the Compression, even flights past the End time of the program. When ***Compress to Last CTA*** is unchecked, FSM automatically fills in the current ***End*** time and duration of the program. The ***Slot Hold Override*** functionality is available during Compression. Click **Select** to review the slots held (see Figure 16 - 4).

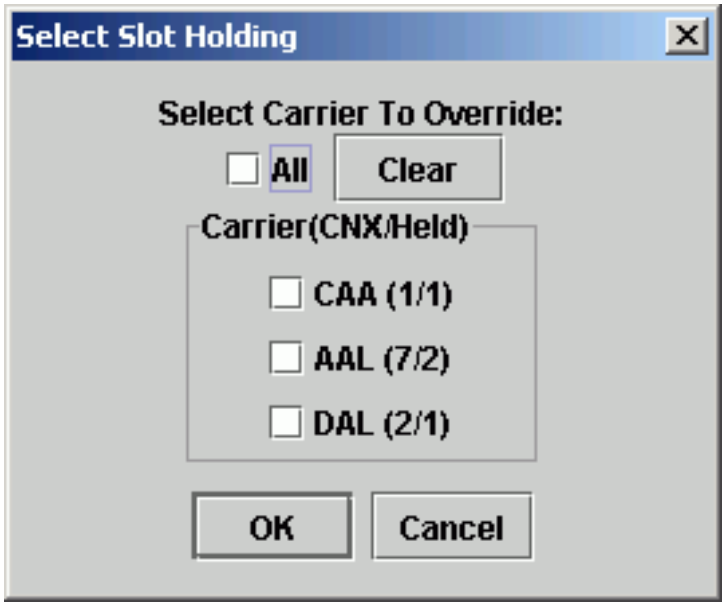


Figure 16 - 4 : Slot Hold Override

On the Modeling Options tab, you can adjust the ***Earliest Start Time***, ***Latest Start Time***, and ***Step Size*** parameters for the Power Run model statistics.

For more information on the GDT Setup Panel, see Chapter 3: GDT Setup Component.

Using Run to Generate the Compression Coversheet

Click **Run** after you turn subs off, complete your Compression setup, and model it from the GDT Setup component.

If substitutions are currently turned on for the selected data set, the Subs On warning dialog box is displayed before the coversheet opens (see Figure 16 - 5). The warning gives you the opportunity to turn off substitutions without having to reload.

Figure 16 - 5 : Subs On Warning

If you click **Ignore**, the Subs OFF warning closes and the coversheet opens. If you click **Turn Subs OFF**, the Subs OFF message is sent to the hubsite/TFM Processing Center (TPC), and an informational message is displayed (see Figure 16 - 6).

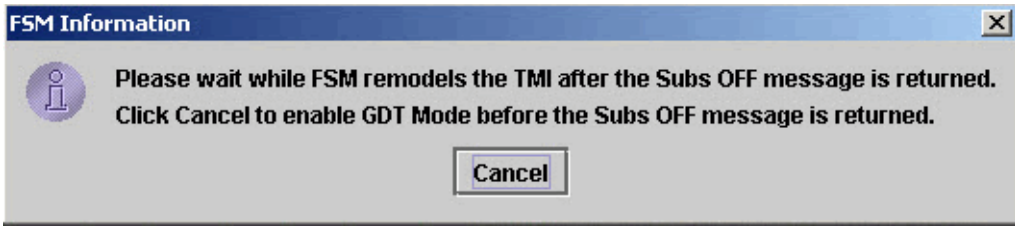


Figure 16 - 6 : FSM Modeling Information Message

Click **Cancel** to continue without waiting for FSM to automatically remodel the TMI. If you did not click **Cancel**, FSM remodels the TMI after the Subs Off message is returned by the TPC and the FSM Information message closes. ***SUBS: ALL OFF*** is then displayed on the GDT setup panel.

Clicking **Run** saves the Coversheet parameters to a file specified in FSM's configuration file and opens the Compression Coversheet. Clicking **Run** also generates three reports, the FADT, Analysis, and Carrier Statistics Reports, which you can view by selecting **View > FADT**, **Analysis Report**, or **Carrier Statistics** from the Coversheet menu. See Chapter 21: Understanding and Using FSM Reports for more information on reports.

The Compression Coversheet contains all the Compression parameters data. After reviewing the Compression parameters, program results, and completing the Advisory section, click **Send Compress Flights** to implement the Compression and send the Advisory (see Figure 16 - 7).

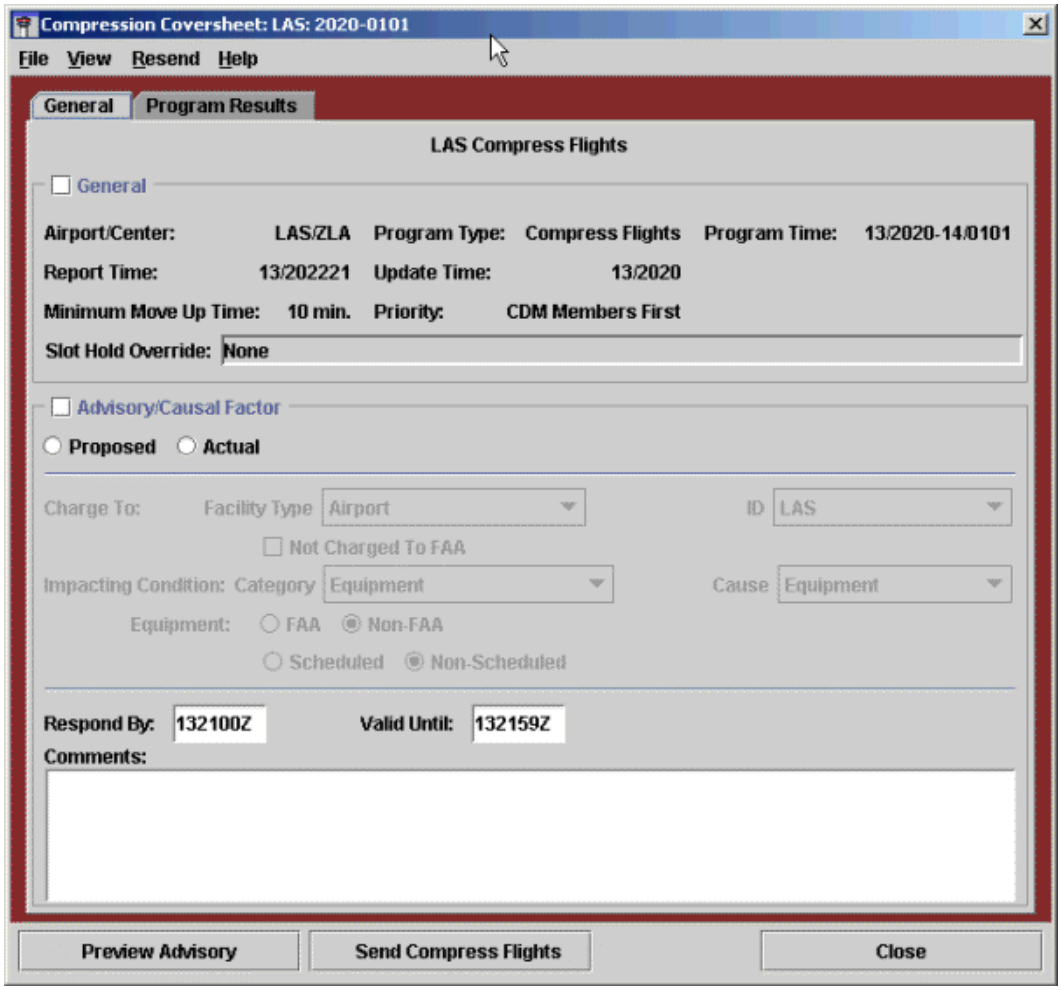


Figure 16 - 7 : Compression Coversheet

Reviewing Program Parameters

Reviewing the program parameters is important before issuing the Compress Flights. Ensure that the General and Program Results tabs on the Coversheet accurately reflect all of your inputs from the GDT Setup panel.

Creating the Advisory

Before sending a Compression, the Advisory section of the Coversheet must be completed. The ***Proposed*** and ***Actual*** radio buttons are left blank by default and you *must* select one or the other to proceed. The ***Respond By*** field is only available during a proposed event.

Place a checkmark next to each section of the Coversheet after you have reviewed the parameters, program results, and advisory information. To review the Advisory text before sending the event, click **Preview Advisory** located in the lower left-hand corner of the Coversheet. This opens the Compression Advisory in text format (see Figure 16 - 8).

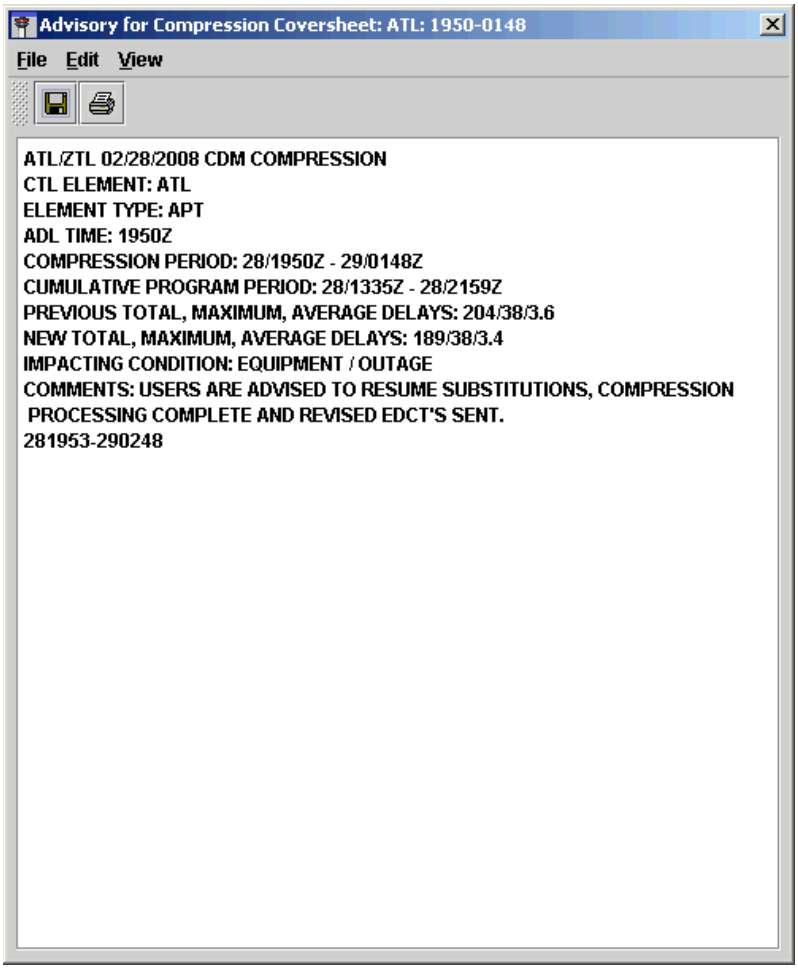


Figure 16 - 8 : Compression Advisory Preview

For more information about the Coversheet and Advisory component, see Chapter 3: GDT Coversheet.

Issuing the Compress Flight Program

To send the Compression and Advisory click **Send Compress Flights** located at the bottom of the Coversheet. When ***Actual*** is selected in the Advisory section of the Coversheet, the FSM client interfaces with ETMS Autosend Server and sends the web coversheet XML file to NTML and the FADT file to the hub site. The Autosend Server also invokes ETMS E-mail and sends the Advisory to the specified address list. ETMS E-mail puts the ATCSCC position number and phone number in the Advisory signature line.

When ***Proposed*** is selected in the Advisory section of the Coversheet, only the proposed parameters and Advisory is sent. No new EDCTs are issued for a proposed Compression.

When you click **Send Compress Flights** the Program Manager window opens and displays the Autosend progress.

If SUBS are ON when you click **Send Compressed Flights** from a coversheet during a compression, blanket, revision, or extension, you receive the following FSM warning

message (see Figure 16 - 9). This message is displayed only if you chose to ignore the previously displayed Subs On Warning. Once the coversheet is opened, you must reload and remodel the program in order to turn subs off.

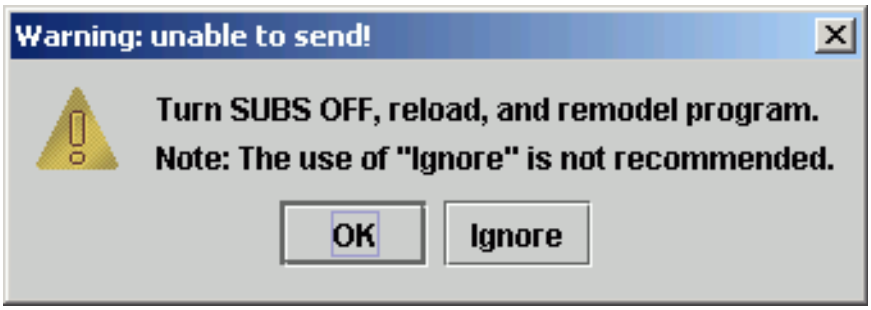


Figure 16 - 9 : SUBS OFF Warning

Click **OK** to clear the FSM warning and then turn SUBS OFF before reloading and remodeling the program. Wait for FSM to reflect SUBS OFF successfully before clicking **Send Compressed Flights** again.

Although it is recommended that you turn SUBS OFF during any revision, you can bypass the warning message by clicking **Ignore** on the message box. FSM automatically continues with the Autosend process even though SUBS are ON.

When you click **Close**, FSM takes no action from the Compression Coversheet.

GAAP GDP - Compress Slots Program Type

When a GAAP program is in place, FSM now provides the ability to adjust the Unassigned Slots in the GAAP program without reallocating EDCTs to flights currently arriving at the data set. Users can compress Unassigned Slots at GAAP programs by using the new Program Type, Compress Slots.

The Compress Slots program type offers no program options in the GDT Setup panel, but when modeled, FSM will recalculate the Unassigned Slots based on the program rate and the flights' current positions based on their ETA (airport) or ENTRY (airspace). This ensures that pop-up traffic is assigned to Unassigned Slots that are appropriately based on the current capacity vs. demand at the data set.

When sending a Compress Slots program, no advisory is sent to users because flights' EDCTs are not affected by this program.

Compressing Unassigned Slots

A specialist may not want to adjust flights' current EDCTs within a GAAP program, but would like to adjust the Unassigned Slots. In Figure 16 - 10, a Ground Stop has been put into place over a GAAP GDP. It is obvious that pop-up flights should not be assigned to the Unassigned Slots in the 2100 hour and the 2200 hour slots should be reserved for spill over flights from the 2100.

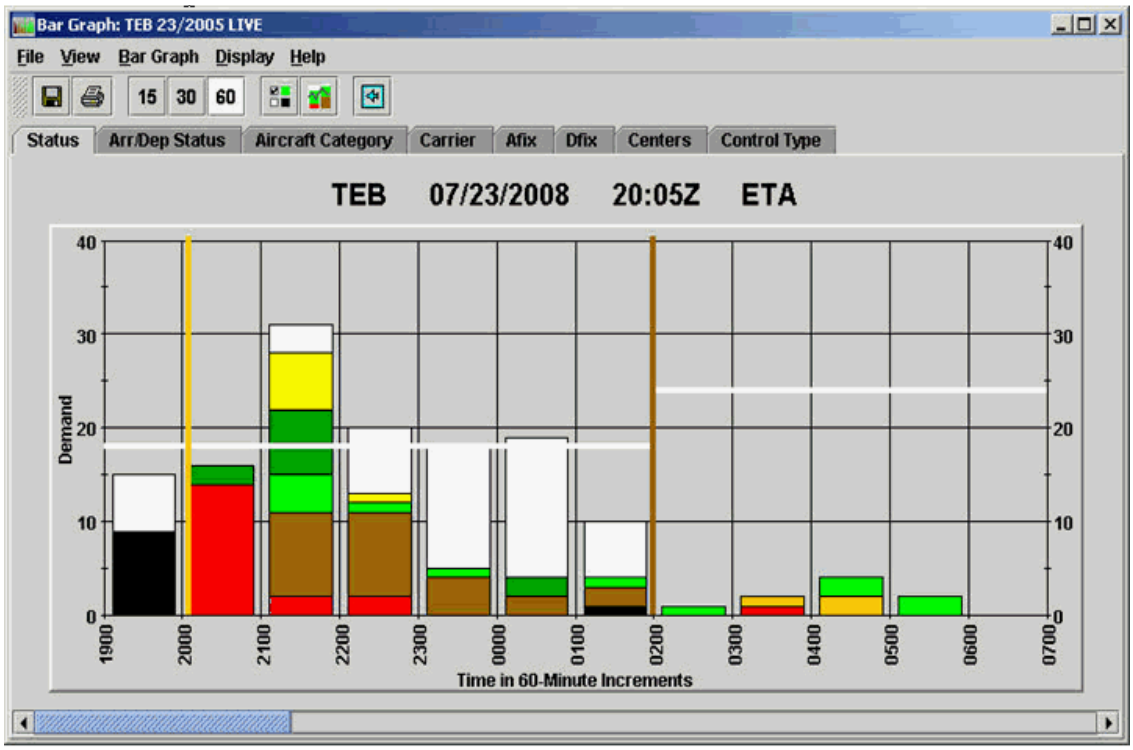


Figure 16 - 10 : TEB GAAP GDP

1. Click **GDT Mode** on the FSM Control Panel.

2. From the GDT Setup component select ***Compress Slots*** from the Program Type dropdown. All tabs in the GDT Setup are disabled when Compress Slots is selected.
3. Click **Reload** or **Model** to model the Compress Slots program.
4. View the modeled results in the GDT Bar Graph (see Figure 16 - 11).

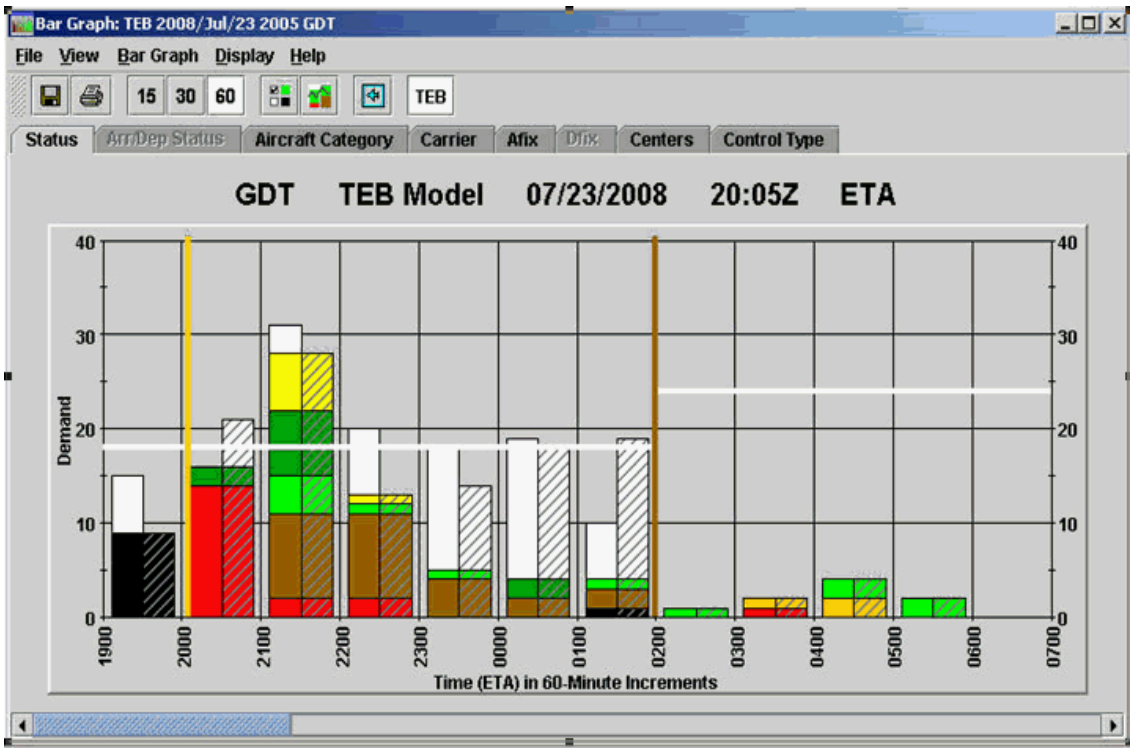


Figure 16 - 11 : Compress Slots Modeled

In the modeled results there is no change to flights currently arriving to the data set, but the Unassigned Slots have been reallocated based on the current demand vs. capacity. Note there are no longer any Unassigned Slots in the 2100 or 2200 hours.

5. If you are satisfied with the modeled results, click **Run**. The Compress Slots Coversheet opens with a white border to indicate this is a Compress Slots program (see Figure 16 - 12).

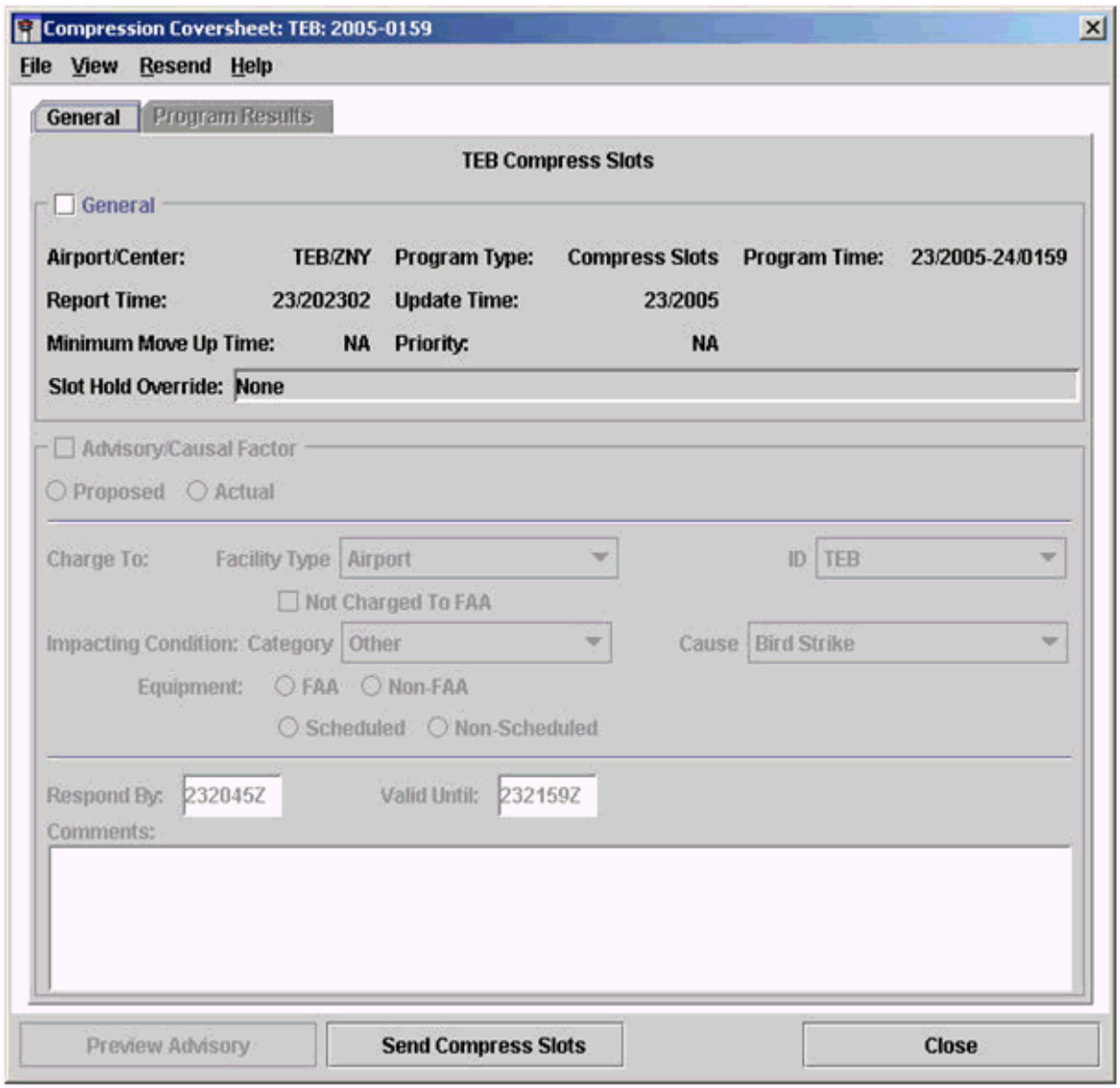


Figure 16 - 12 : Compress Slots Coversheet

6. Select the ***General*** checkbox. The Advisory/Causal Factor section of the Coversheet is disabled because no Advisory is sent for a Compress Slot program.
7. Click **Send Compress Slots** to replace the current pool of Unassigned Slots with the newly created Unassigned Slot list.

17: Deciding When to Use a Compression or Revision

After the FAA issues an initial GDP or AFP, the data set's demand and/or capacity fluctuate and a Compression or Revision may be necessary to adjust the traffic flow. Monitor the data set's delivery (see Chapter 12: Monitoring Program Delivery) to determine if demand continues to exceed capacity and decide whether a Compression or Revision may be necessary.

Deciding When to Revise or Compress a GDP

Use a Revision when you want to change the program parameters, such as Start or End time, Program Rate, or scope. A Revision reallocates flights to slots based on the entered parameters and sends new EDCTs to flights arriving to the airport within the revision's time parameters. If the scope of the GDP is reduced, newly exempted flights still receive new EDCTs and are subject to departure compliance.

In cases where you do not want to modify the GDP parameters, either a Revision or Compression can be considered. If a GDP is over delivering and/or there are multiple pop-up flights, then a Revision may be the best option. To view the number of pop-up flights in a GDP go to the Control Type tab on the Bar Graph or Time Line. Any flight with a control type (CTL_TYPE) of DAS is a pop-up flight and the color orange on the Control Type tab. A Revision captures the pop-up flights in the system and assigns them new slots based on the airport's capacity. A Revision can reduce or increase the average delay of the program depending on the airport's demand vs. capacity at the time of the Revision.

If a GDP is under delivering, you are not concerned about the extra demand due to pop-ups, and there are a large number of cancelled or delayed flights with open slots ahead of operational flights. For example, if there are numerous cancelled flights before operational flights that are in the stack hour, a Compression could move the operational flights into the cancelled flights slots if Compress to Last CTA is checked. The Stack hours are the stack of flights after the end time of the GDP. You can easily identify the number of cancelled flights in a stack hour by looking at the FSM Bar Graph. Click the **Cancellations** shortcut button on the Bar Graph to view all cancelled flights. Rolling your mouse over the cyan colored flights displays a tool tip with the number of cancelled flights for that hour. Figure 17 - 1 illustrates numerous cancelled flights ahead of operational flights in the stack hours.

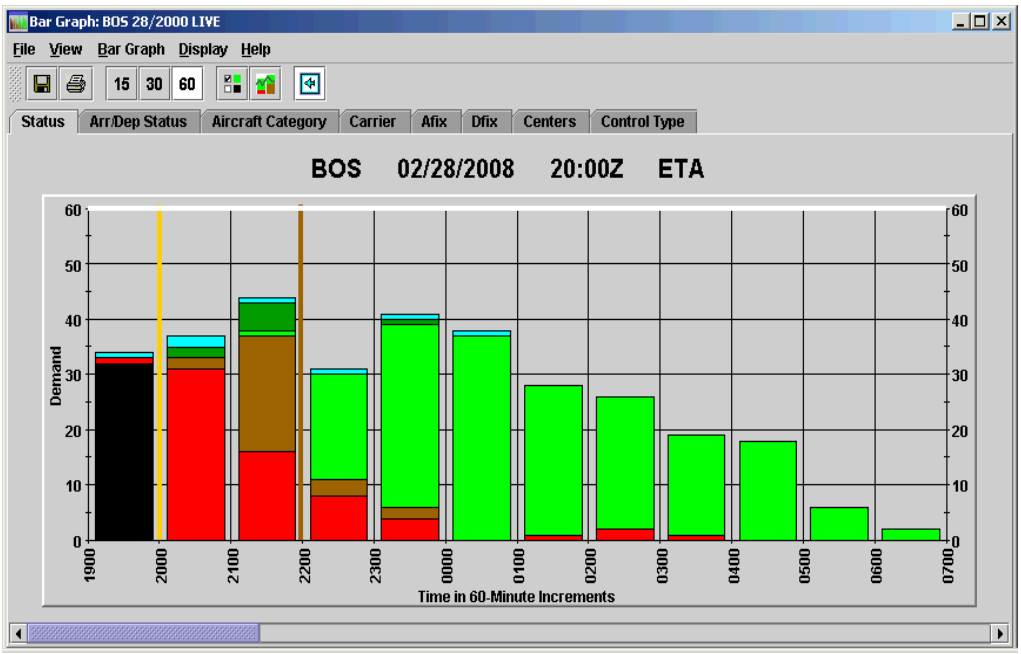


Figure 17 - 1 : Stacked Hours

You can also get a quick visual idea of where the cancelled flights (squares) and delayed flights (triangles) are from the FSM Time Line. If a large number of squares are displayed throughout the program time, issuing a compression is helpful for reallocating operational flights to the slots held by the cancelled flights. A revision will also do the same, but will also assign pop-up flights to arrival slots. A compression ignores all pop-up flights and only compression flights that were previously in the GDP.

Running a Compression with the ***Compress to Last CTA*** checkbox selected on the Parameters tab of the GDT Setup panel compresses every flight that has a control time, even if the flight is past the End time of the GDP (see Figure 17 - 2). Deselecting ***Compress to Last CTA*** compresses flights that have a CTA before the End time of the program. It is advised to use the ***Compress to Last CTA*** option when a GDP extension is not expected.

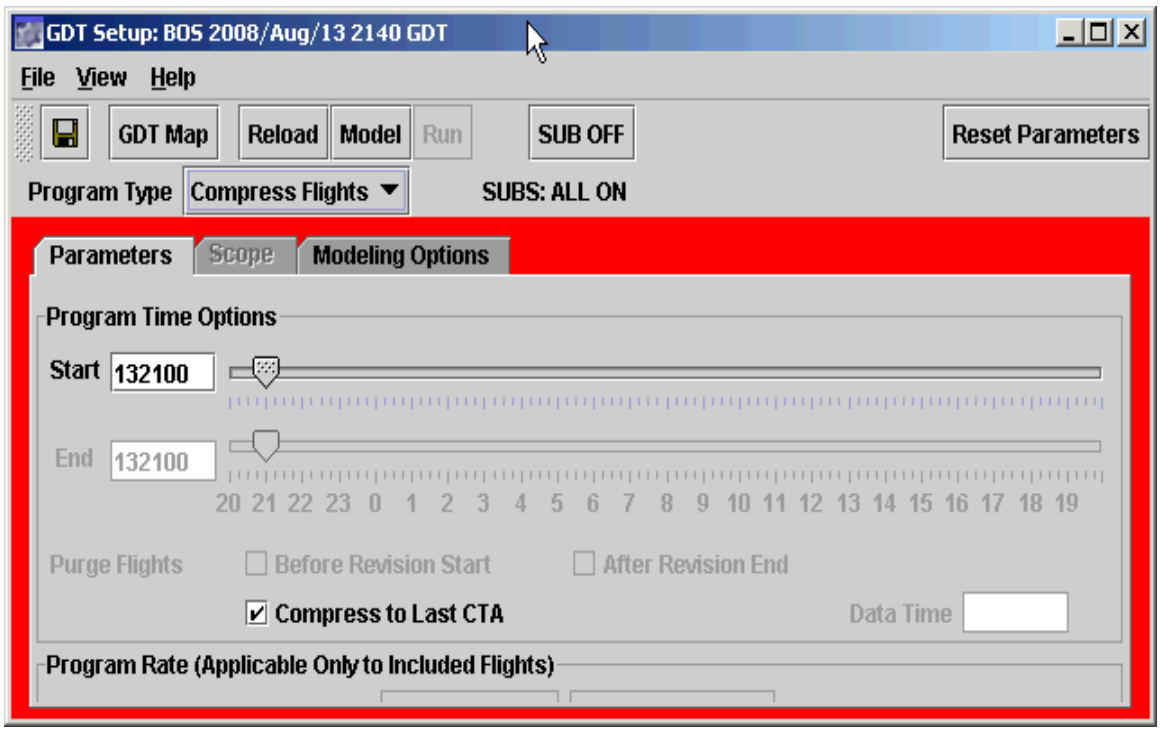


Figure 17 - 2 : Compress to Last CTA

Compressions can decrease delay on operational flights and move cancelled flights to the end of the program. Compression can reduce, but cannot increase, both the total delay and average delay of a GDP. If there are no flights available to move into earlier times, a Compression does not yield any change. For more information on Issuing a Compression, see Chapter 16: Issuing Compress Flight Program.

> **Note:** Flights can receive more delay during a Compression or Revision due to Airline submitted times. For example, if a flight's earliest departure/arrival times submitted are later than its current control times, the flight can receive a later time if there is another available flight to move up into the delayed flight's slot.

Deciding When to Revise or Compress an AFP

Use a Revision when you want to change the program parameters, such as Start or End time, AAR, or scope. A Revision will reallocate flights to slots based on the entered parameters and sends new EDCTs to flights arriving to the FCA within the revision parameters. If the scope of the AFP is reduced, newly exempted flights still receive new EDCTs and are subject to departure compliance.

In cases where you do not want to modify the AFP parameters, either a Revision or Compression can be considered. If an AFP is over delivering due to pop-up traffic and/or if multiple Drop Out flights are causing the program to under deliver during all or part of the program, a revision is the best option to reallocate flights to slots and smooth out the

FCA demand. To view the number of pop-up flights in the FCA go to the Control Type tab on the Bar Graph or Time Line. Any flight with a control type (CTL_TYPE) of DAS is a pop-up flight and colored orange on the Control Type tab. The number of drop out flights are displayed in salmon under the Time Line's CNX header (see Figure 17 - 3).

A Revision captures the pop-up flights in the system, creates slots based on the Program Rate, and allocates all known flights to slots. A Revision can reduce or increase the average delay of the program depending on the FCA's demand vs. capacity.

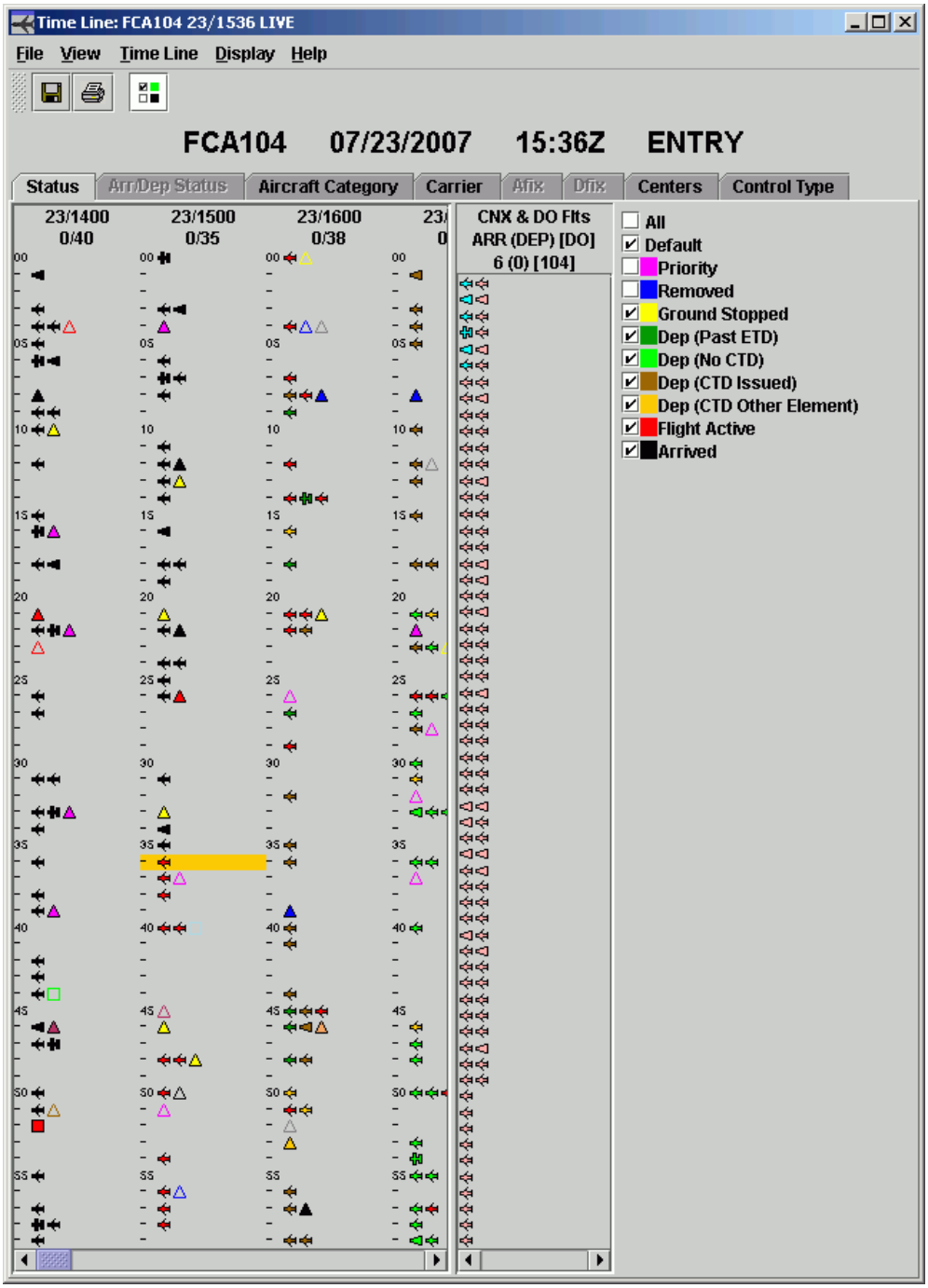


Figure 17 - 3 : Multiple Pop-up and Drop Out Flights

Note: The guidelines mentioned above are not procedures.

Deciding When to Compress a GAAP

When a GAAP program is in place, you can adjust the Unassigned Slots in the GAAP program without reallocating EDCTs to flights currently arriving at the data set. Compress Unassigned Slots at GAAP programs by selecting ***Program Type*** Compress Slots.

The Compress Slots program type offers no program options in the GDT Setup panel, but when modeled, FSM recalculates the Unassigned Slots based on the program rate and the flights' current positions based on their ETA (airport) or ENTRY (airspace). This ensures that pop-up traffic is assigned to Unassigned Slots that are appropriately based on the current capacity vs. demand at the data set.

Use the Compress Slots program when current demand does not exceed capacity and you want to realign unassigned slots around current demand. For example, when you do not want to adjust flights' current EDCTs within a GAAP program, but would like to adjust the Unassigned Slots. In the modeled results there is no change to flights currently arriving to the data set, but the Unassigned Slots have been reallocated based on the current demand vs. capacity (see Figure 17 - 4).

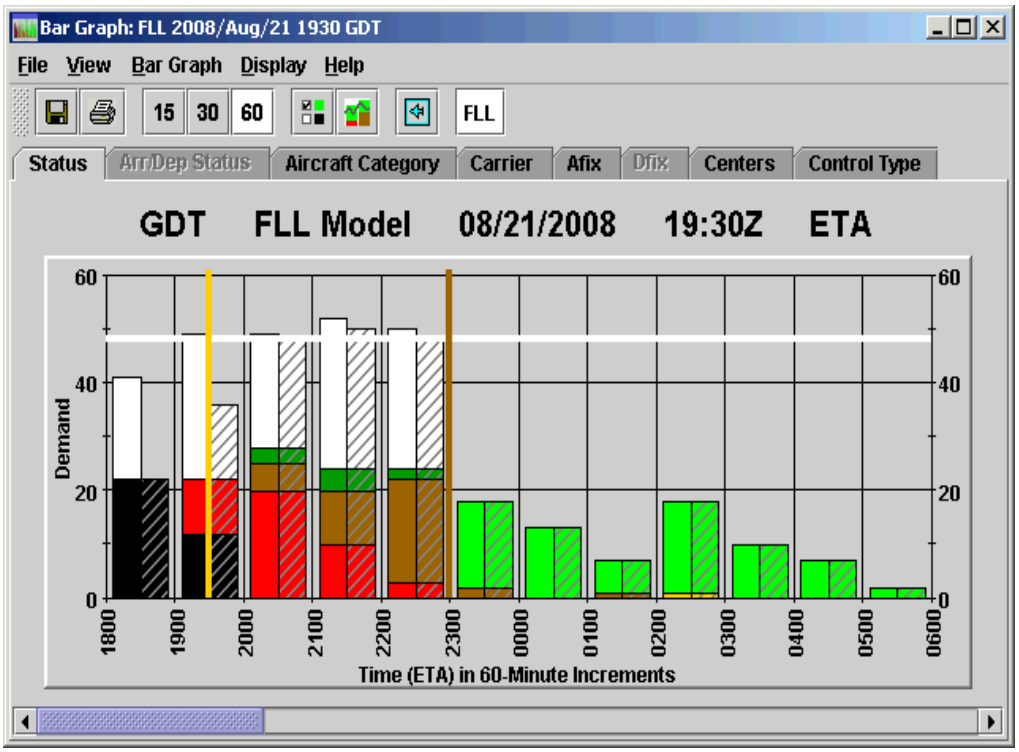


Figure 17 - 4 : Compressed Slots on GDP GAAP

Note that when sending a Compress Slots program, no advisory is sent to users because flights' EDCTs are not affected by this program.

18: Airborne Holding and Blanket Programs

Using Airborne Holding

Traffic management specialists use Airborne Holding to determine the necessity of a GDP. Airborne Holding is not an option for Airspace data sets. In certain situations, putting delay on flights en route may be a better option than delaying flights on the ground. The airborne holding algorithm in FSM produces the amount of expected airborne holding delay, defined as ASLOT - ETA, which would result from running a program.

To run the Airborne Holding algorithm, select the Program Type Airborne Holding option from the GDT Setup component. Note that only the Parameters and Modeling Option tabs are enabled. Use the Parameters tab to complete the parameters of the air traffic scenario you want to model. The only input parameters for Airborne Holding are the Program Time Options (Start and End times) and the Program Rate (PR and Pop-up).

Parameters Tab Modifications

In the Program Time Options section, specify the start and end times of the program. In the Program Rate section, enter the reduced Program Rate for the airport on which you want to base your Airborne Holding Model. Note that the General Options and Include Only Options sections are disabled, as shown in Figure 18 - 1.

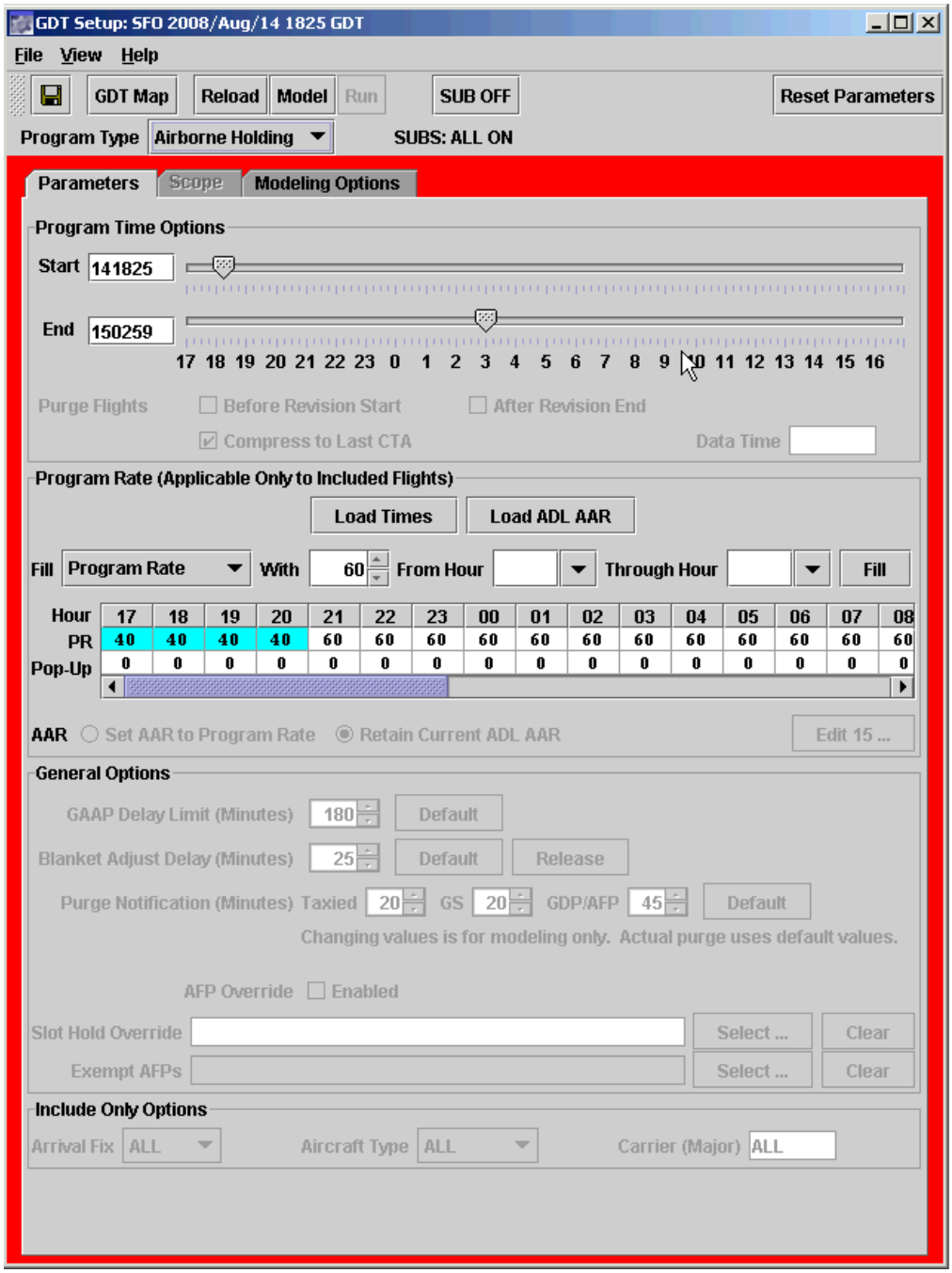


Figure 18 - 1 : Airborne Holding Parameters Tab

For more information on the Parameters tab, see Chapter 3: Understanding Components.

Airborne Holding Reports

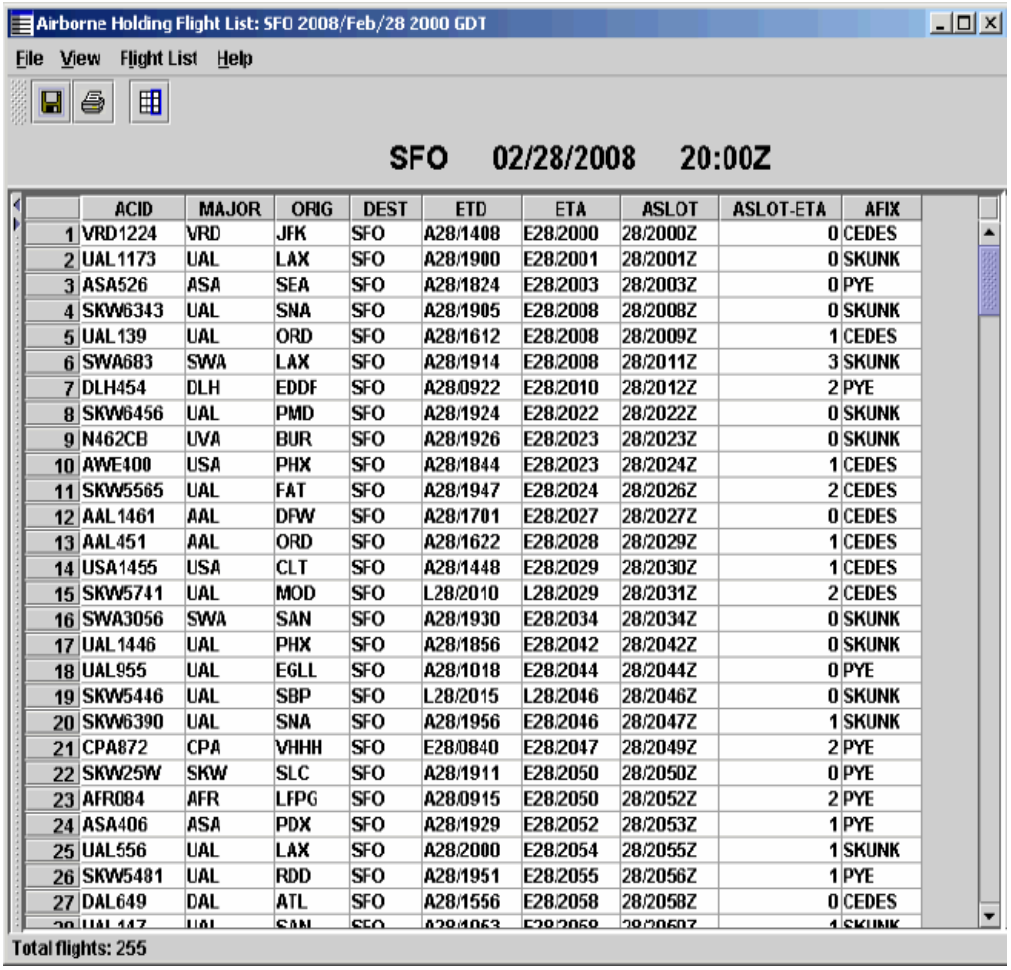
Click **Model** or **Reload** if available and then **Run**. Running the Airborne Holding algorithm generates two reports: Airborne Holding Flight List and Carrier Statistics. The Airborne Holding Flight List and Carrier Statistics are displayed automatically when the ***Program Type*** Airborne Holding is **Run.**

Airborne Holding Flight List

The Flight List contains information for all flights that meet the operation parameters. The Flight List includes ***ASLOT***, which is the pseudo arrival slot the flights use, and ***ASLOT – ETA***, which is the amount of expected airborne holding delay. The Flight List in Figure 18 - 2 is sorted by ***ASLOT - ETA*** in descending order. For more information on the Flight List Format, see Chapter 6: Flight List Format.

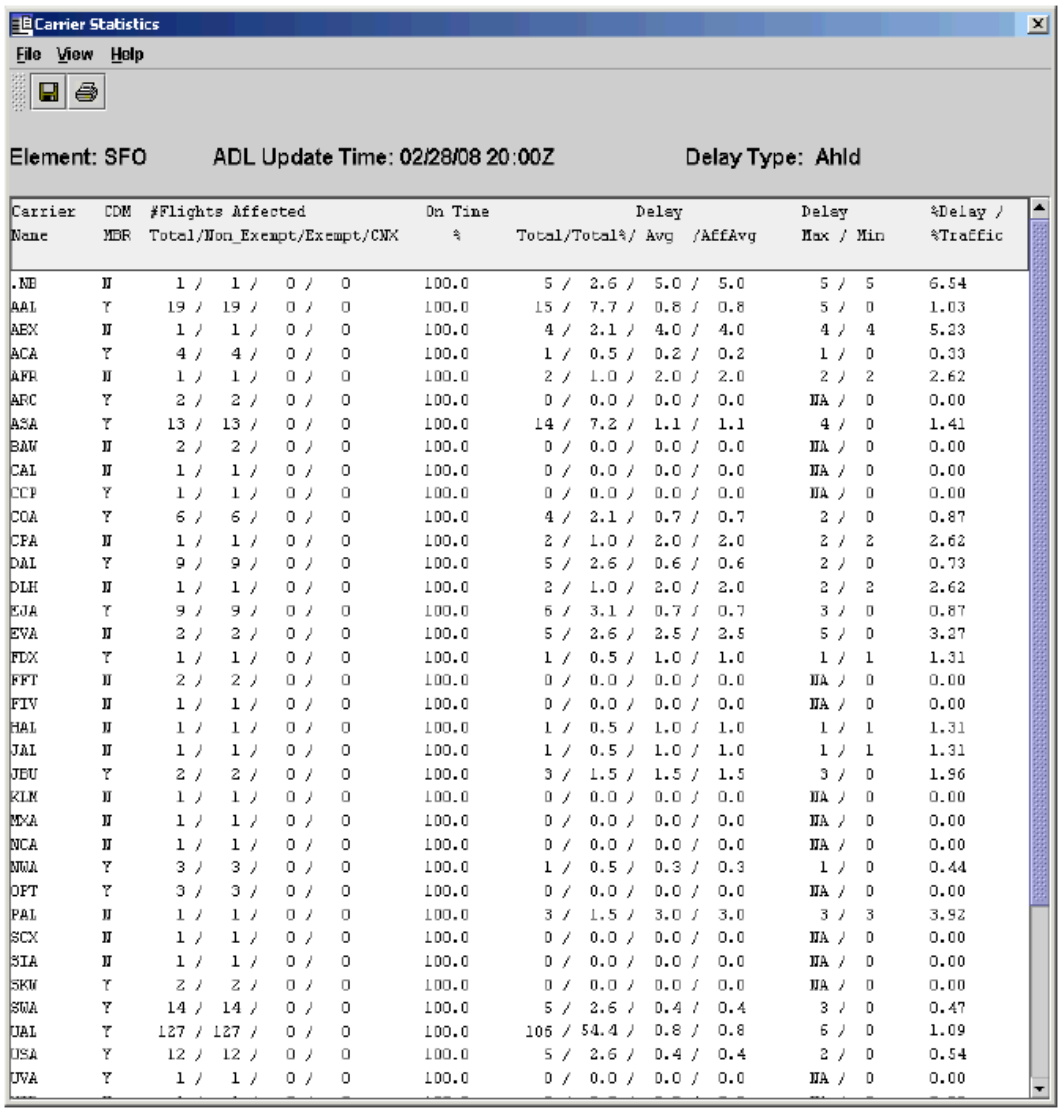
Figure 18 - 2 : Airborne Holding Flight List

Carrier Statistics



	ACID	MAJOR	ORIG	DEST	ETD	ETA	ASLOT	ASLOT-ETA	AFIX
1	VRD1224	VRD	JFK	SFO	A28/1408	E28/2000	28/2000Z	0	CEDES
2	UAL1173	UAL	LAX	SFO	A28/1900	E28/2001	28/2001Z	0	SKUNK
3	ASA526	ASA	SEA	SFO	A28/1824	E28/2003	28/2003Z	0	PYE
4	SKW6343	UAL	SNA	SFO	A28/1905	E28/2008	28/2008Z	0	SKUNK
5	UAL139	UAL	ORD	SFO	A28/1612	E28/2008	28/2009Z	1	CEDES
6	SWA683	SWA	LAX	SFO	A28/1914	E28/2008	28/2011Z	3	SKUNK
7	DLH454	DLH	EDDF	SFO	A28/0922	E28/2010	28/2012Z	2	PYE
8	SKW6456	UAL	PMD	SFO	A28/1924	E28/2022	28/2022Z	0	SKUNK
9	N462CB	UVA	BUR	SFO	A28/1926	E28/2023	28/2023Z	0	SKUNK
10	AWE400	USA	PHX	SFO	A28/1844	E28/2023	28/2024Z	1	CEDES
11	SKW5565	UAL	FAT	SFO	A28/1947	E28/2024	28/2026Z	2	CEDES
12	AAL1461	AAL	DFW	SFO	A28/1701	E28/2027	28/2027Z	0	CEDES
13	AAL451	AAL	ORD	SFO	A28/1622	E28/2028	28/2029Z	1	CEDES
14	USA1455	USA	CLT	SFO	A28/1448	E28/2029	28/2030Z	1	CEDES
15	SKW5741	UAL	MOD	SFO	L28/2010	L28/2029	28/2031Z	2	CEDES
16	SWA3056	SWA	SAN	SFO	A28/1930	E28/2034	28/2034Z	0	SKUNK
17	UAL1446	UAL	PHX	SFO	A28/1856	E28/2042	28/2042Z	0	SKUNK
18	UAL955	UAL	EGLL	SFO	A28/1018	E28/2044	28/2044Z	0	PYE
19	SKW5446	UAL	SBP	SFO	L28/2015	L28/2046	28/2046Z	0	SKUNK
20	SKW6390	UAL	SNA	SFO	A28/1956	E28/2046	28/2047Z	1	SKUNK
21	CPA872	CPA	VHHH	SFO	E28/0840	E28/2047	28/2049Z	2	PYE
22	SKW25W	SKW	SLC	SFO	A28/1911	E28/2050	28/2050Z	0	PYE
23	AFR084	AFR	LFPG	SFO	A28/0915	E28/2050	28/2052Z	2	PYE
24	ASA406	ASA	PDX	SFO	A28/1929	E28/2052	28/2053Z	1	PYE
25	UAL556	UAL	LAX	SFO	A28/2000	E28/2054	28/2055Z	1	SKUNK
26	SKW5481	UAL	RDD	SFO	A28/1951	E28/2055	28/2056Z	1	PYE
27	DAL649	DAL	ATL	SFO	A28/1556	E28/2058	28/2058Z	0	CEDES
28	UAL147	UAL	SAN	SFO	A28/1953	E28/2059	28/2060Z	1	SKUNK

The Carrier Statistics report displays specific delay information for each carrier's flights, based on ETA after Airborne Holding. The Carrier Statistics report is arranged in several columns for easy access to important information. If the Average and Maximum delays are minimal for all carriers, then Airborne Holding could be a valid TMI option. The Carrier Statistics report opens automatically when you run the ***Program Type*** Airborne Holding, as shown in Figure 18 - 3.



Carrier Statistics

File View Help

Element: SFO ADL Update Time: 02/28/08 20:00Z Delay Type: Ahld

Carrier Name	CDM MBR	#Flights Affected Total/Non_Exempt/Exempt/CNX	On Time %	Delay Total/Total%/ Avg /AffAvg	Delay Max / Min	%Delay / %Traffic
.NB	N	1 / 1 / 0 / 0	100.0	5 / 2.6 / 5.0 / 5.0	5 / 5	6.54
AAL	Y	19 / 19 / 0 / 0	100.0	15 / 7.7 / 0.8 / 0.8	5 / 0	1.03
AEX	N	1 / 1 / 0 / 0	100.0	4 / 2.1 / 4.0 / 4.0	4 / 4	5.23
ACA	Y	4 / 4 / 0 / 0	100.0	1 / 0.5 / 0.2 / 0.2	1 / 0	0.33
AFR	N	1 / 1 / 0 / 0	100.0	2 / 1.0 / 2.0 / 2.0	2 / 2	2.62
ARC	Y	2 / 2 / 0 / 0	100.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
ASA	Y	13 / 13 / 0 / 0	100.0	14 / 7.2 / 1.1 / 1.1	4 / 0	1.41
BAW	N	2 / 2 / 0 / 0	100.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
CAL	N	1 / 1 / 0 / 0	100.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
CCP	Y	1 / 1 / 0 / 0	100.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
COA	Y	6 / 6 / 0 / 0	100.0	4 / 2.1 / 0.7 / 0.7	2 / 0	0.87
CPA	N	1 / 1 / 0 / 0	100.0	2 / 1.0 / 2.0 / 2.0	2 / 2	2.62
DAL	Y	9 / 9 / 0 / 0	100.0	5 / 2.6 / 0.6 / 0.6	2 / 0	0.73
DLH	N	1 / 1 / 0 / 0	100.0	2 / 1.0 / 2.0 / 2.0	2 / 2	2.62
EJA	Y	9 / 9 / 0 / 0	100.0	6 / 3.1 / 0.7 / 0.7	3 / 0	0.87
EVA	N	2 / 2 / 0 / 0	100.0	5 / 2.6 / 2.5 / 2.5	5 / 0	3.27
FDX	Y	1 / 1 / 0 / 0	100.0	1 / 0.5 / 1.0 / 1.0	1 / 1	1.31
FFT	N	2 / 2 / 0 / 0	100.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
FIV	N	1 / 1 / 0 / 0	100.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
HAL	N	1 / 1 / 0 / 0	100.0	1 / 0.5 / 1.0 / 1.0	1 / 1	1.31
JAI	N	1 / 1 / 0 / 0	100.0	1 / 0.5 / 1.0 / 1.0	1 / 1	1.31
JBU	Y	2 / 2 / 0 / 0	100.0	3 / 1.5 / 1.5 / 1.5	3 / 0	1.96
KLM	N	1 / 1 / 0 / 0	100.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
MXA	N	1 / 1 / 0 / 0	100.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
NCA	N	1 / 1 / 0 / 0	100.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
NWA	Y	3 / 3 / 0 / 0	100.0	1 / 0.5 / 0.3 / 0.3	1 / 0	0.44
OPT	Y	3 / 3 / 0 / 0	100.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
PAL	N	1 / 1 / 0 / 0	100.0	3 / 1.5 / 3.0 / 3.0	3 / 3	3.92
SCX	N	1 / 1 / 0 / 0	100.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
SIA	N	1 / 1 / 0 / 0	100.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
SKW	Y	2 / 2 / 0 / 0	100.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
SWA	Y	14 / 14 / 0 / 0	100.0	5 / 2.6 / 0.4 / 0.4	3 / 0	0.47
UAL	Y	127 / 127 / 0 / 0	100.0	106 / 54.4 / 0.8 / 0.8	6 / 0	1.09
USA	Y	12 / 12 / 0 / 0	100.0	5 / 2.6 / 0.4 / 0.4	2 / 0	0.54
UVA	Y	1 / 1 / 0 / 0	100.0	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00

Figure 18 - 3 : Airborne Holding Carrier Statistics

For more information on the Carrier Statistics report, see Chapter 21: Carrier Statistics Report.

Using a Blanket Program

You can use the Blanket program to revise any GDP. The Blanket ***Program Type*** is not an option for Airspace data sets. Before you revise, ensure you have the most current ADL and weather information. From the Control Panel, select **ETMS Tools > ADL Request** or **Weather Request**. For more information, see Chapter 15: Revising/Extending a Ground Delay Program or Airspace Flow Program. Use the Blanket program to add or subtract a fixed number of minutes to or from an FAA-imposed delay. Do not use Blanket in conjunction with a GS. You should use a Blanket program only if you do not need to adjust the airport's AAR.

Select ***Program Type*** of Blanket from the GDT Setup panel's Parameters tab, as shown in Figure 18 - 4. Each ground-delayed flight has an associated slot time. Use this IGTA-based slot time to determine whether to include a flight in the Blanket program. The slot times of included flights are adjusted by the minutes of delay entered in the ***Blanket Adjust Delay (Minutes)*** field. Should the airline-delayed flight's position be earlier than the new slot time, the program moves the airline-delayed flight to the newly assigned slot time. The program moves the open slots due to the delay and cancellation accordingly.

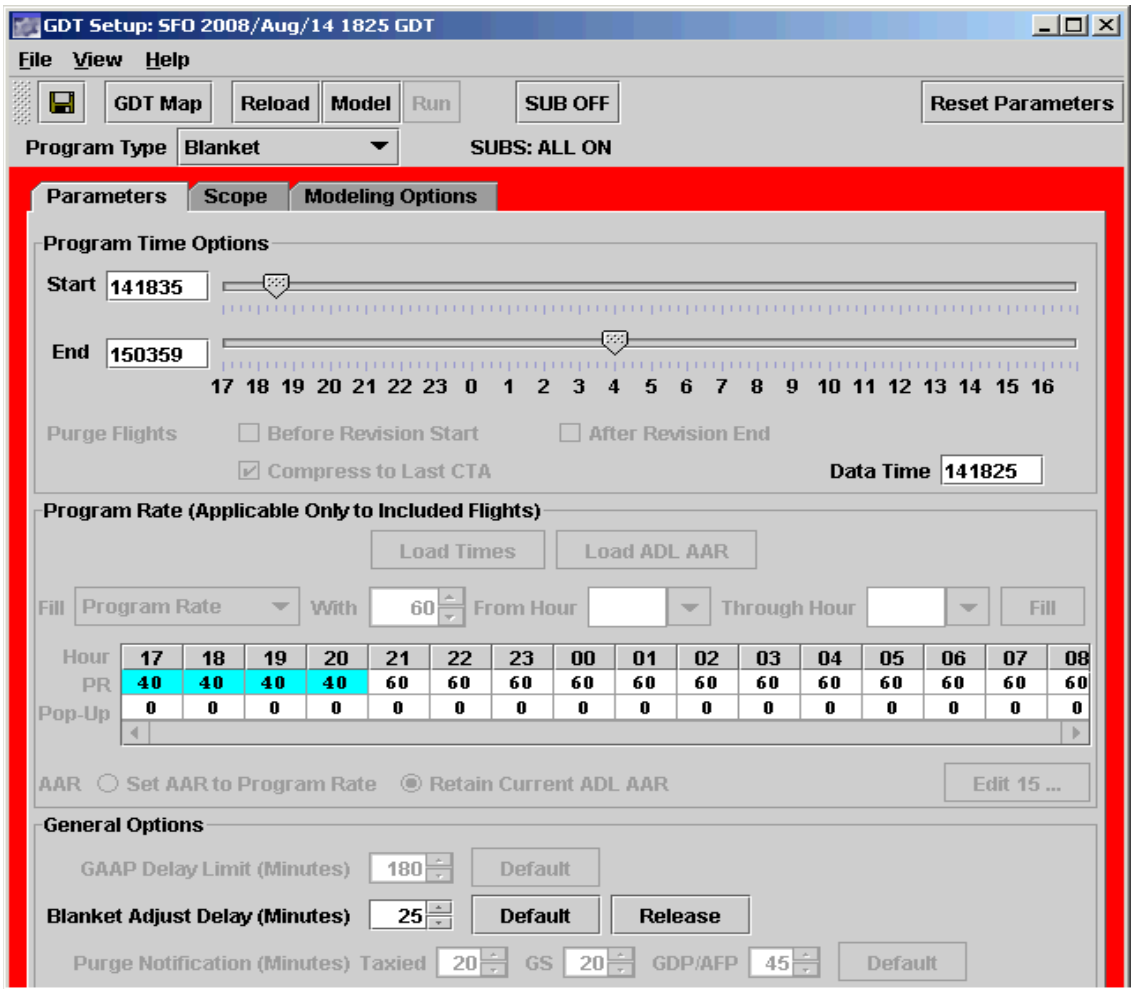


Figure 18 - 4 : Blanket Delay Program Type

When you use the Blanket Program, the Parameters and Modeling Options tabs are available for entering parameters. The tabs are almost identical to other programs with the exception of the additional ***Blanket Adjust Delay*** feature on the Parameters tab.

For more information on the GDT Setup component, see Chapter 3: GDT Setup Component.

Blanket Coversheet

Click **Run** after you complete and model your Blanket setup from the GDT Setup component. Clicking **Run** saves the parameters to a file specified in FSM's configuration file and opens the Blanket Coversheet (see Figure 18 - 5).

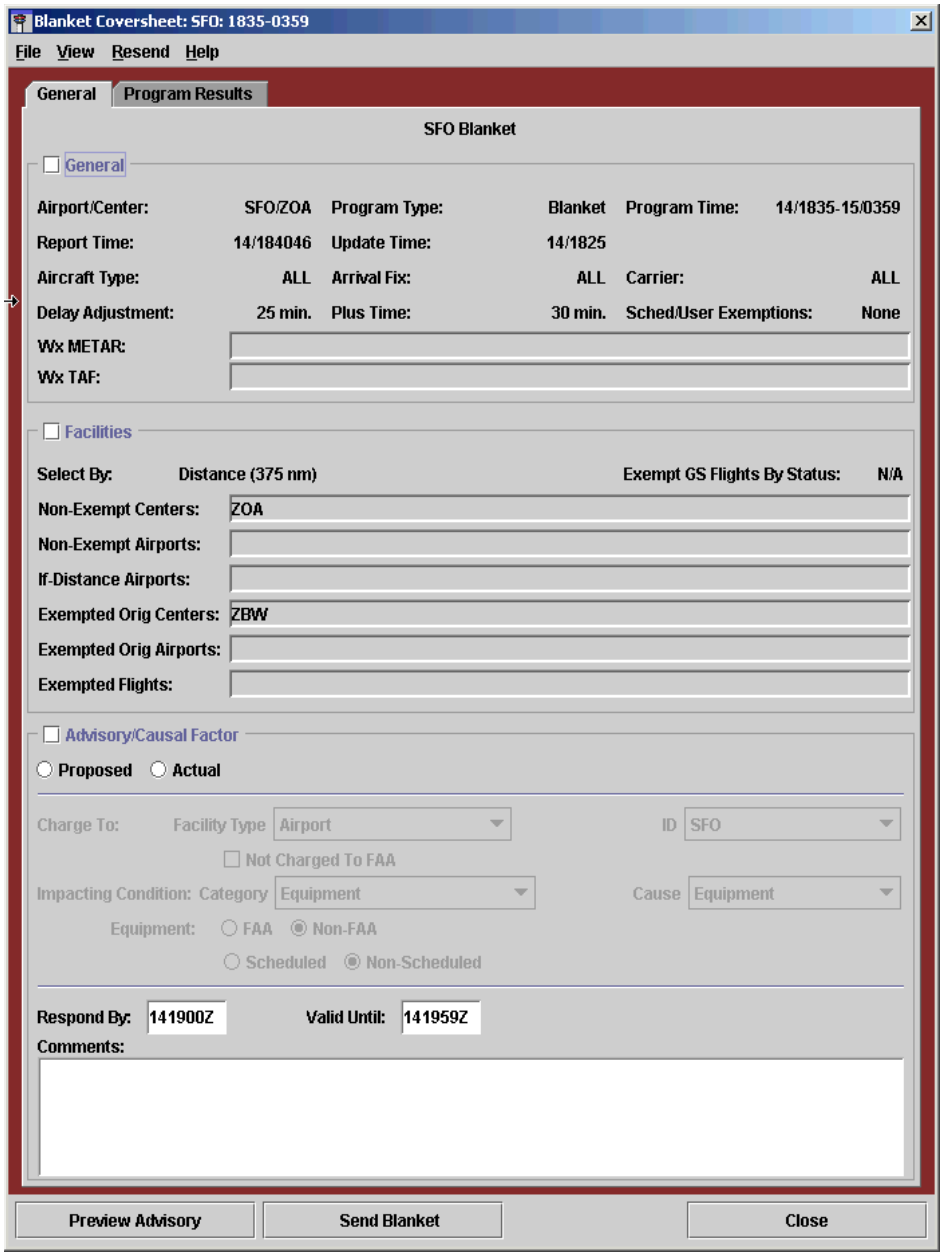


Figure 18 - 5 : Blanket Coversheet

Clicking **Run** also generates three reports, the FADT, Analysis, and Carrier Statistics Reports, which you can view by selecting **View > FADT**, **Analysis Report**, or **Carrier Statistics** from the Coversheet menu (see Figure 18 - 6). For more information on reports, see Chapter 21: Understanding and Using FSM Reports.

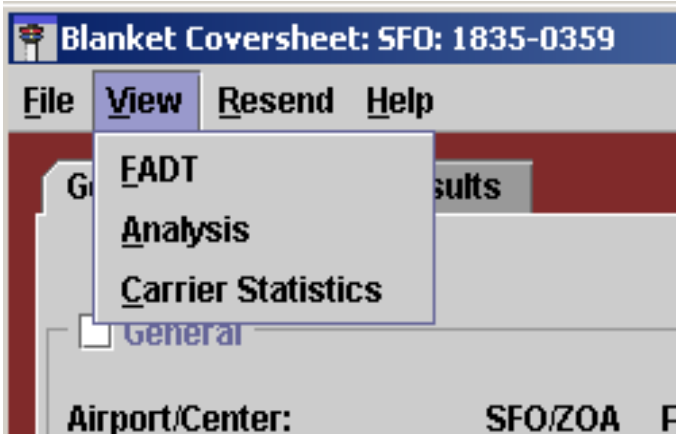


Figure 18 - 6 : View FADT, Analysis, and Carrier Statistics Reports

Sending a Proposed Blanket and Advisory

After setting the parameters of the Blanket and if the modeled results are favorable, it is recommended that you send out a Proposed Advisory. A Proposed Blanket is a revision suggested by the FAA, but not immediately implemented. Click **Run** from the GDT Setup panel to open the Blanket Coversheet. Review all parameters and place a checkmark next to each section of the Coversheet you have reviewed. Before sending the Proposed GDP, the Advisory section of the Coversheet must be completed. Select the ***Proposed*** radio button (see Figure 18 - 5).

After you complete the Advisory/Causal Factor section, place a checkmark next to the Advisory/Causal Factor section of the Coversheet. To review the Advisory text before sending the proposed event, click **Preview Advisory** located in the lower left-hand corner of the Coversheet. This opens the Blanket Advisory in text format.

> **Note:** The first line of the Advisory states that it is a Proposed revision (see Figure 18 - 7).

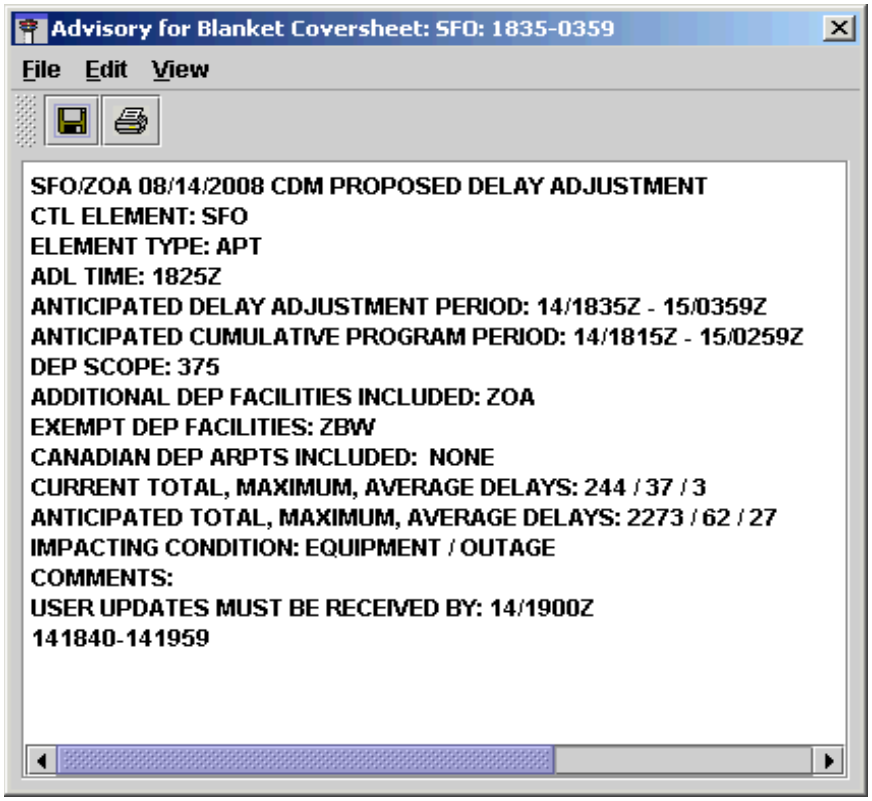


Figure 18 - 7 : Blanket Advisory Preview

Click **Send Blanket** to distribute the proposed GDP parameters and Advisory to all FSM users. A Proposed Blanket revision allows NAS users enough time to comment on the proposed parameters even though they may change before the FAA implements an actual program.

Suspending Airline Substitutions and Slot Credit Substitutions

Before issuing the Blanket program, you need to suspend the acceptance of airline substitutions and Slot Credit Substitutions (SCS) messages temporarily. From the FSM Control Panel, select the **ETMS Tools > EDCT Commands > EDCT Sub Off** option (see Figure 18 - 8) to turn substitutions off or when in GDT mode click the **SUB OFF** button from the GDT Setup component.

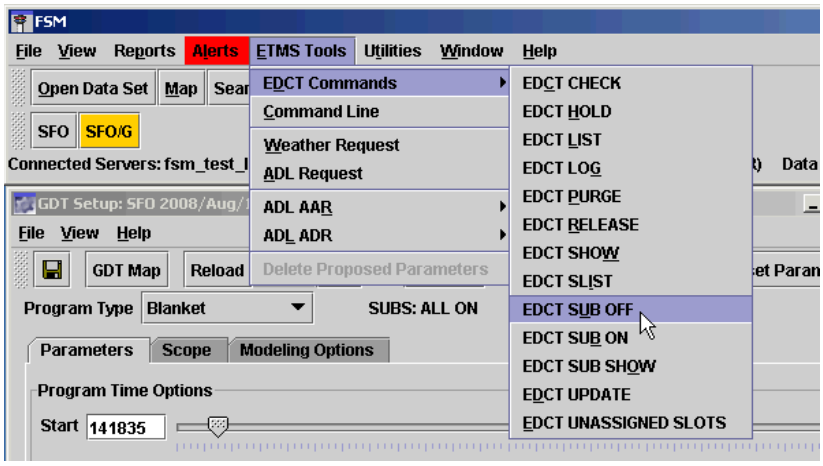


Figure 18 - 8 : ETMS Tools > EDCT Commands > EDCT Sub Off

The EDCT Sub Off dialog box opens with the data set identifier already entered in the ***Airport/FCA name or All*** field (see Figure 18 - 9). Click **Send** to suspend substitutions for that airport. Airlines' substitution or SCS messages no longer are accepted after FSM sends the SubOff message to ETMS.

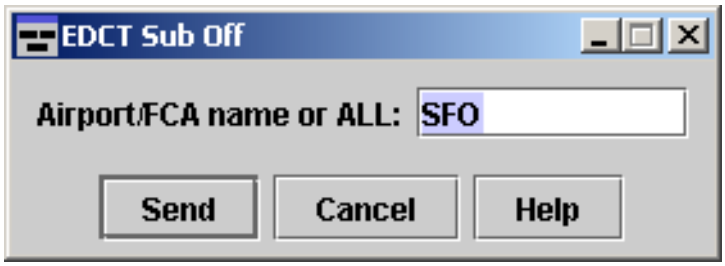


Figure 18 - 9 : EDCT Sub Off Dialog Box

Note: Ensure that the SUBS OFF indicator is displayed on the GDT Setup panel after you have sent the EDCT Sub Off message. If SUBS ON is displayed, click **Reload** to model the program with the most recent ADL.

Issuing a Blanket Revision

Once you have determined the program parameters for an Actual Blanket, turned off substitutions, and reloaded the most current ADL you are ready to send your Blanket revision.

If substitutions are currently turned on for the selected data set, the Subs On Warning dialog box is displayed before the coversheet opens (see Figure 18 - 10). The warning gives you the opportunity to turn off substitutions without having to reload.

Figure 18 - 10 : Subs On Warning

If you click **Ignore**, the Subs OFF warning closes and the coversheet opens. If you click **Turn Subs OFF**, the Subs OFF message is sent to the hubsite/TFM Processing Center (TPC), and an informational message is displayed (see Figure 18 - 11).

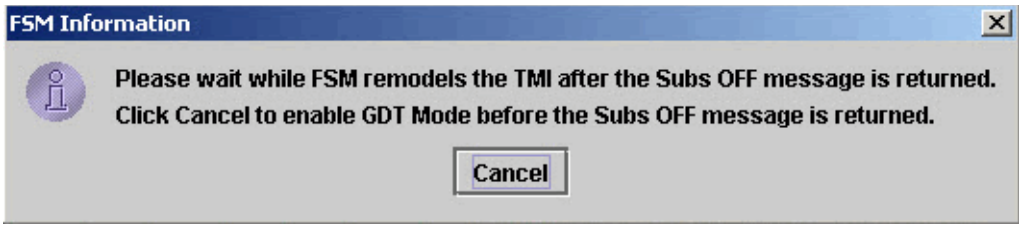


Figure 18 - 11 : FSM Modeling Information Message

Click **Cancel** to continue without waiting for FSM to automatically remodel the TMI. If you did not click **Cancel**, FSM remodels the TMI after the Subs Off message is returned by the TPC and the FSM Information message closes. ***SUBS: ALL OFF*** is then displayed on the GDT setup panel.

Click **Run** from the GDT Setup component to open the Blanket Coversheet with the revised parameters. Review the Coversheet parameters and program results, complete the Advisory section, and click **Send Blanket** from the Coversheet to implement the Blanket revision.

> **Note:** Blanket programs ignore all unassigned slots if the GDP has a ***Delay Assignment Mode*** of GAAP.

If you leave SUBS turned ON, when you click **Send Blanket** from a Coversheet during a compression, blanket, revision, or extension, you receive an FSM warning message that instructs you to “Turn SUBS OFF, reload, and remodel the program.” (see Figure 18 - 12). This message is displayed only if you chose to ignore the previously displayed Subs On

warning. Once the coversheet is opened, you must reload and remodel the program in order to turn subs off.

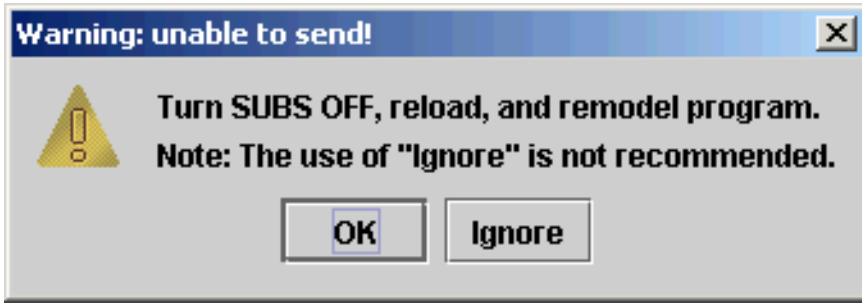


Figure 18 - 12 : SUBS OFF Warning

Click **OK** to clear the FSM warning and then turn SUBS OFF before reloading and remodeling the program. Wait for SUBS OFF to be reflected successfully before clicking **Autosend** again.

Although it is recommended that you turn SUBS OFF during any revision, you can bypass the warning message by clicking **Ignore** from the message box. Click **Ignore** to clear the FSM warning and FSM automatically continues with the Autosend process even though SUBS are ON.

Completing a Blanket revision is similar to sending an initial Program. For more detail, see Chapter 11: Issuing an Initial Program.

19: Issuing a Ground Stop

Unlike GDPs, which delay flights because of a reduced AAR, the Ground Stop function prevents flights from departure until one minute after the End time of the Ground Stop. In FSM, the GDT Setup Component is identical for all Traffic initiatives, with active tabs and fields differentiating among program types. During a GS, ETD is checked against the ***Start*** time and ***End*** time to determine whether to include the flight in the GS. (In a GDP, times are checked against a flight's IGTA). Flights included in the GS program are assigned a new ETD one minute after the GS ***End*** time. The flight's new ETAs are assigned based on the flight's Original ETE. For example, if the GS period is 1320-1419, flights with an ETD between 1320 and 1419 have a new ETD of 1420. The new ETA is the New ETD + Orig. ETE.

Note: GS programs are not applicable to Airspace data sets (FEAs and FCAs); therefore, they are not available for use for Airspace data sets.

Selecting the Parameters

Open any monitored airport in Ground Delay Tools (GDT) mode by clicking **GDT Mode** on the Control Panel component. When the four GDT components open, select the ***Program Type*** Ground Stop from the GDT Setup component (see Figure 19 - 1).

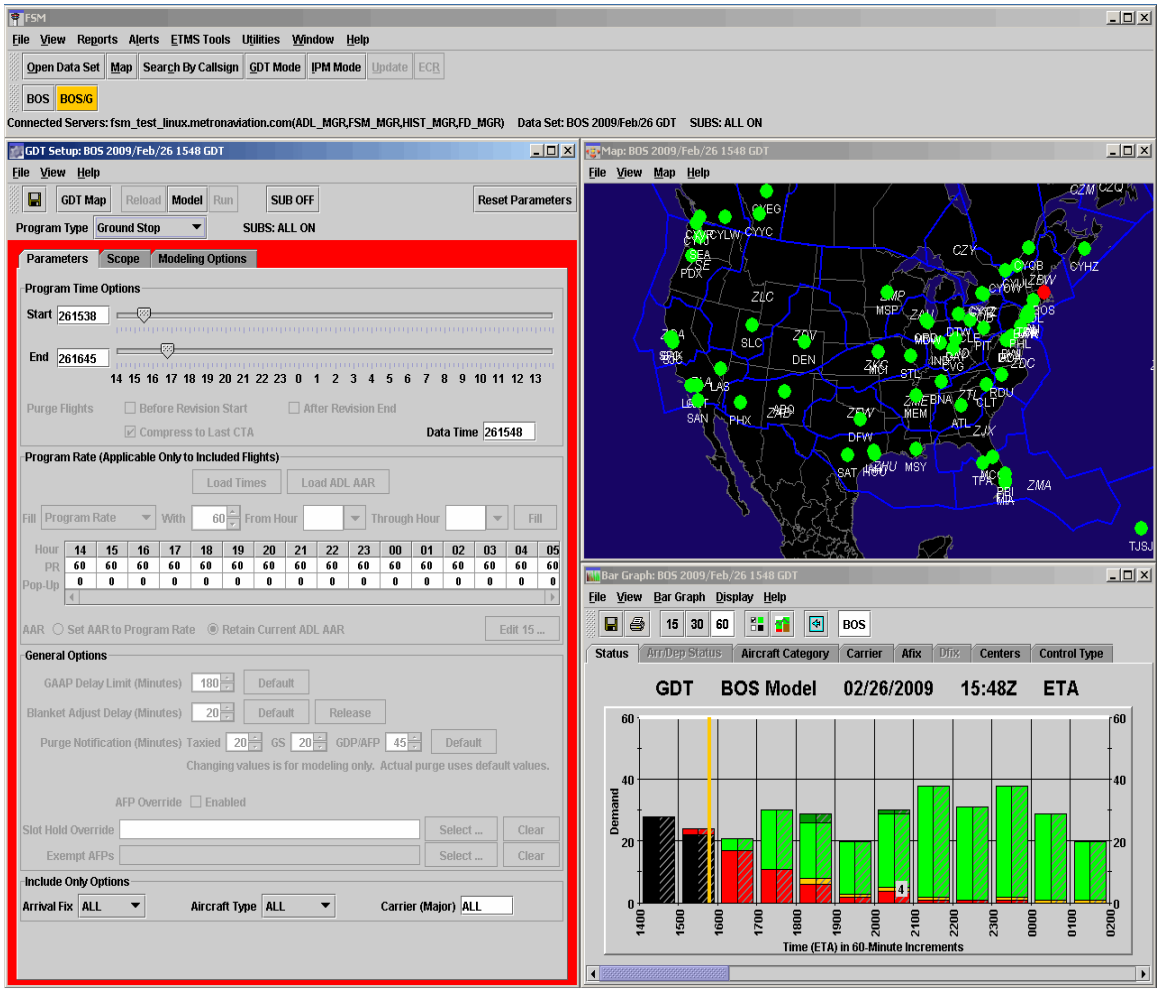


Figure 19 - 1 : GDT Mode Display

Once you select the appropriate ***Program Type***, you are ready to set the necessary parameters through each of the tabs of the GDT Setup component.

Parameters Tab

In the Parameters tab (see Figure 19 - 2), you can adjust the program time and include options. Change the Ground Stop (GS) program time by clicking and dragging the pointers on the ***Start*** and ***End*** time lines. The default End time for Ground Stops will adjust to 15-minute increments on the hour (00, 15, 30, and 45); conversely, all other programs have a default end time on the 14, 29, 44, or 59th minutes. The End time for Ground Stops will be a time increment that results in at least a one hour GS. For example, if the Ground Stop Start time is 1902, the default End time will be 2015.

If you do not indicate changes for ***Arrival Fix***, ***Aircraft Type***, or ***Carrier (Major)***, the default is set to include All.

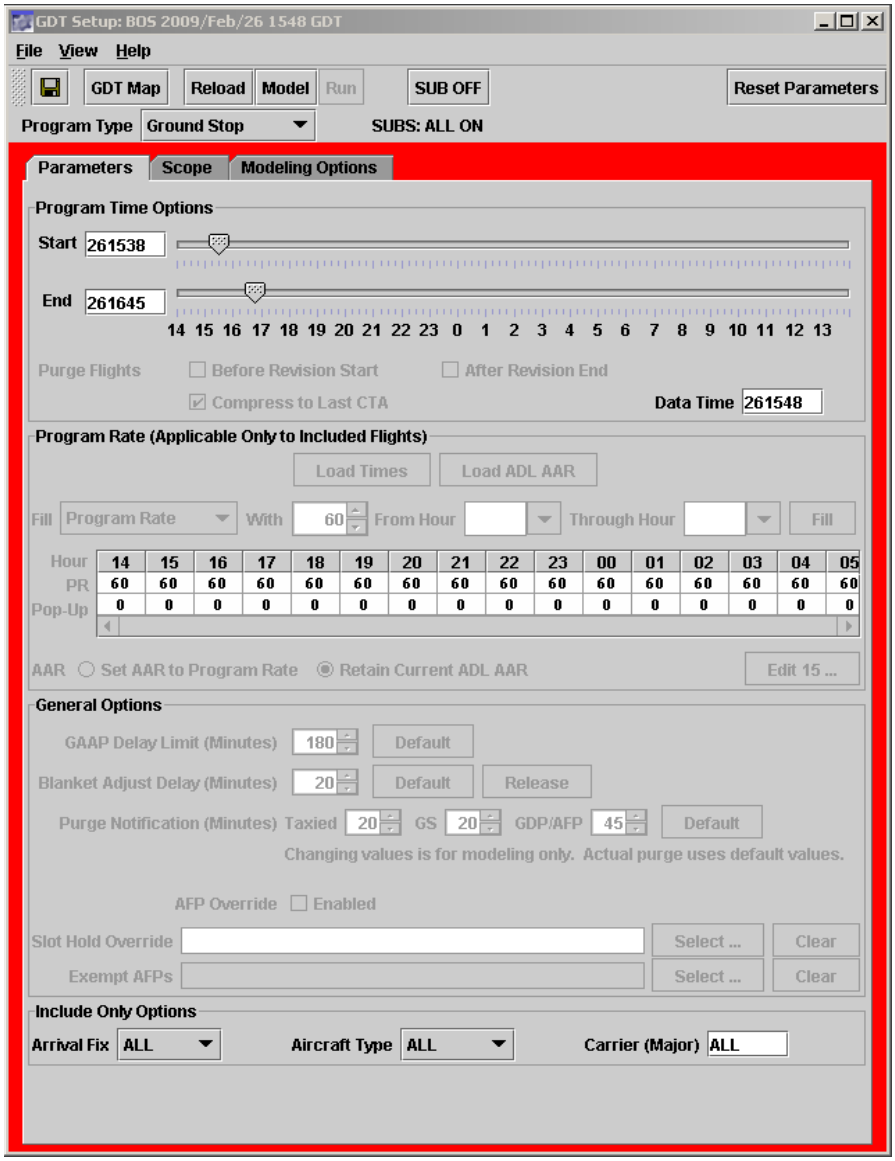


Figure 19 - 2 :GDT Setup Parameters Tab

Scope Tab

Click the Scope tab to select the facilities and airports included in the GS. Ground stops are always Tier-based; therefore, ***Select By*** Distance is not a valid exemption criterion. The Tier panel contains three sections where you can modify parameters: Centers, Airports-Origin, and Flights (see Figure 19 - 3).

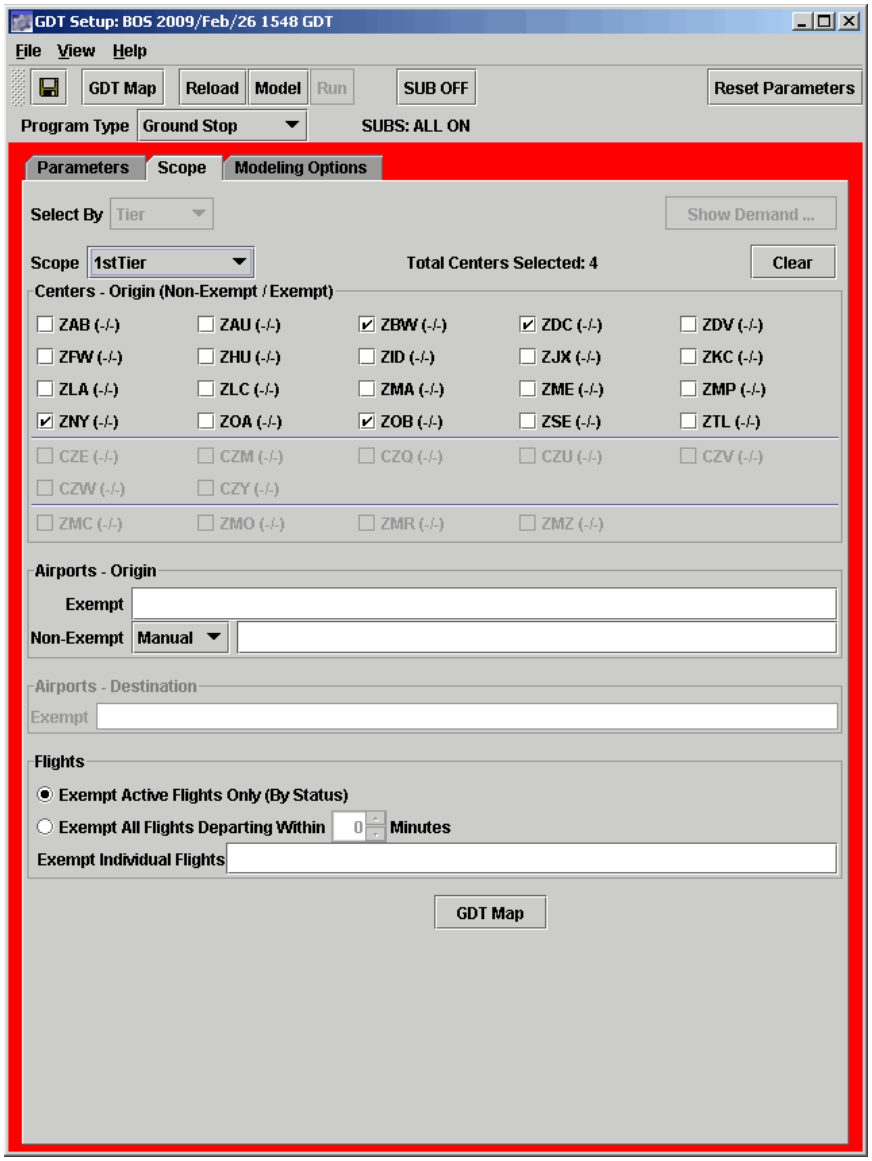


Figure 19 - 3 : GDT Setup GS Scope Tab

Modeling Options Tab

Before actually running the GS, you may want to review the parameters you set to ensure they are best for your program. This allows you to take advantage of several analysis tools embedded in FSM.

Use the Modeling Options tab in the GDT Setup component as an analysis tool. There are three GS Power Run operations, which analyze the effects/results of any program:

- GS Center Group
- GS Time Period
- GS Center Group & Time Period

Select these options from the ***Power Run By*** drop down menu (see Figure 19 - 4). Use the Power Run function to determine whether you need to modify the parameters.

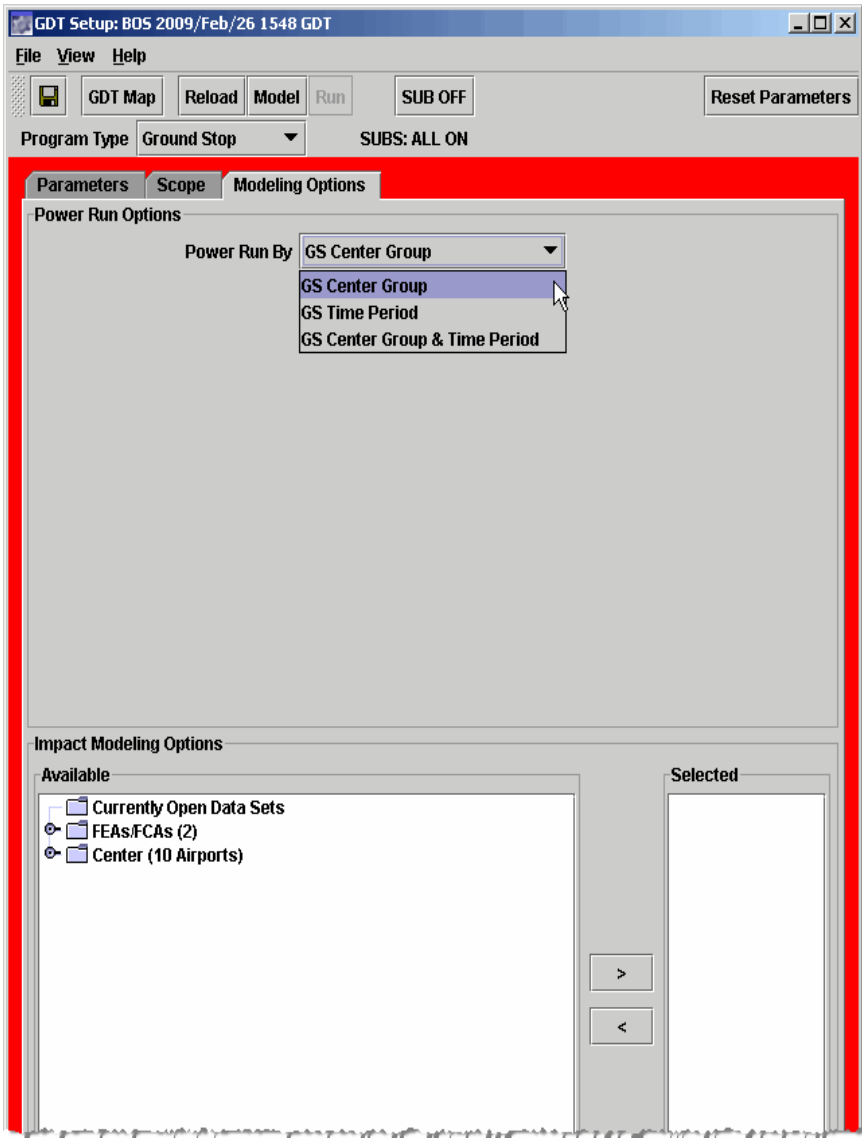


Figure 19 - 4 : GDT Setup GS Power Run By Option

To view a scenario, select an option from the ***Power Run By*** dropdown menu and click **Model**. Model displays the effects of the GS parameters and how traffic at the airport would be affected if you used these parameters for an actual program in all GDT components. Review the program statistics in the Data Graph (see Figure 19 - 5).

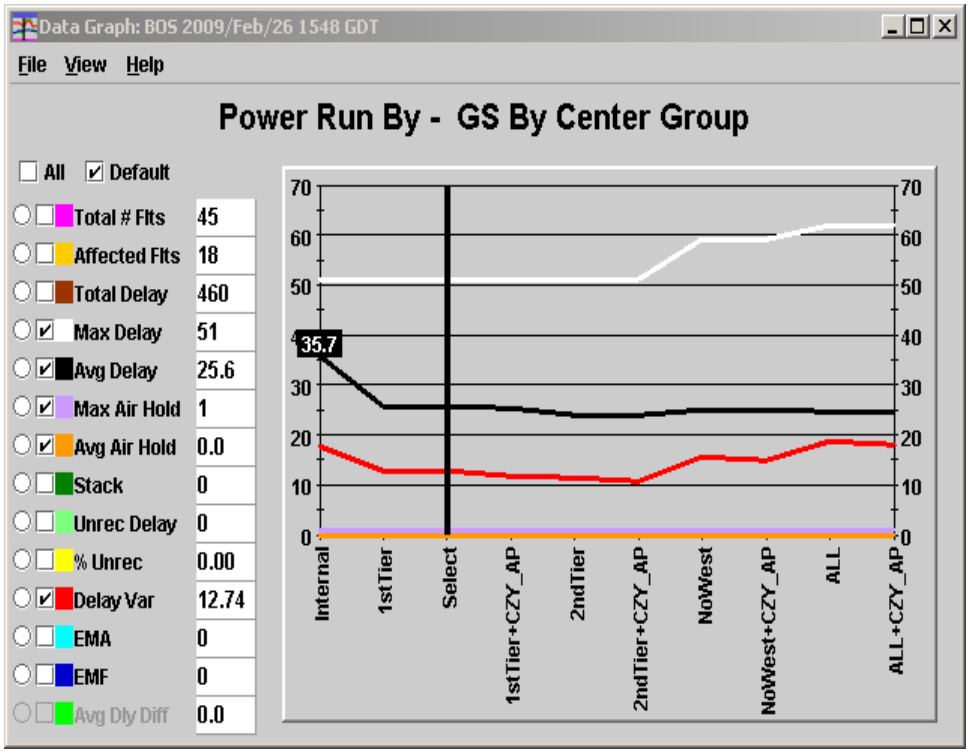


Figure 19 - 5 : Power Run Data Graph by GS Center Group

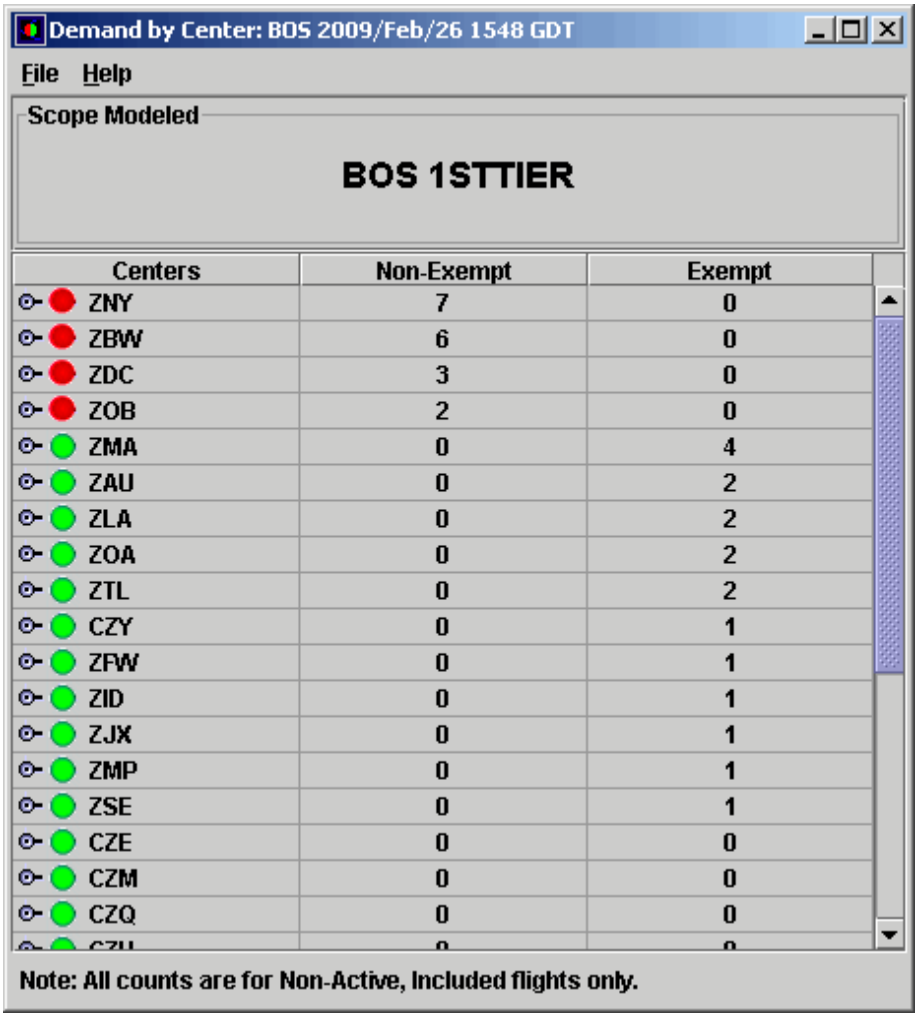
To preview the effects of a Power Run scenario, move the black line on the Data Graph component to other options displayed on the x-axis. This is discussed in more detail below in the Data Graph Component section.

> **Note:** After you click **Model**, the Setup Panel no longer contains a red border; this indicates that all components reflect the information in the GDT Setup Panel.

The Demand by Center component functionality is similar to that of the Data Graph, in that there is only data available for display after you model a TMI. After you model a TMI, click **Show Demand** on the Scope tab of the GDT Setup panel.

The Demand by Center component displays the scope of the modeled TMI and has three columns: Centers, Non-Exempt, and Exempt. All centers and the top five airports within each center (based and ordered primarily by the number of Non-Exempt flights and then by the number of Exempt flights) are displayed in the Centers column.

A red dot to the left of the center or airport identifier indicates that at least one Non-Exempt flight is present within that center or airport. A green dot indicates that all flights are Exempt within that center or airport (see Figure 19 - 6).



Centers	Non-Exempt	Exempt
ZNY	7	0
ZBW	6	0
ZDC	3	0
ZOB	2	0
ZMA	0	4
ZAU	0	2
ZLA	0	2
ZOA	0	2
ZTL	0	2
CZY	0	1
ZFW	0	1
ZID	0	1
ZJX	0	1
ZMP	0	1
ZSE	0	1
CZE	0	0
CZM	0	0
CZQ	0	0

Figure 19 - 6 : Demand By Center

If there are more than five airports with included flights in the selected Center an additional “Others” row combines the rest of the flights within the remaining airports. If a center does not contain any flights, that center’s airport list is empty. For more information on Demand By Center, see Chapter 3: Demand By Center Component.

You can use the Impact Modeling Options to see how the GS affects other airports of interest. See Chapter 3: Understanding Components for more information.

Generating a GS Coversheet

Run the GS program once you set the parameters and you are ready to implement the GS. Click **Run** on the GDT Setup component. This saves the parameters to a specified FSM configuration file and the GS Coversheet opens. Clicking **Run** also generates three reports, the FADT, Analysis, and Carrier Statistics Reports, which you can view by selecting **View > FADT**, **Analysis Report**, or **Carrier Statistics** from the Coversheet menu. For more information on reports, see Chapter 21: Understanding and Using FSM Reports.

GS Coversheet

The GS Coversheet contains all program parameter data for you to review before sending the GS program. You send the GS out from the GS Coversheet (see Figure 19 - 7).

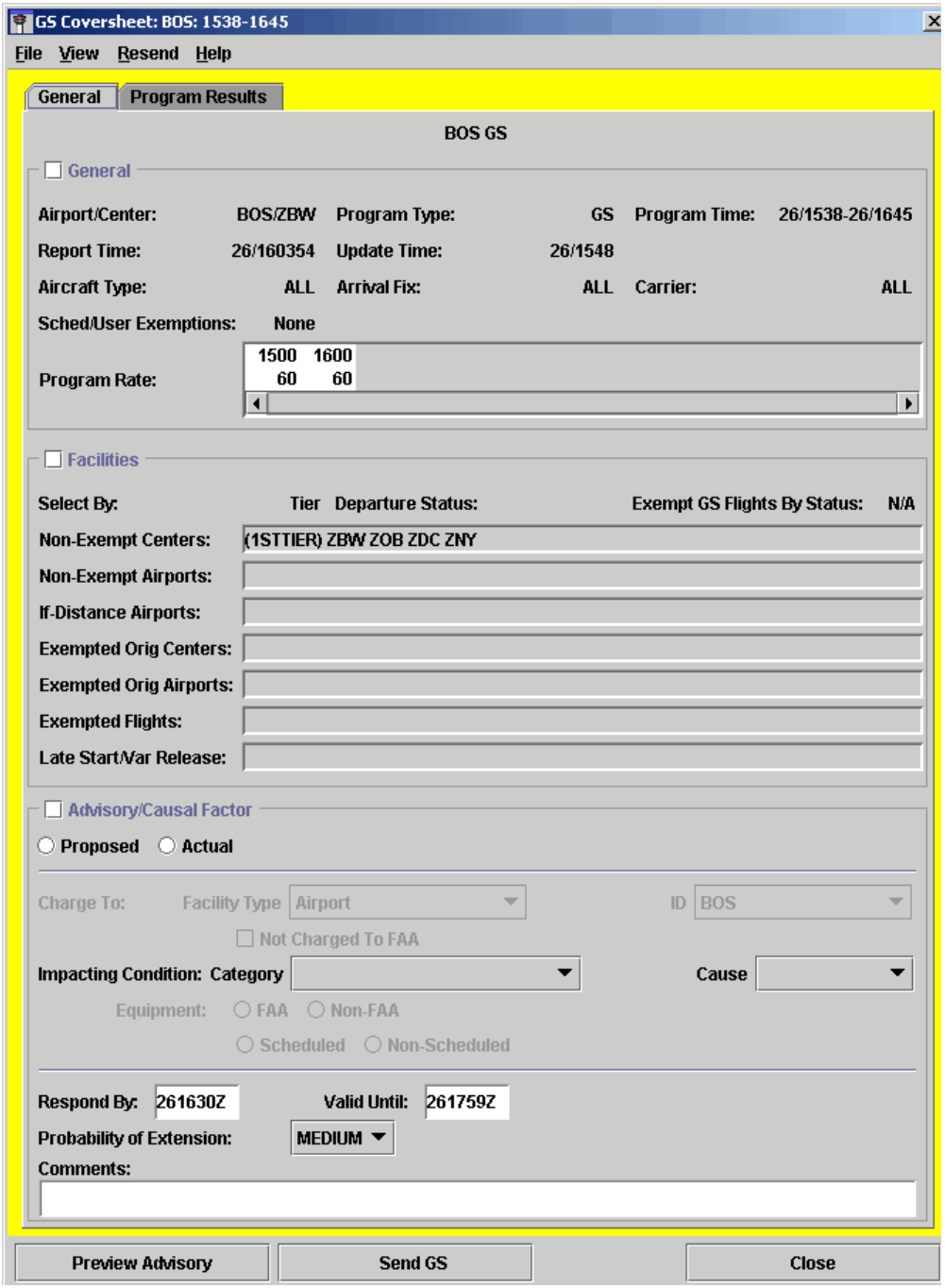


Figure 19 - 7 : Ground Stop Coversheet

For more information on the GS Coversheet, see Chapter 3: Understanding Components.

Once you review the GS Coversheet and checkmark all checkboxes, send out an Advisory and click **Send GS** to send the GS to the Hub site.

Reviewing Program Parameters

Reviewing the parameters is important before issuing the GS. On the General tab of the Coversheet, ensure that the General Parameters and Facilities sections accurately reflect all of the inputs you entered into the GDT Setup panel.

Creating an Advisory

Before sending a GS, the Advisory/Causal Factor section (see Figure 19 - 8) of the Coversheet must be completed. The ***Proposed*** and ***Actual*** radio buttons are left blank by default and you *must* choose one or the other to proceed. The ***Respond By*** field is only available during a proposed event. Select the ***Category***, ***Cause*** and ***Equipment*** that are applicable to the situation. Select the ***Probability of Extension*** for the GS, by default MEDIUM is selected.

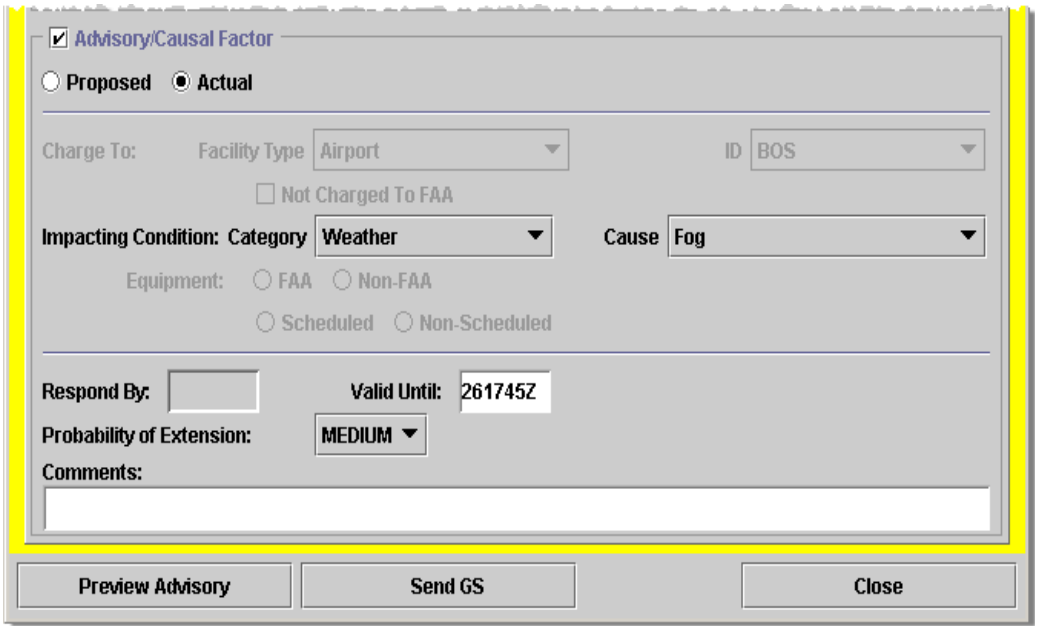


Figure 19 - 8 : Coversheet Advisory Section

Place a checkmark next to each section of the Coversheet after you have reviewed the parameters, facilities, and advisory information. To review the Advisory text before sending the event, click **Preview Advisory** located in the lower left-hand corner of the Coversheet. This opens the GS Advisory in text format (see Figure 19 - 9).

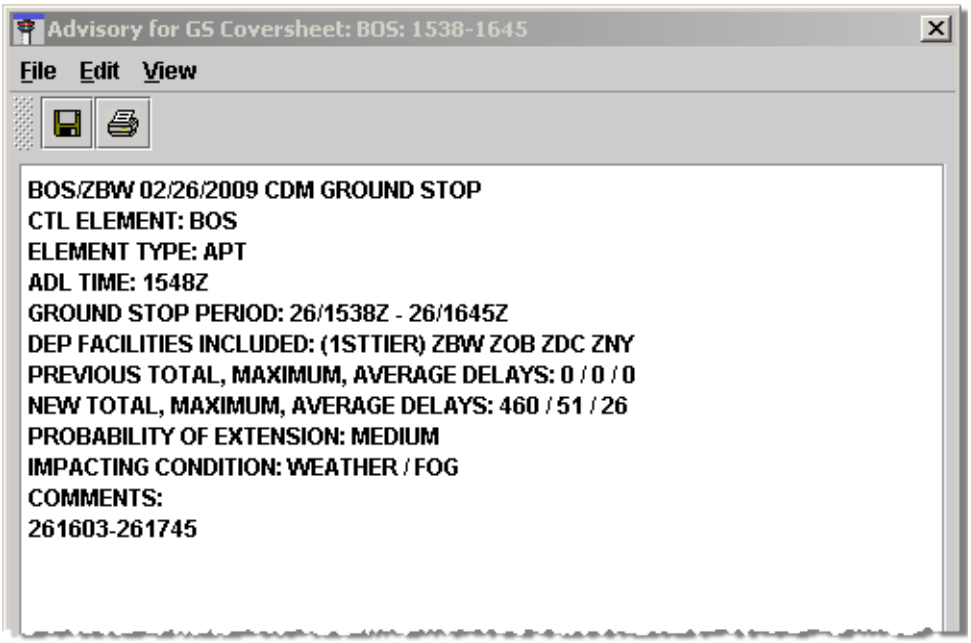


Figure 19 - 9 : GS Advisory Preview

To send the GS and Advisory click **Send** located at the bottom of the Coversheet. When ***Actual*** is selected in the Advisory section of the Coversheet, the FSM client interfaces with ETMS Autosend Server and sends the web coversheet XML file to NTML and the FADT file to the Hub site. The Autosend Server also invokes ETMS E-mail and sends the Advisory to the specified address list. ETMS E-mail puts the ATCSCC position number and phone number in the Advisory signature line.

When ***Proposed*** is selected in the Advisory/Causal Factor section of the Coversheet, only the proposed parameters and Advisory is sent.

When you click **Send GS** the Program Manager window opens and displays the Autosend progress.

Click **Close** and no action is taken from the GDP Coversheet window.

Program Manager

Clicking **Send GS** activates the Autosend process and opens the Program Manager dialog that displays that status window and progress bar at the bottom of the window (see Figure 19 - 10). The Program Manager performs a list of actions based on the type of GS sent: proposed or actual. Some actions specify the next action to perform sequentially upon completion of the first action. If an action fails, a dialog is displayed asking if further sequential action should be performed or the process stopped.

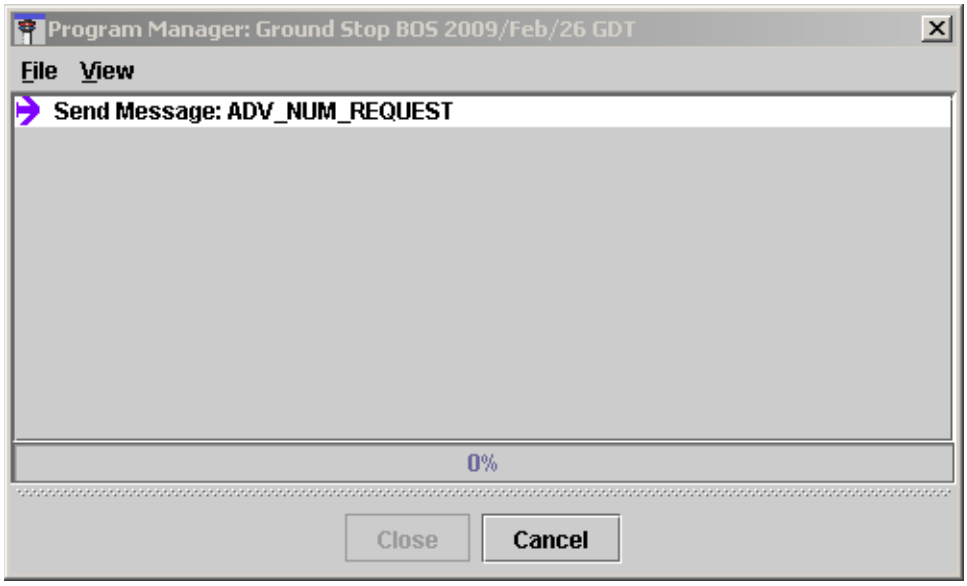


Figure 19 - 10 : Program Manager

For more information on the Program Manager see Chapter 3: Understanding Components.

> **Note:** If you click **Send GS** more than 15 minutes after modeling your program, it is recommended that you close your Coversheet and **Reload** to get the most recent data from an updated ADL before continuing with the Ground Delay Operation.

Resending Coversheet Information

If your GS parameters or advisory was not properly sent the first time, you can select information you would like to resend from the Coversheet. If the Coversheet is not already open, open the Coversheet from the GDT Setup panel. Select **File > Open Coversheet**. This opens a file selection window for the Reports directory. You should see all Coversheets generated for that airport. See Chapter 11: Issuing an Initial Program for more information on resending information.

Example of Issuing an Actual GS

An Actual GS is a program that the FAA is going to implement; they have gathered user comments and are ready to enact the program.

To send a Ground Stop

1. Click **Open Data Set**.
   The Open Data Set window opens.
2. Select the airport for which you want to issue the GS.
3. Click **OK**. The Time Line and Bar Graph components for the airport open.

4. Click **GDT Mode** on the Control Panel. The GDT components for the airport are displayed.
5. On the GDT Setup panel select Ground Stop for the ***Program Type***.
6. Enter the GS parameters on the various GDT Setup Panel tabs.
7. Click **Model**. The red border outlining the GDT Setup Panel no longer is displayed and all the GDT components reflect the modeled Ground Stop.
8. If the program appears to deal with the traffic flow in the manner you want, click **Run** to generate the Coversheet. The Coversheet window opens.
9. Carefully examine each section of the Coversheet on both the General and Program Results tabs. If the data is correct, select the ***General*** and ***Facilities*** checkboxes.
10. Complete the Advisory/Causal Factor section of the Coversheet by selecting the ***Actual*** radio button.
11. Select the ***Category*** for the Ground Stop.
12. Select the ***Cause*** related to the Category.
13. Select the ***Equipment*** causing the GS (if you selected Equipment from ***Cause***).
14. Select the ***Probability for Extension*** for the Ground Stop.
15. Enter any ***Comments*** as needed.
16. Select the ***Advisory/Causal Factor*** checkbox.
17. Click **Preview Advisory** to review the GS Advisory.
18. Click **Send GS** to issue the Ground Stop. The Program Manager window opens and activates the Autosend process.

Viewing GS Controlled Flights

To monitor controlled flights, view the Bar Graph and Time Line in Monitor Live mode. You can identify GS flights by looking for yellow flights in the Bar Graph and the Time Line (see Figure 19 - 11). In the Bar Graph, move the cursor over the yellow bar and the number of GS controlled flights in that hour is displayed.

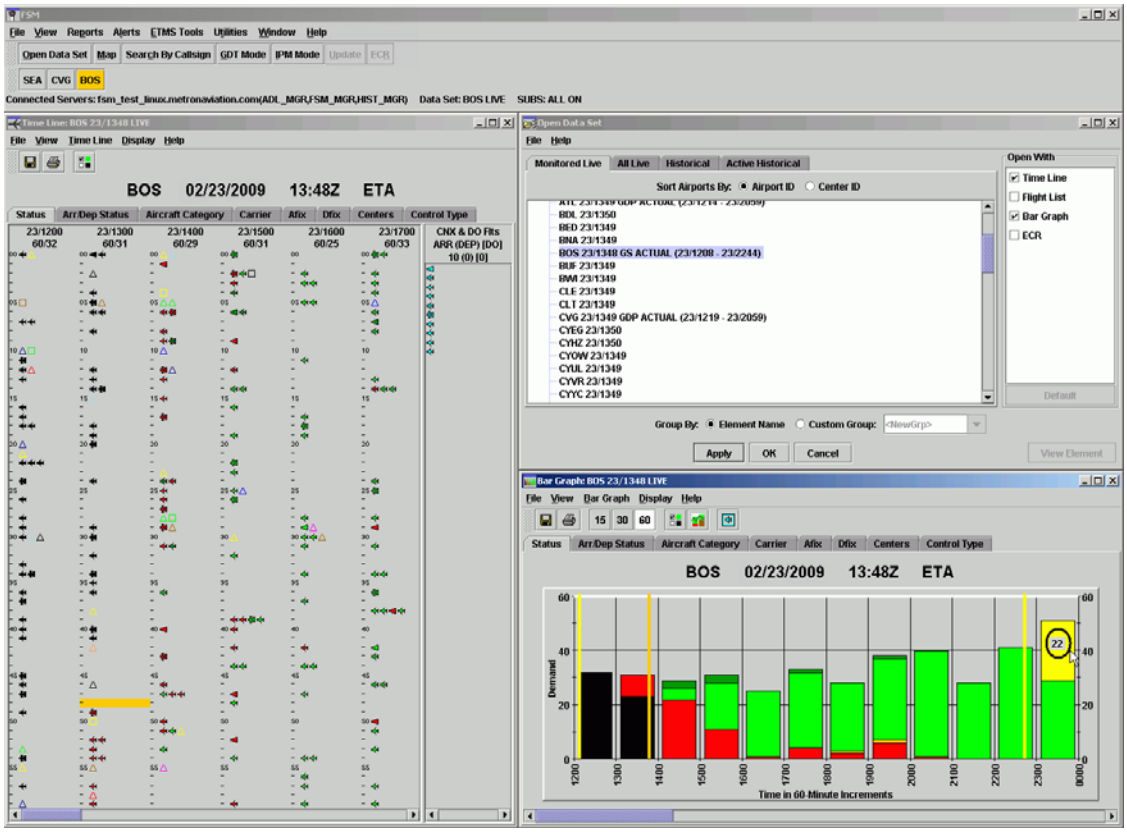
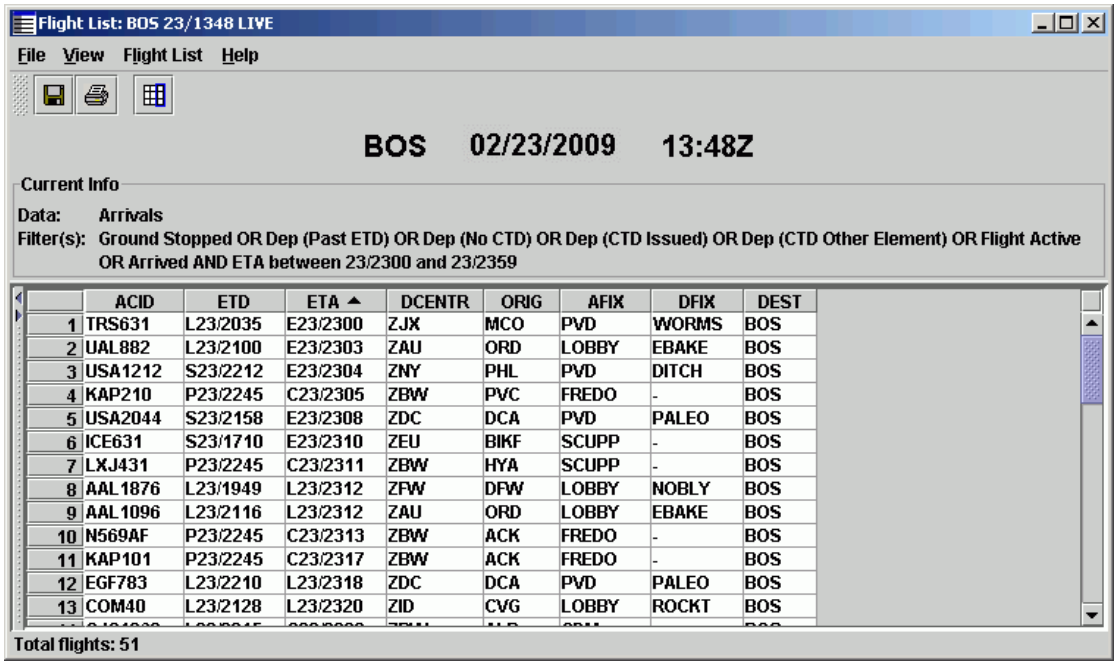


Figure 19 - 11 : Live Mode

Double-click a bar in the Bar Graph to open the Flight List component. When all colors are displayed on the Bar Graph, the Flight List contains all flights, both GS and other flights. Click the color legend button to open the color legend. Uncheck all color options with the exception of yellow GS Flights. Then click the hour bar that has only GS flights displayed; this opens a Flight List containing only GS flights.



	ACID	ETD	ETA ▲	DCENTR	ORIG	AFIX	DFIX	DEST
1	TRS631	L23/2035	E23/2300	ZJX	MCO	PVD	WORMS	BOS
2	UAL882	L23/2100	E23/2303	ZAU	ORD	LOBBY	EBAKE	BOS
3	USA1212	S23/2212	E23/2304	ZNY	PHL	PVD	DITCH	BOS
4	KAP210	P23/2245	C23/2305	ZBW	PVC	FREDO	-	BOS
5	USA2044	S23/2158	E23/2308	ZDC	DCA	PVD	PALEO	BOS
6	ICE631	S23/1710	E23/2310	ZEU	BIKF	SCUPP	-	BOS
7	LXJ431	P23/2245	C23/2311	ZBW	HYA	SCUPP	-	BOS
8	AAL1876	L23/1949	L23/2312	ZFW	DFW	LOBBY	NOBLY	BOS
9	AAL1096	L23/2116	L23/2312	ZAU	ORD	LOBBY	EBAKE	BOS
10	N569AF	P23/2245	C23/2313	ZBW	ACK	FREDO	-	BOS
11	KAP101	P23/2245	C23/2317	ZBW	ACK	FREDO	-	BOS
12	EGF783	L23/2210	L23/2318	ZDC	DCA	PVD	PALEO	BOS
13	COM40	L23/2128	L23/2320	ZID	CVG	LOBBY	ROCKT	BOS

Figure 19 - 12 : GS Flight list for 1 Hour Bar

There are certain default values of Flight List information. When you first open a Flight List, the default information is displayed. This default information is adjustable. For more information on the Flight List component, see Chapter 6: Viewing Flight Information.

Query Manager Flight List

The Query Manager already contains a built-in filter for GS flights. To get a list of GS flights at any open airport, select the ***AND Ground_Stopped*** Filter and then click **Flight List** or select **View > Flight List** from the Query Manager component (see Figure 19 - 13).

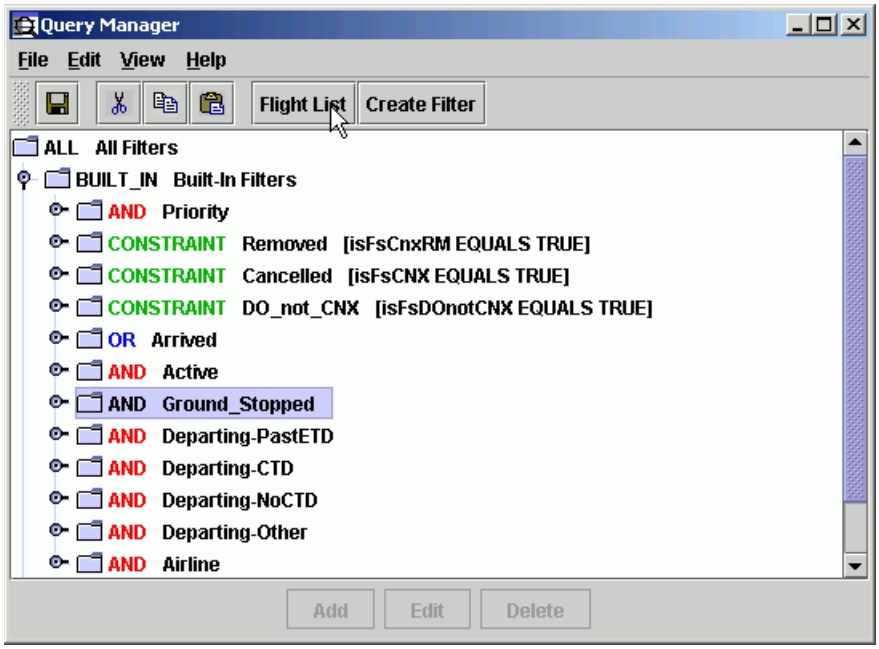


Figure 19 - 13 : Query Manager Component

When you are monitoring more than one data set, clicking **Flight List** opens the Set Data Set window, showing all open data sets. Select the Data Set/Data Mode and click **OK** to view that airport's GS Flight List (see Figure 19 - 14). Click **Cancel** to exit the Set Data Set window without opening a Flight List.

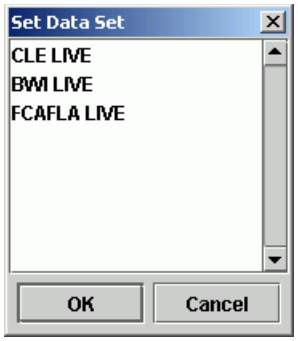


Figure 19 - 14 : Set Data Set Selection window

Opening a Flight List from the Query Manger lists all Ground Stopped flights that are at the specified airport, FEA, or FCA unless otherwise defined by a customized CONSTRAINT, whereas accessing a Flight List from the Bar Graph only displays a list of flights for the selected hour. For more information on how to use the Query Manager component, see Chapter 22: Using Query Manager.

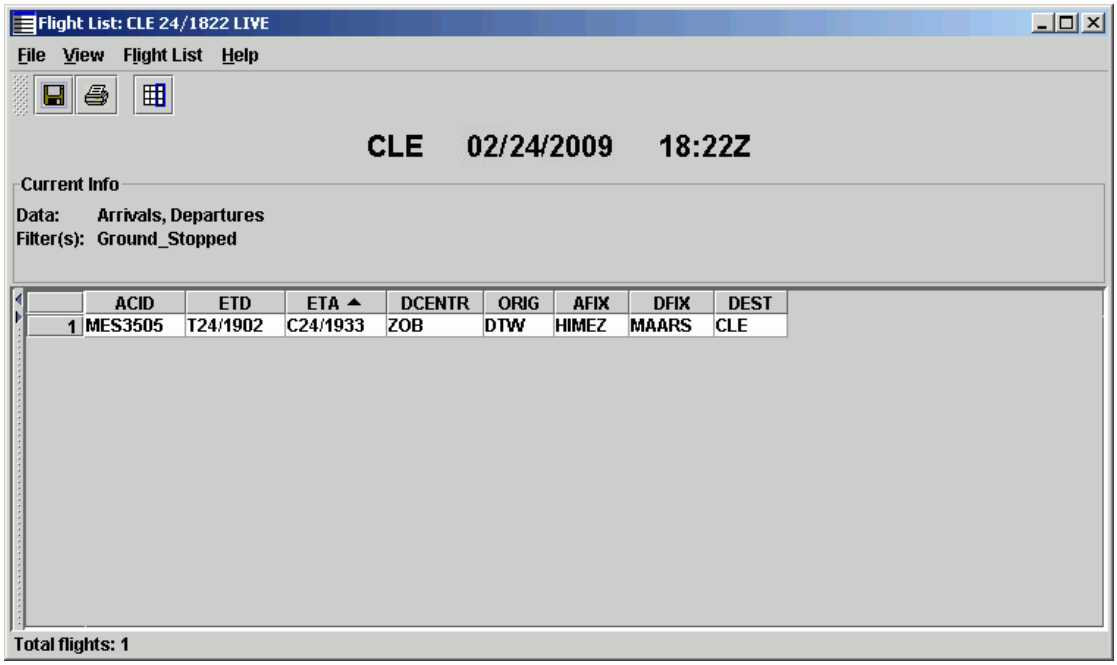


Figure 19 - 15 : Query Manager Flight List

20: Other Ground Stop Functions

Once a Ground Stop (GS) is in place, the conditions that originally necessitated the Ground Delay Program (GDP) may change. This chapter covers additional GS features that you use when conditions demand modifications to an existing GS:

- Purging a GS
- Reducing the Scope of a GS
- Extending a GS
- Moving from a GS to a GDP

Purging a GS

From the Purge Coversheet, click **Purge** to purge any control times from the ETMS system and send the Purge Advisory. Purge works the same as the Autosend function to send new operation parameters and cancellation messages to the Hub site for inclusion in the ADLs.

Viewing Flight Information before Purging a Program

When you model a purge for a GS program, ETMS sets the minimum notification time to the value of the minimum notification time for flights in a ground stop. FSM determines a minimum notification time for controlled flights in a taxi status. If a controlled flight is in a taxi status, without regard to the type of control, then FSM sets the minimum notification time to the value of the minimum notification time for flights in a taxi status.

ETMS models a new estimated departure time based on the flight's control departure time and the minimum notification time based on the following criteria:

- If the flight is active or completed, ETMS sets the ETD to the actual departure time.
- If the CTD of the flight is within the minimum notification time from the current time, the estimated departure time remains set to the CTD.
- If the CTD of the flight is greater than the minimum notification time plus the current time, then ETMS calculates a candidate ETD selected from the following values in order of priority:
  1. Earliest Runway Departure Time
  2. Earliest Runway Arrival Time minus the Estimated Time En route
  3. Original Estimated Departure Time
  4. Initial Gate Departure Time plus the taxi time for the flight
- If this candidate time is greater than the current time plus the minimum notification time, then ETMS sets the ETD to this candidate time.
- If the candidate time is less than the current time plus the minimum notification time, then ETMS sets the ETD to the current time plus the minimum notification time.

To Purge a Ground Stop

The Purge option requires no user input.

1. Select **Purge** from the Program Type dropdown.
2. Even though no user input is required, for modeling purposes you can change ***Purge Notification (Minutes)*** for ***Taxied***, ***GS*** or ***GDP/AFP*** (see Figure 20 - 1).

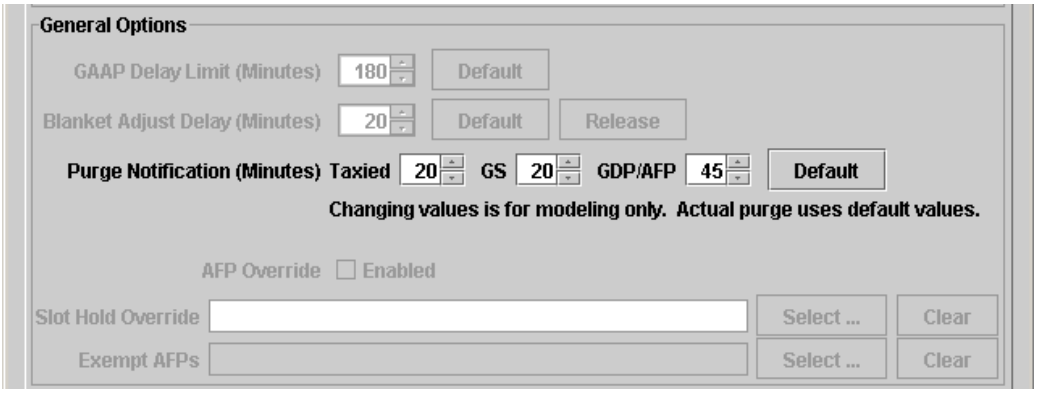


Figure 20 - 1 : Purge Notifications (Minutes) Values

Note: Changing Purge Notification (Minutes) values is for modeling only. The actual purge uses the default values.

3. Click **Model**. The red border in the GDT Setup Panel no longer is displayed and all the GDT components reflect the modeled purge.
4. If the program handles the traffic flow in the manner you want, click **Run** to generate the GS CNX Coversheet. The Coversheet window is displayed (See Figure 20 - 2).

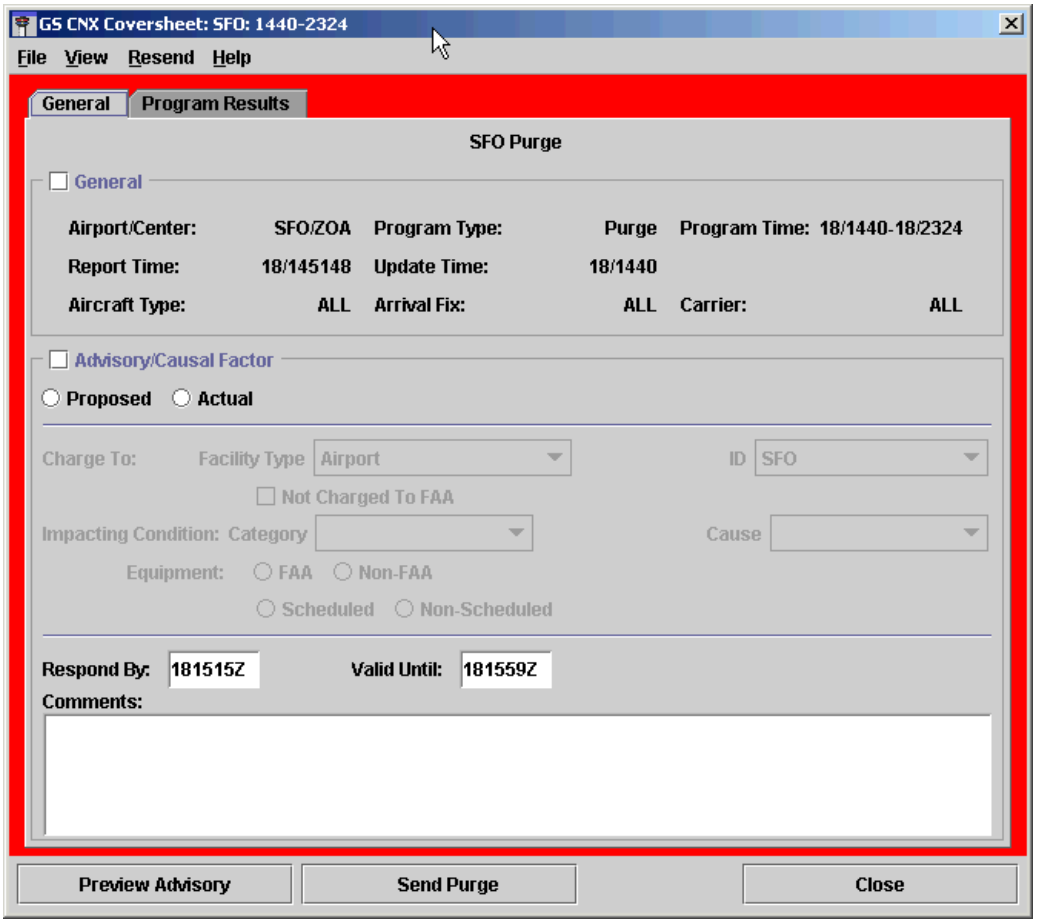


Figure 20 - 2 : GS CNX Coversheet

The Purge Coversheet contains a General tab with general and advisory information, and a Program Results tab with program results information. For more information on the Coversheet component, see Chapter 3: Understanding Components.

5. After you review the information in the General section, select the ***General*** checkbox.
6. After completing the Advisory section of the Coversheet, select the ***Advisory/ Causal Factor*** checkbox.
7. From the CNX Coversheet, click **Send Purge**. If Proposed was selected in the Advisory section, only the Purge Advisory is sent. If Actual was selected in the Advisory section, all control times are purged from the ETMS system and the Actual Advisory is sent to all users. Purge works the same as the **Autosend** function to send new operation parameters and cancellation messages to the Hub site for inclusion in the ADLs.

Reducing the Scope of a Ground Stop

GDP processing enhancements now allow for you to reduce the scope of a Ground Stop. You no longer need to purge the current Ground Stop and reissue a new Ground Stop with a reduced scope. Reducing the scope can now be done as a simple Ground Stop revision. When the scope is reduced, FSM purges control times from any flight no longer included in Ground Stop and the ETMS system notifies all users of flights that are no longer controlled by the Ground Stop.

Fill in the GS parameters as needed. Once you make the GS parameter inputs, click **Reload** or **Model** on the GDT Setup component to view the delay statistics for the new scenario and make adjustments if necessary. Once you are ready to issue the GS, click **Run** from the GDT Setup component to open the GS Coversheet. From the GS Coversheet, send the Ground Stop and Advisory by clicking **Send GS** to implement the new GS. See Chapter 19: Issuing a Ground Stop for more detail on how to issue a GS.

Extending a Ground Stop

To extend an existing GS, ensure the Ground Stopped airport you want to modify is active before clicking **GDT Mode** on the Control Panel component. This opens the four default GDT components for the selected airport. Select GS from the ***Program Type*** dropdown menu and then select **File > Load Actual Parameters > Ground Stop** (see Figure 20 - 3).

After FSM loads the actual parameters, adjust the parameters and extend the GS Time as necessary. Click **Model** to view the Delay Statistics in the Data Graph and make any adjustments as needed.

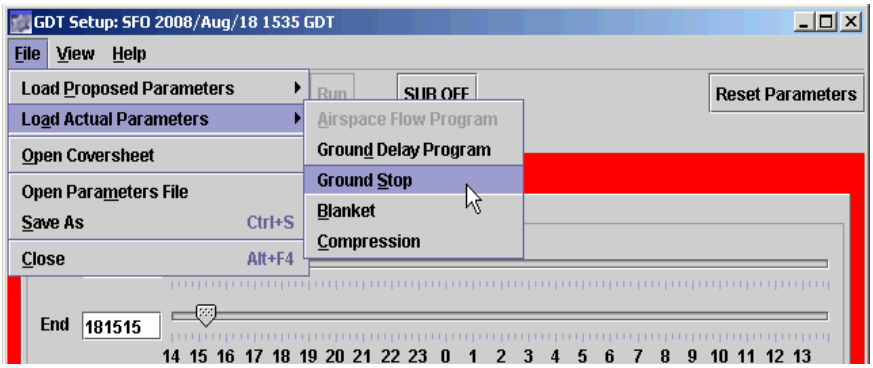


Figure 20 - 3 : Load Actual Parameters > Ground Stop

Note: Before sending a revised GS, it is advised to suspend Airline substitutions and SCS. Click **SUB OFF** on the GDT Setup Panel to turn substitutions off.

Run the GS program once you modify the parameters and you are ready to implement the GS. Click **Run** on the GDT Setup component. This saves the parameters to a file specified in FSM's configuration file and opens a GS Coversheet. Clicking **Run** generates three reports:

- FADT report
- Analysis report
- Carrier Statistics report

You can view these reports by selecting **View > FADT**, **View > Analysis Report**, or **View > Carrier Statistics** from the Coversheet. You can also view the Carrier Statistics by selecting **Report > Carrier Statistics** from the main Control Panel component. For more information on these reports, see Chapter 21: Understanding and Using FSM Reports.

GS Coversheet

The GS Coversheet contains all the operation's parameter data. Send the GS from the GS Coversheet.

Figure 20 - 4 : GS Coversheet

Once you complete the GS Coversheet and checkmark all checkboxes, click **Send GS** to send the Ground Stop and Advisory (see Figure 20 - 4).

Moving from a GS to a GDP

When issuing a GDP at an airport that already has a GS in place, open GDT mode for the airport and from the ***Program Type*** dropdown, select GDP - DAS. Click the ***Scope*** tab and in the ***Flights*** section, select ***Exempt Active Flights Only (By Status)*** (see Figure 20 - 5).

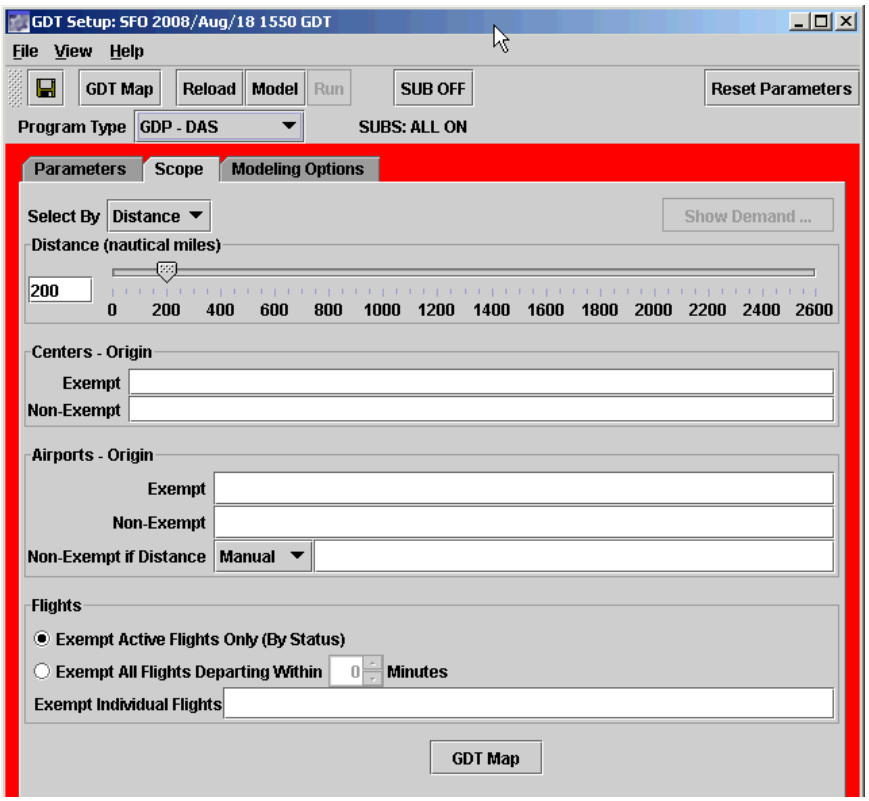


Figure 20 - 5 : Scope Tab Set Up for Moving From a GS to a GDP

Suspending Airline Substitutions and Slot Credit Substitutions

When moving from a GS to a GDP, you need to suspend, temporarily, the acceptance of airline substitutions and Slot Credit Substitutions (SCS) messages. From the FSM Control Panel, select the **ETMS Tools > EDCT Commands > EDCT Sub Off** option or on the GDT Setup Panel click **SUB OFF** to turn substitutions off. The EDCT Sub Off dialog box opens with the three-character airport ID pre-filled, as shown in Figure 20 - 6. Click **Send GS** to suspend substitutions for that airport. Airlines' substitution or SCS messages are no longer accepted after FSM sends the SubOff message to ETMS.

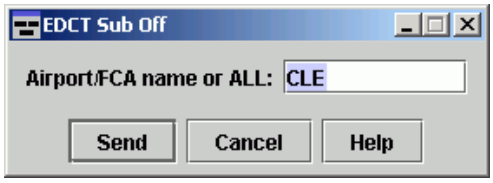


Figure 20 - 6 : Turn Subs OFF

Note: It is important to click **Reload** on the GDT Setup component after you have sent the EDCT Sub Off message and ensure the SUBS indicator reads **ALL OFF**.

Issuing a GDP

Once you have determined the program parameters for an Actual GDP and you have turned off the substitutions and have modeled the program you are ready to send the program. Click **Run** from the GDT Setup component to open the GDP Coversheet with the revised parameters.

If substitutions are currently turned on for the selected data set, the Subs On Warning dialog box is displayed before the coversheet opens (see Figure 20 - 7). The warning gives you the opportunity to turn off substitutions without having to reload.

Figure 20 - 7 : Subs On Warning

If you click **Ignore**, the Subs OFF warning closes and the coversheet opens. If you click **Turn Subs OFF**, the Subs OFF message is sent to the hubsite/TFM Processing Center (TPC), and an informational message is displayed (see Figure 20 - 8).

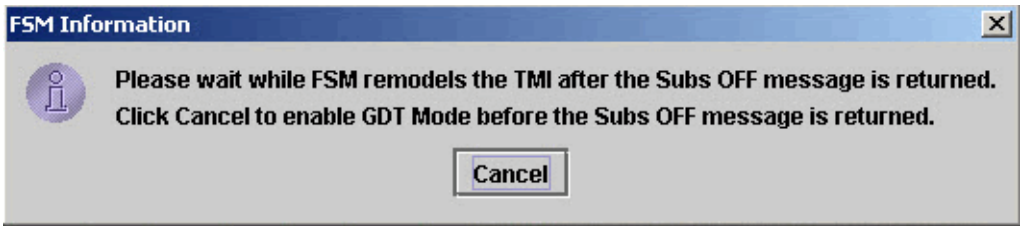


Figure 20 - 8 : FSM Modeling Information Message

Click **Cancel** to continue without waiting for FSM to automatically remodel the TMI. If you did not click **Cancel**, FSM remodels the TMI after the Subs Off message is returned by the TPC and the FSM Information message closes. ***SUBS: ALL OFF*** is then displayed on the GDT setup panel.

Review each section of the Coversheet and complete the Advisory. Click **Send GS** from the Coversheet to implement the revision.

If SUBS are turned ON when you click **Autosend** from a coversheet during a compression, revision, or extension, you receive an FSM warning message that instructs you to “Turn SUBS OFF, reload, and remodel the program” (see Figure 20 - 9). This message is displayed only if you chose to ignore the previously displayed Subs On warning. Once the coversheet is opened, you must reload and remodel the program in order to turn subs off. Click **OK** to clear the FSM warning and then turn SUBS OFF before reloading and remodeling the program. Wait for SUBS OFF to be reflected successfully before clicking **Send GS** again.

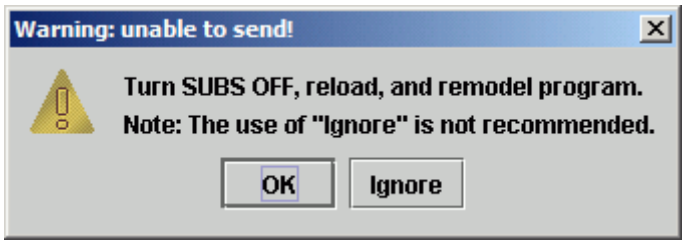


Figure 20 - 9 : SUBS OFF Warning

Although it is recommended that you turn SUBS OFF during any revision, you can bypass the warning message by clicking **Ignore** from the message box. This clears the FSM warning. FSM automatically continues with the **Send GS** process even though SUBS are ON.

See Chapter 11: Issuing an Initial Program for more information on issuing a GDP.

21: Understanding and Using FSM Reports

FSM makes several different reports available to you. These reports give you information about counts, compliance, surface delay, priority flights, time out delay, time out cancel, slot hold, sub opportunities, analysis, FADT, and carrier statistics. You can use these reports to better understand how traffic reacts to programs that are in place and determine when to make adjustments to programs.

Counts Reports

Counts reports give you the option to check the flights that make up arrival and/or departure demand for each hour. You can open all Count Lists from the FSM Control Panel component. There are eight Count List reports:

- By Demand
- By Center
- By Aircraft Category
- By Aircraft Class
- By Arrival Fix (Airport only)
- By Departure Fix (Airport only)
- By User
- By Unassigned Slot

To view a demand count for a particular monitored airport, first select the airport you want to view, and then select **Reports > Counts > [By report type]**. If you have not selected a data set, the Counts are disabled.

> **Note:** Count Lists in GDT Mode only show counts for arriving flights.

Viewing the Count List

After selecting the type of demand count, a Count List window opens. The type of Count List is displayed in parentheses in the Count List window's title bar. The three-letter airport code or the FEA/FCA name, date, ADL time of the FSM generated list, and display mode are displayed in the title bar as well as above the Count List columns.

FSM arranges each count list in 15-minute intervals with totals for each hour based on the FSM Time Line component. NRP (National Route Program) counts are displayed below the total count for each hour. An NRP is a flight that files for a more direct route, but is considered to be a preferred route (as designated by the FAA). In Monitor Mode, counts are displayed based on a flight's ETA by FSM default. You can view Count Lists for airports based on the Count List **Display** menu: by ETA, BETA, IGTA - Taxi, OCTA, EAFT, Departure, Arrival/Departure, and CTA as shown in Figure 21 - 1.

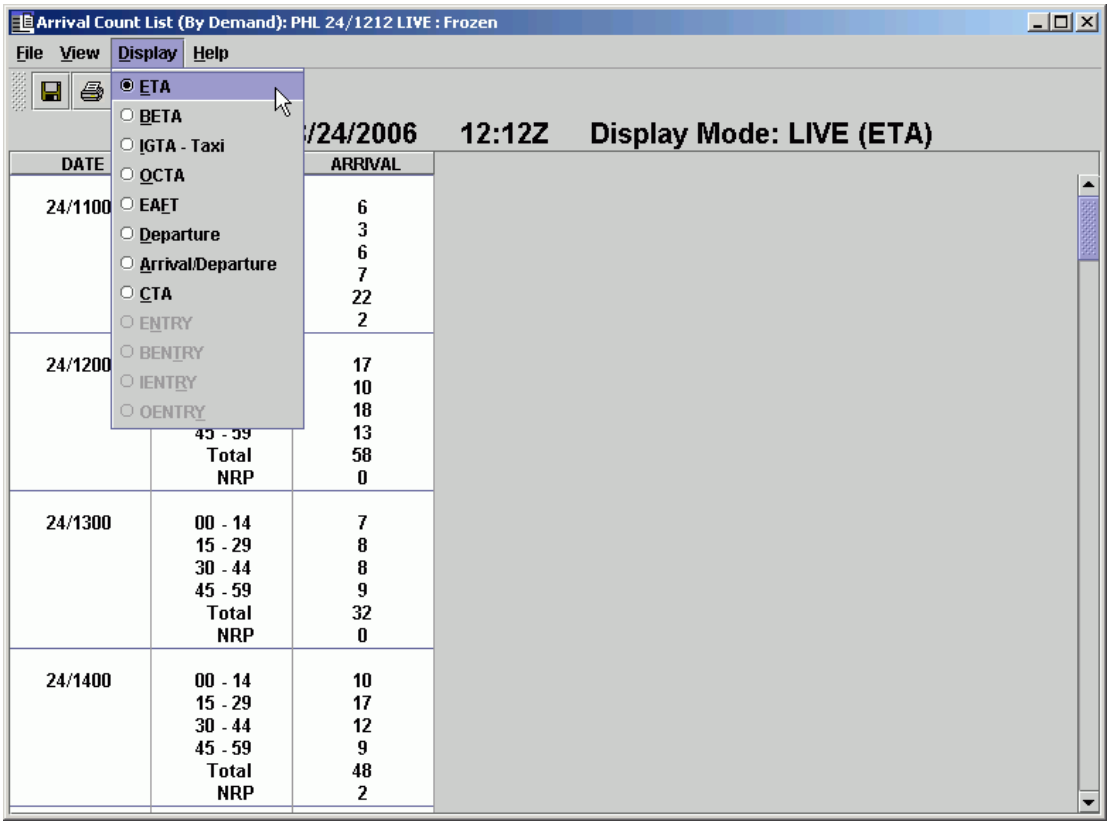


Figure 21 - 1 : Count List Display Data-Airport

You can view Count Lists for FEAs and FCAs based on the Count List **Display** menu: by CTA, ENTRY, BENTRY, IENTRY, and OENTRY, as shown in Figure 21 - 2.

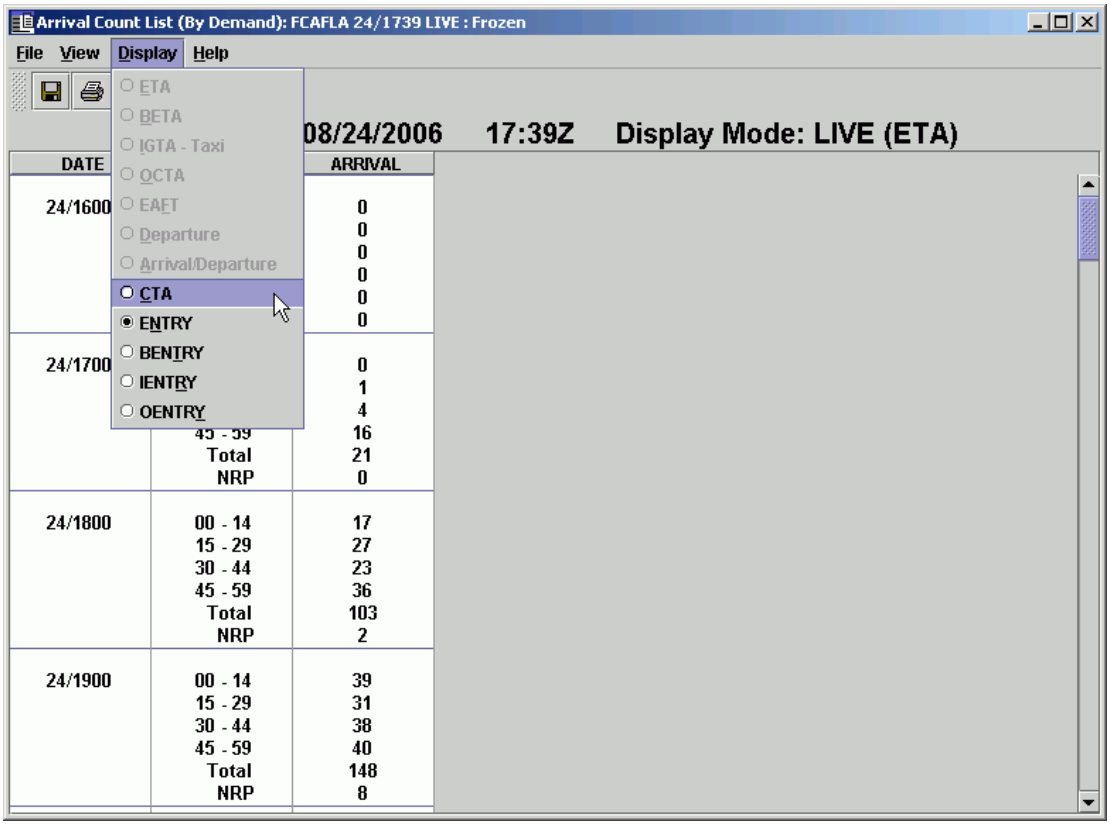


Figure 21 - 2 :Count List Display Data-FEA/FCA

To increase the size of any Count List window, drag the edge of the window with your mouse. When the information contained in the window is too large for the window, you can scroll through the data.

Count List Menu

The Count Lists (with the exception of Departure Fix) each have four menus: File, View, Display and Help.

1. File Menu
   - **File > Save As** – Saves the Count List to a file so that you can open it later in a text editor.
   - **File > Print** – Sends the Count List to a printer so that you can view a hard copy of the Count List.
   - **File > Close** – Closes and quits the Count List component without taking any action.
2. View Menu
   - **View > Freeze Data** – Freezes the Count List data at the time you select the option, otherwise the Count List updates with each new ADL.
3. Display Menu

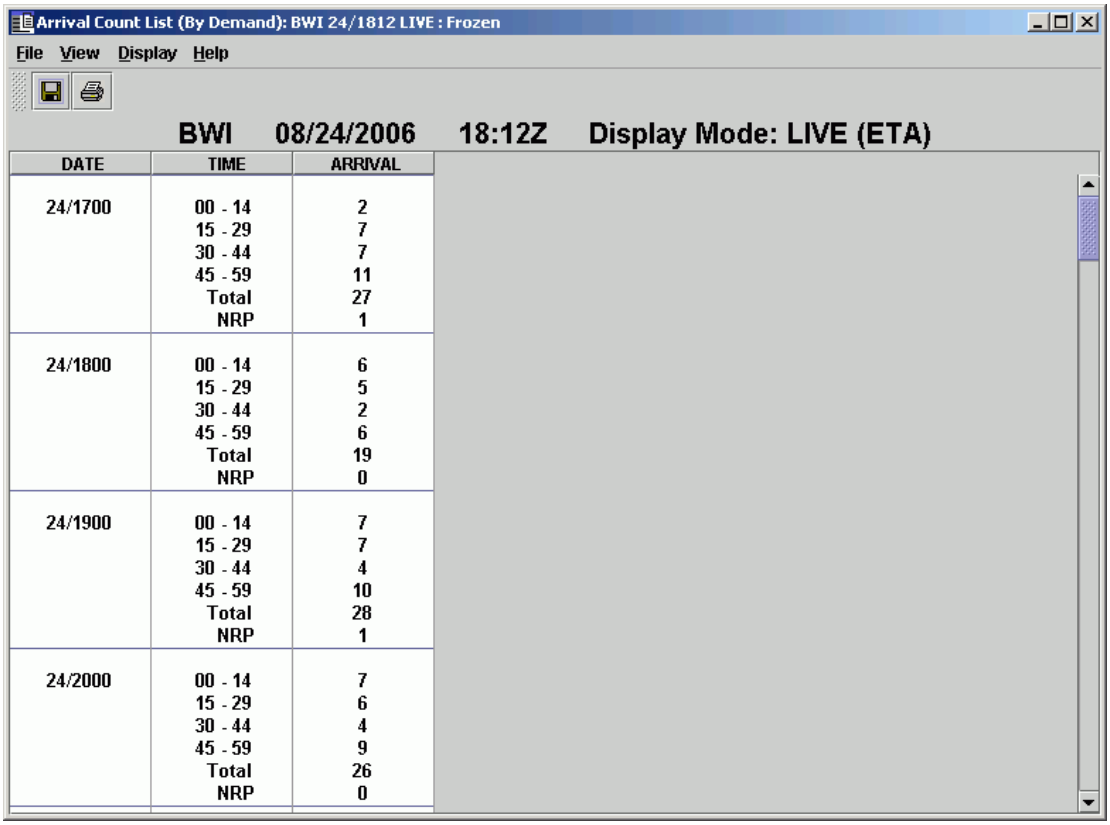
- **Display > ETA** – Displays counts based on the flights' Estimated Time of Arrival. (Airport only)
- **Display > BETA** – Displays counts based on the flights' Beginning Estimated Wheel Time of Arrival. (Airport only)
- **Display > IGTA – Taxi** – Displays counts based on the flights' Initial Estimated Gate Time Arrival – Taxi. (Airport only)
- **Display > OCTA** – Displays counts based on the flights' Original Control Time of Arrival. (Airport only)
- **Display > EAFT** – Displays counts based on the flights' Estimated Fixed Time of Arrival. (Airport only)
- **Display > Departure** – Displays counts based on the Departure flights. (Airport only)
- **Display > Arrival/Departure** – Displays counts based on Arrival and Departure flights. (Airport only)
- **Display > CTA** – Displays counts based on the flights' Control Time of Arrival.
- **Display > ENTRY** – Displays counts based on the flights' Estimated Element Entry Time. (FEA and FCA only)
- **Display > BENTRY** – Displays counts based on the flights' Based Element Entry Time. (FEA and FCA only)
- **Display > IENTRY** – Displays counts based on the flights' Initial Element Entry Time. (FEA and FCA only)
- **Display > OENTRY** – Displays counts based on the flights' Original Element Entry Time. (FEA and FCA only)

Note: The Counts by Departure Fix and Counts by Unassigned Slots do not have a Display Menu.

4. Help Menu
   - **Help > Counts** – Opens the on-line help for the Count Lists.

Count List by Demand

The By Demand Count List displays arrival demand in 15-minute intervals and totals the flight count for each hour. You can use this report to perform a quick check of the arrival demands in each hour (see Figure 21 - 3).

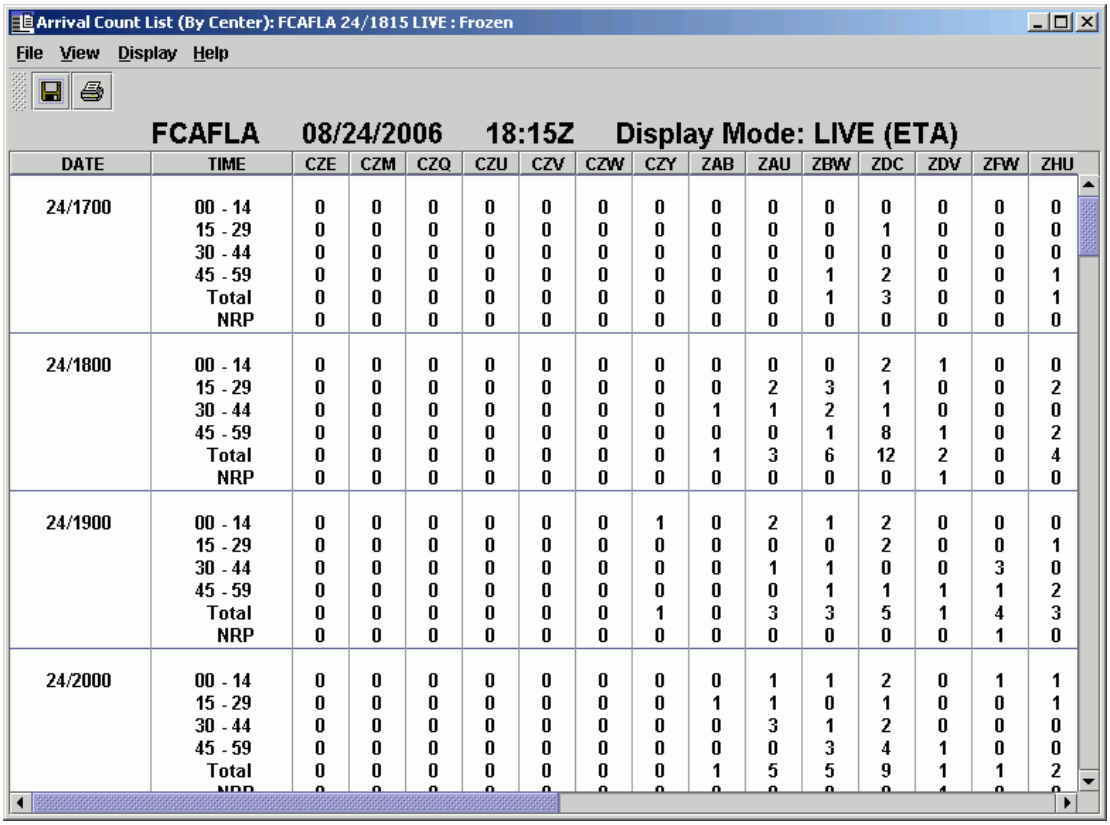


DATE	TIME	ARRIVAL
24/1700	00 - 14	2
	15 - 29	7
	30 - 44	7
	45 - 59	11
	Total	27
	NRP	1
24/1800	00 - 14	6
	15 - 29	5
	30 - 44	2
	45 - 59	6
	Total	19
	NRP	0
24/1900	00 - 14	7
	15 - 29	7
	30 - 44	4
	45 - 59	10
	Total	28
	NRP	1
24/2000	00 - 14	7
	15 - 29	6
	30 - 44	4
	45 - 59	9
	Total	26
	NRP	0

Figure 21 - 3 : Counts by Demand

Counts by Centers

The By Centers Count List provides flight counts according to departure centers. There are 20 centers for this particular display (Figure 21 - 4). If the three-letters “ZZZ” are displayed, they represent any center that is not part of the other 20. Again, in Monitored Live mode, FSM bases these counts on flights’ ETA times for airports and ENTRY times for FEAs and FCAs as displayed in the FSM Time Line.



Arrival Count List (By Center): FCAFLA 24/1815 LIVE : Frozen

File View Display Help

FCAFLA 08/24/2006 18:15Z Display Mode: LIVE (ETA)

DATE	TIME	CZE	CZM	CZQ	CZU	CZV	CZW	CZY	ZAB	ZAU	ZBW	ZDC	ZDV	ZFW	ZHU
24/1700	00 - 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	15 - 29	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	30 - 44	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	45 - 59	0	0	0	0	0	0	0	0	0	1	2	0	0	1
	Total	0	0	0	0	0	0	0	0	0	1	3	0	0	1
	NRP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24/1800	00 - 14	0	0	0	0	0	0	0	0	0	0	2	1	0	0
	15 - 29	0	0	0	0	0	0	0	0	2	3	1	0	0	2
	30 - 44	0	0	0	0	0	0	0	1	1	2	1	0	0	0
	45 - 59	0	0	0	0	0	0	0	0	0	1	8	1	0	2
	Total	0	0	0	0	0	0	0	1	3	6	12	2	0	4
	NRP	0	0	0	0	0	0	0	0	0	0	0	1	0	0
24/1900	00 - 14	0	0	0	0	0	0	1	0	2	1	2	0	0	0
	15 - 29	0	0	0	0	0	0	0	0	0	0	2	0	0	1
	30 - 44	0	0	0	0	0	0	0	0	1	1	0	0	3	0
	45 - 59	0	0	0	0	0	0	0	0	0	1	1	1	1	2
	Total	0	0	0	0	0	0	1	0	3	3	5	1	4	3
	NRP	0	0	0	0	0	0	0	0	0	0	0	0	1	0
24/2000	00 - 14	0	0	0	0	0	0	0	0	1	1	2	0	1	1
	15 - 29	0	0	0	0	0	0	0	1	1	0	1	0	0	1
	30 - 44	0	0	0	0	0	0	0	0	3	1	2	0	0	0
	45 - 59	0	0	0	0	0	0	0	0	0	3	4	1	0	0
	Total	0	0	0	0	0	0	0	1	5	5	9	1	1	2

Figure 21 - 4 : Counts by Centers

Counts by Aircraft Category

The By Aircraft Category Count List displays a count list based on the aircraft category. FSM classifies Aircraft Categories according to the aircraft category as specified by ETMS (Propeller, Turbo, Jet, and Unknown).

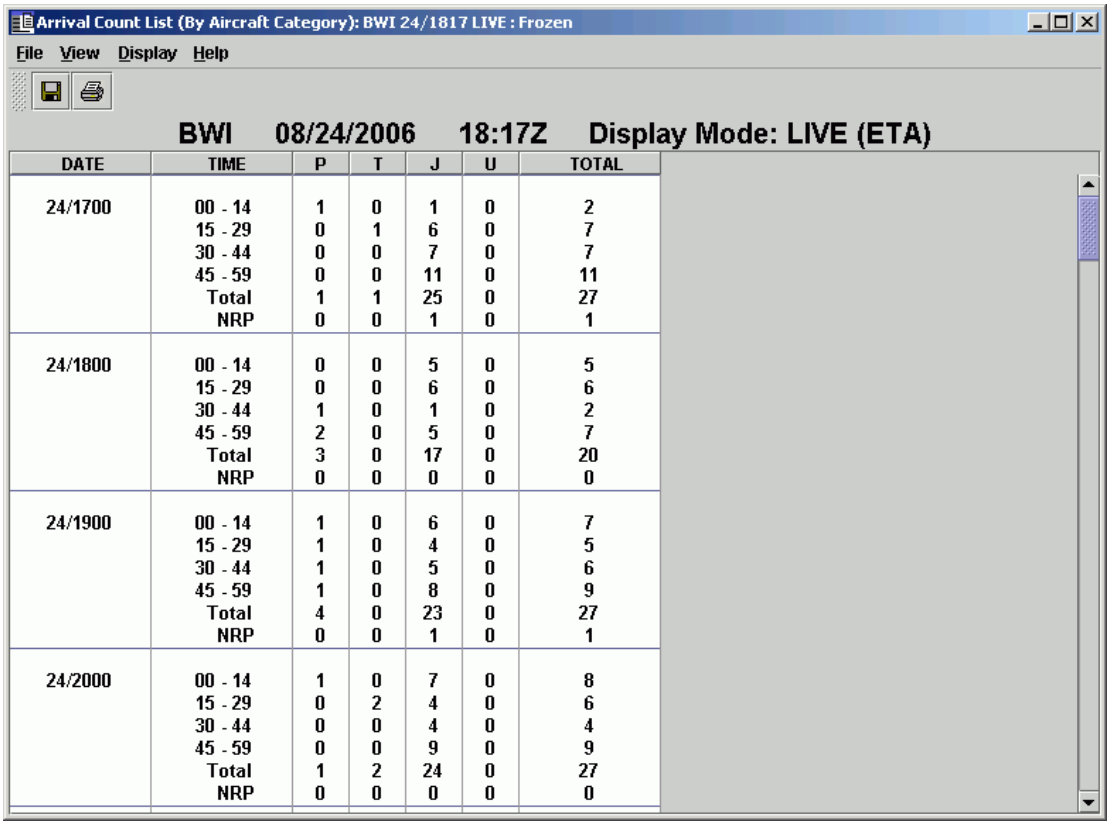
The Count List By Aircraft Category report contains the following information:

- Date – ADL day and time
- Time – 15-minute time bins
- Aircraft Categories (P, T, J, U)
- Total – Total for each time bin and for categories by hour and NRP flights.

> **Note:** For airport data sets times are by ETA, for FEA and FCA data sets times are by ENTRY.

The Aircraft Category counts are arranged in the following manner:

- Block for each hour in the ADL
- Counts by each 15-minute bin
- Sum of categories in each hour
- NRP flight count



DATE	TIME	P	T	J	U	TOTAL
24/1700	00 - 14	1	0	1	0	2
	15 - 29	0	1	6	0	7
	30 - 44	0	0	7	0	7
	45 - 59	0	0	11	0	11
	Total	1	1	25	0	27
	NRP	0	0	1	0	1
24/1800	00 - 14	0	0	5	0	5
	15 - 29	0	0	6	0	6
	30 - 44	1	0	1	0	2
	45 - 59	2	0	5	0	7
	Total	3	0	17	0	20
	NRP	0	0	0	0	0
24/1900	00 - 14	1	0	6	0	7
	15 - 29	1	0	4	0	5
	30 - 44	1	0	5	0	6
	45 - 59	1	0	8	0	9
	Total	4	0	23	0	27
	NRP	0	0	1	0	1
24/2000	00 - 14	1	0	7	0	8
	15 - 29	0	2	4	0	6
	30 - 44	0	0	4	0	4
	45 - 59	0	0	9	0	9
	Total	1	2	24	0	27
	NRP	0	0	0	0	0

Figure 21 - 5 : Counts by Aircraft Category

Counts by Aircraft Class

The By Aircraft Class Count List provides flight counts according to the aircraft weight. This Count List incorporates the following classifications for aircraft weight: Small, Large, Heavy, Jumbo, and Unknown.

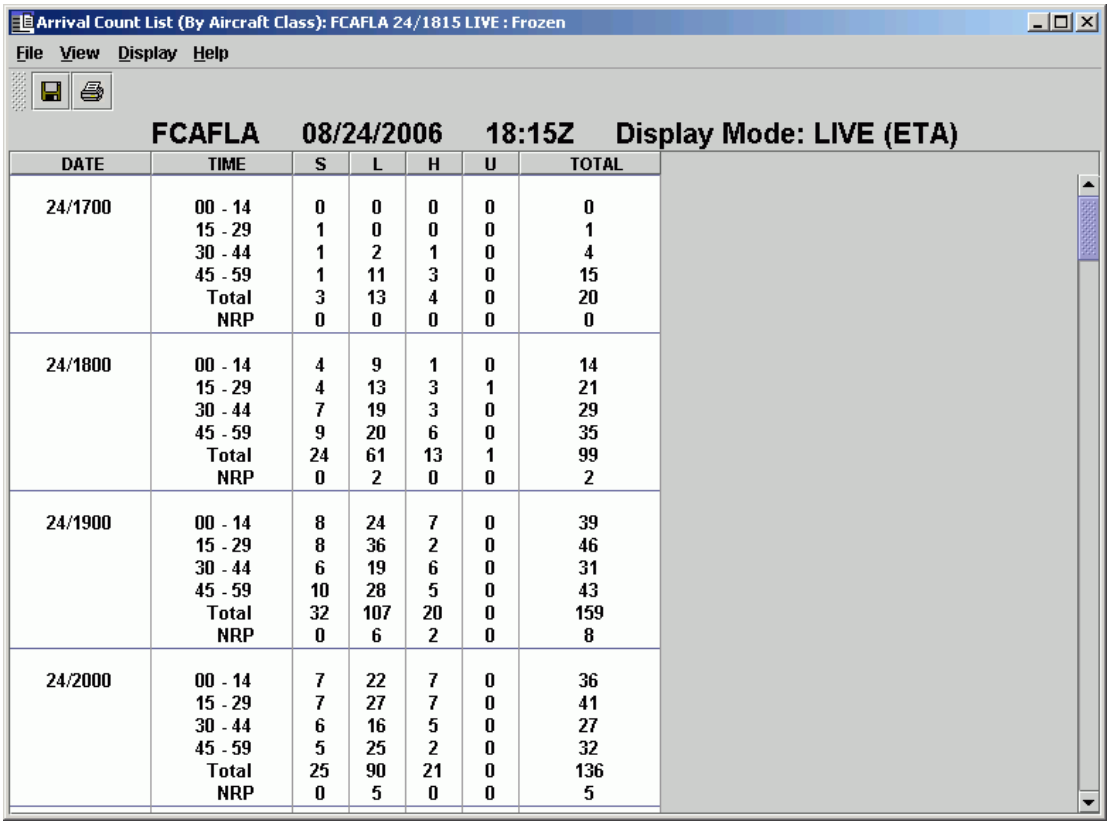
> **Note:** For airport data sets times are by ETA, for FEA and FCA data sets times are by ENTRY.

The Count List By Aircraft Class report contains the following information:

- Date – ADL day and time
- Time – 15-minute time bins
- Aircraft Classes (S, L, H, J, U)
- Total – Total for each time bin and for classes by hour and NRP flights.

The data are arranged in the following manner:

- Block for each hour in the ADL
- Counts by each 15-minute bin
- Sum of classes in each hour
- NRP flight count



DATE	TIME	S	L	H	U	TOTAL
24/1700	00 - 14	0	0	0	0	0
	15 - 29	1	0	0	0	1
	30 - 44	1	2	1	0	4
	45 - 59	1	11	3	0	15
	Total	3	13	4	0	20
	NRP	0	0	0	0	0
24/1800	00 - 14	4	9	1	0	14
	15 - 29	4	13	3	1	21
	30 - 44	7	19	3	0	29
	45 - 59	9	20	6	0	35
	Total	24	61	13	1	99
	NRP	0	2	0	0	2
24/1900	00 - 14	8	24	7	0	39
	15 - 29	8	36	2	0	46
	30 - 44	6	19	6	0	31
	45 - 59	10	28	5	0	43
	Total	32	107	20	0	159
	NRP	0	6	2	0	8
24/2000	00 - 14	7	22	7	0	36
	15 - 29	7	27	7	0	41
	30 - 44	6	16	5	0	27
	45 - 59	5	25	2	0	32
	Total	25	90	21	0	136
	NRP	0	5	0	0	5

Figure 21 - 6 : Counts by Aircraft Class

Counts by Arrival Fix

The By Arrival Fix Count List provides flight counts according to the Arrival Fix each flight is arriving at for the monitored airport. Arrival Fix names for each airport vary. FSM automatically generates the correct Arrival Fix names for the monitored airports and uses them in the Count List headings.

> **Note:** Times are displayed by ETA. Not applicable for FEA and FCA data sets and is therefore disabled.

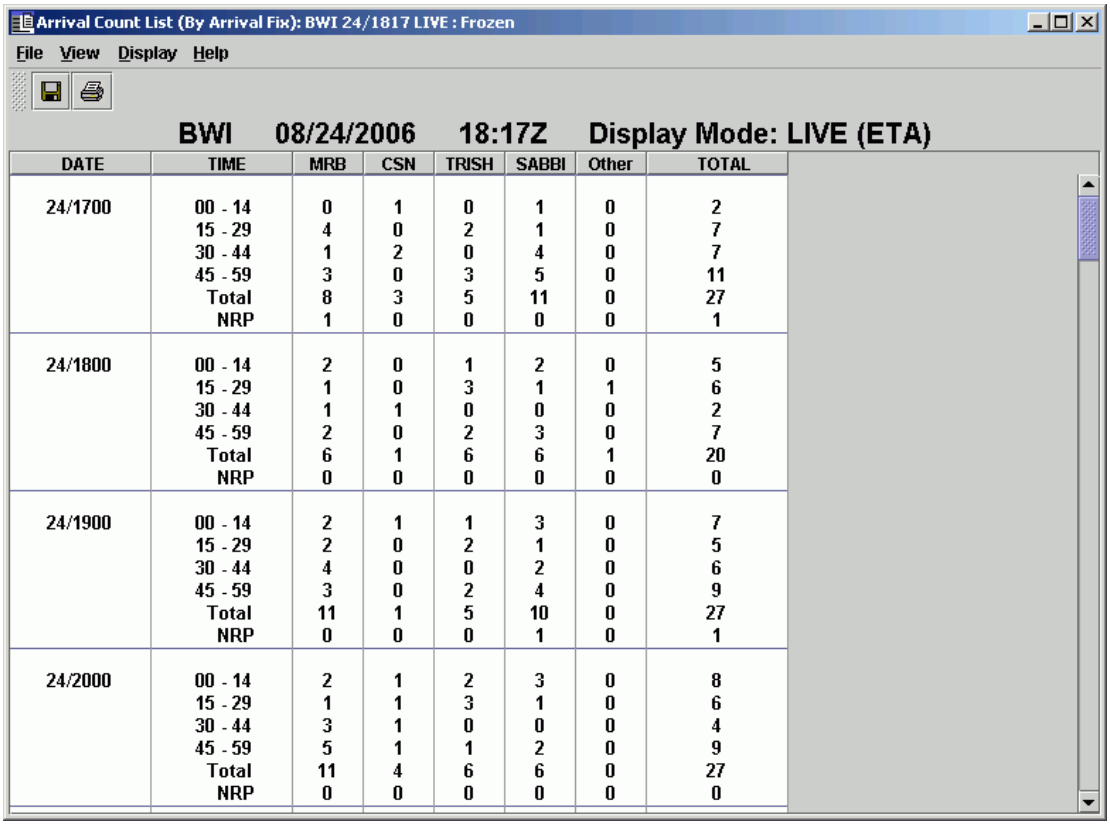
The Count List By Arrival Fix report contains the following information:

- Date – ADL day and time
- Time – 15-minute time bins
- Arrival Fixes
- Total – Total fix crossings for each time bin and for each fix, by hour and NRP flight.

The data are arranged in the following manner:

- Block for each hour in the ADL
- Counts by each 15-minute bin
- Sum of fix crossings in each hour

- NRP flight count



DATE	TIME	MRB	CSN	TRISH	SABBI	Other	TOTAL
24/1700	00 - 14	0	1	0	1	0	2
	15 - 29	4	0	2	1	0	7
	30 - 44	1	2	0	4	0	7
	45 - 59	3	0	3	5	0	11
	Total	8	3	5	11	0	27
	NRP	1	0	0	0	0	1
24/1800	00 - 14	2	0	1	2	0	5
	15 - 29	1	0	3	1	1	6
	30 - 44	1	1	0	0	0	2
	45 - 59	2	0	2	3	0	7
	Total	6	1	6	6	1	20
	NRP	0	0	0	0	0	0
24/1900	00 - 14	2	1	1	3	0	7
	15 - 29	2	0	2	1	0	5
	30 - 44	4	0	0	2	0	6
	45 - 59	3	0	2	4	0	9
	Total	11	1	5	10	0	27
	NRP	0	0	0	1	0	1
24/2000	00 - 14	2	1	2	3	0	8
	15 - 29	1	1	3	1	0	6
	30 - 44	3	1	0	0	0	4
	45 - 59	5	1	1	2	0	9
	Total	11	4	6	6	0	27
	NRP	0	0	0	0	0	0

Figure 21 - 7 : Counts by Arrival Fix

Counts by Departure Fix

The By Departure Fix Count List provides flight counts according to the departure fix each departing flight is passing over for the monitored airport. Departure fix names for each airport vary. FSM generates the departure fixes for the monitored airport from the ADL file and uses them in the Count List headings. If the departure fix is not specified in the ADL or is blank, the flight is displayed under the “Other” column.

> **Note:** Times are displayed by ETD. Not applicable for FEA and FCA data sets and is therefore disabled.

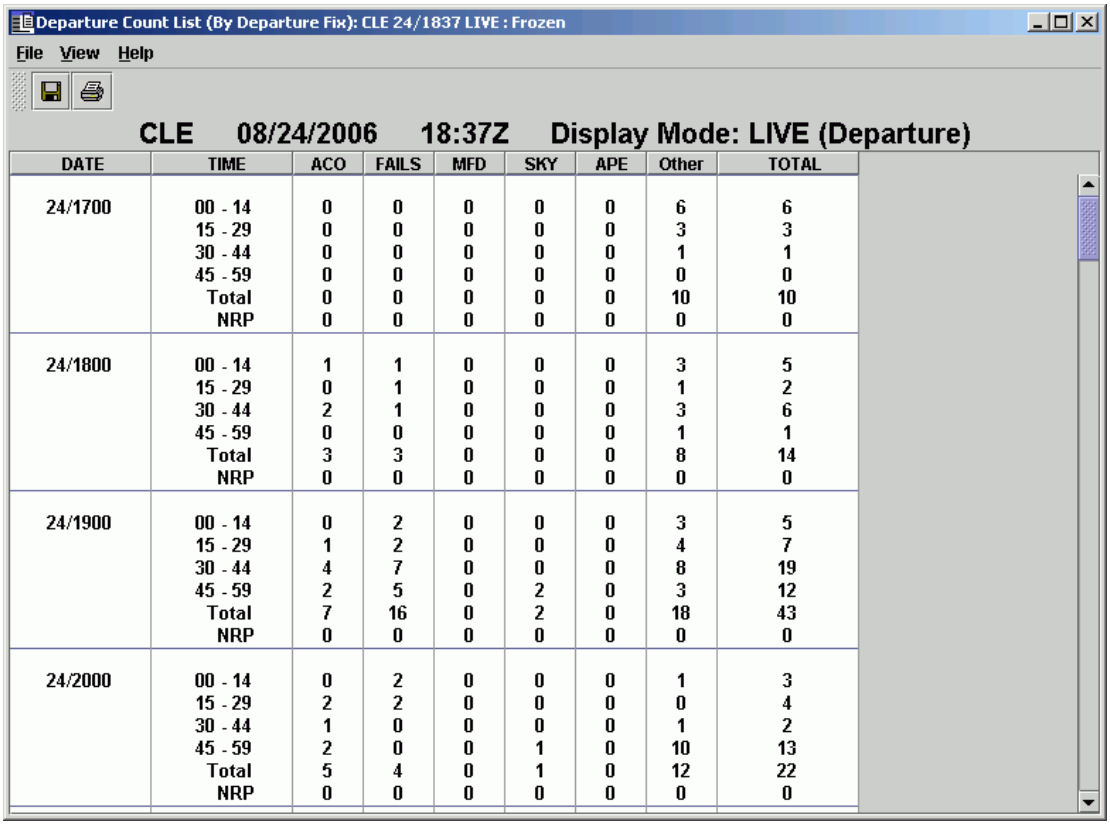
The Count List By Departure Fix report contains the following information:

- Date – ADL day and time
- Time – 15-minute time bins
- Departure Fixes
- Total – Total fix crossings for each time bin and for each fix, by hour and NRP flights

The data are arranged in the following manner:

- Block for each hour in the ADL

- Counts by each 15-minute bin
- Sum of fix crossings in each hour
- NRP flight count



DATE	TIME	ACO	FAILS	MFD	SKY	APE	Other	TOTAL
24/1700	00 - 14	0	0	0	0	0	6	6
	15 - 29	0	0	0	0	0	3	3
	30 - 44	0	0	0	0	0	1	1
	45 - 59	0	0	0	0	0	0	0
	Total	0	0	0	0	0	10	10
	NRP	0	0	0	0	0	0	0
24/1800	00 - 14	1	1	0	0	0	3	5
	15 - 29	0	1	0	0	0	1	2
	30 - 44	2	1	0	0	0	3	6
	45 - 59	0	0	0	0	0	1	1
	Total	3	3	0	0	0	8	14
	NRP	0	0	0	0	0	0	0
24/1900	00 - 14	0	2	0	0	0	3	5
	15 - 29	1	2	0	0	0	4	7
	30 - 44	4	7	0	0	0	8	19
	45 - 59	2	5	0	2	0	3	12
	Total	7	16	0	2	0	18	43
	NRP	0	0	0	0	0	0	0
24/2000	00 - 14	0	2	0	0	0	1	3
	15 - 29	2	2	0	0	0	0	4
	30 - 44	1	0	0	0	0	1	2
	45 - 59	2	0	0	1	0	10	13
	Total	5	4	0	1	0	12	22
	NRP	0	0	0	0	0	0	0

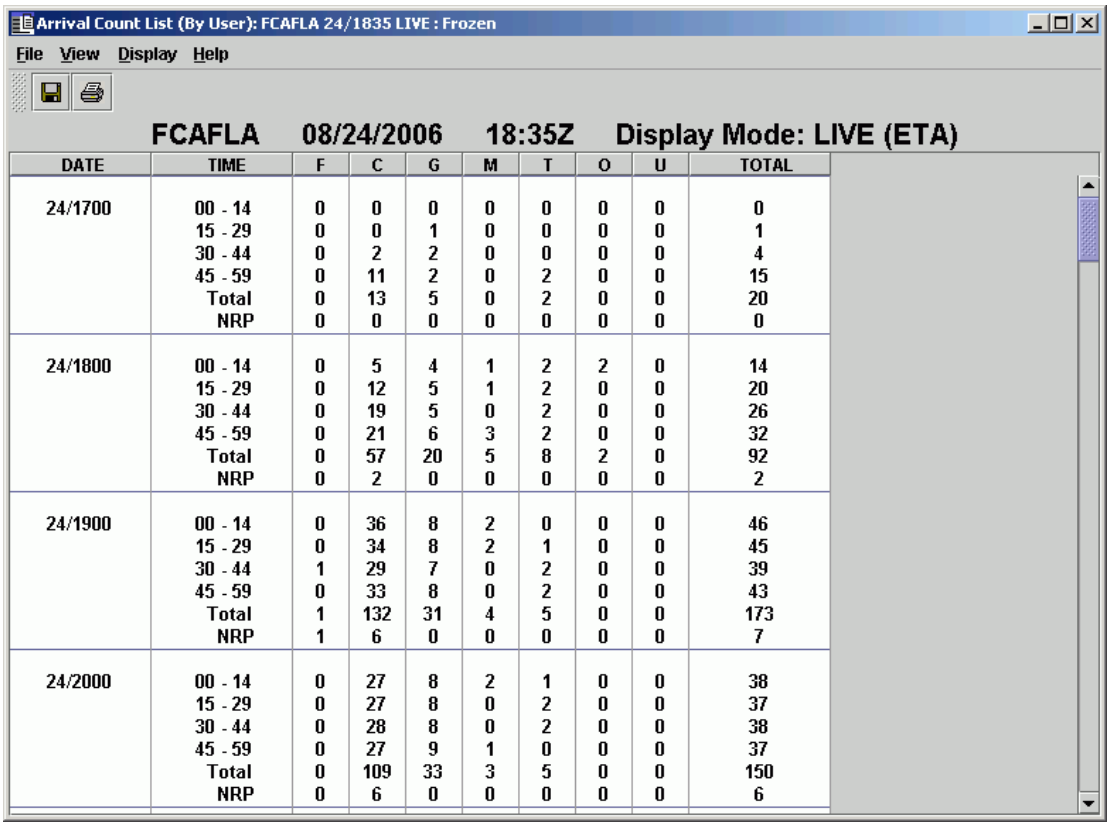
Figure 21 - 8 : Counts by Departure Fix

Counts by User

The Arrival Count List By User provides a flight count according to the classification of the aircraft (Figure 21 - 9). The Arrival Count List by User classifies flights according to their function in the NAS. There are seven types of users in FSM:

- C – Air Carriers
- T – Air Taxi
- F – Freight/Cargo Carriers
- M – Military
- G – General Aviation
- O – Other – This class includes flights that do not belong to one of the five categories listed above.
- U – Unknown – This category is for flights which may fall into a user category, but the classification is not known in FSM

Note: For airport data sets times are by ETA, for FEA and FCA data sets times are by ENTRY.



DATE	TIME	F	C	G	M	T	O	U	TOTAL
24/1700	00 - 14	0	0	0	0	0	0	0	0
	15 - 29	0	0	1	0	0	0	0	1
	30 - 44	0	2	2	0	0	0	0	4
	45 - 59	0	11	2	0	2	0	0	15
	Total	0	13	5	0	2	0	0	20
	NRP	0	0	0	0	0	0	0	0
24/1800	00 - 14	0	5	4	1	2	2	0	14
	15 - 29	0	12	5	1	2	0	0	20
	30 - 44	0	19	5	0	2	0	0	26
	45 - 59	0	21	6	3	2	0	0	32
	Total	0	57	20	5	8	2	0	92
	NRP	0	2	0	0	0	0	0	2
24/1900	00 - 14	0	36	8	2	0	0	0	46
	15 - 29	0	34	8	2	1	0	0	45
	30 - 44	1	29	7	0	2	0	0	39
	45 - 59	0	33	8	0	2	0	0	43
	Total	1	132	31	4	5	0	0	173
	NRP	1	6	0	0	0	0	0	7
24/2000	00 - 14	0	27	8	2	1	0	0	38
	15 - 29	0	27	8	0	2	0	0	37
	30 - 44	0	28	8	0	2	0	0	38
	45 - 59	0	27	9	1	0	0	0	37
	Total	0	109	33	3	5	0	0	150
	NRP	0	6	0	0	0	0	0	6

Figure 21 - 9 : Counts by User

The Count List By User report contains the following information:

- Date – ADL day and time
- Time – 15-minute time bins
- Users – F, C, G, M, T, O, U
- Total – Total for each time bin, and for user class, by hour and NRP flights

The data are arranged in the following manner:

- Block for each hour in the ADL
- Counts by each 15-minute bin
- Sum of Users in each hour
- NRP flight count

Counts By Unassigned Slot

The unassigned slot report is very similar to the count list report (Figure 21 - 10). The title bar for the report shows the report icon, and “Count List (Unassigned Slot): [three letter

airport identifier] [ADL Date YYYY/MMM/DD/] [ADL Time HH:MMZ] [Mode: Live/ Hist]: [Frozen (if you select it)]". The report does not have a Display menu item.

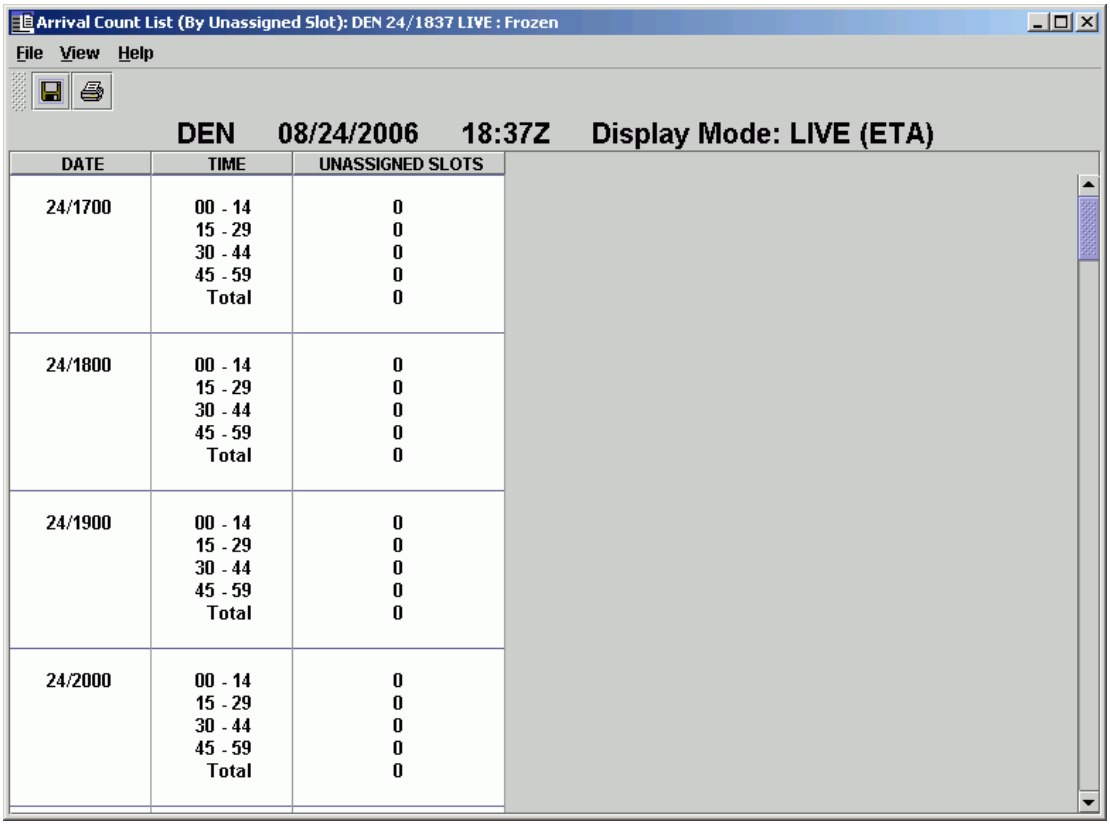
> **Note:** For airport data sets times are by ETA, for FEA and FCA data sets times are by ENTRY.

The Count List By Unassigned Slot report contains the following information:

- Date – ADL day and time
- Time – 15-minute time bins and Total
- Unassigned Slots – number of unassigned slots per time bin

The data are arranged in the following manner:

- Block for each hour in the ADL
- Counts by each 15-minute bin
- Sum of slots in each hour – Total number of Unassigned slots for the hour.



DATE	TIME	UNASSIGNED SLOTS
24/1700	00 - 14	0
	15 - 29	0
	30 - 44	0
	45 - 59	0
	Total	0
24/1800	00 - 14	0
	15 - 29	0
	30 - 44	0
	45 - 59	0
	Total	0
24/1900	00 - 14	0
	15 - 29	0
	30 - 44	0
	45 - 59	0
	Total	0
24/2000	00 - 14	0
	15 - 29	0
	30 - 44	0
	45 - 59	0
	Total	0

Figure 21 - 10 : Count By Unassigned Slot

Compliance Flight Lists

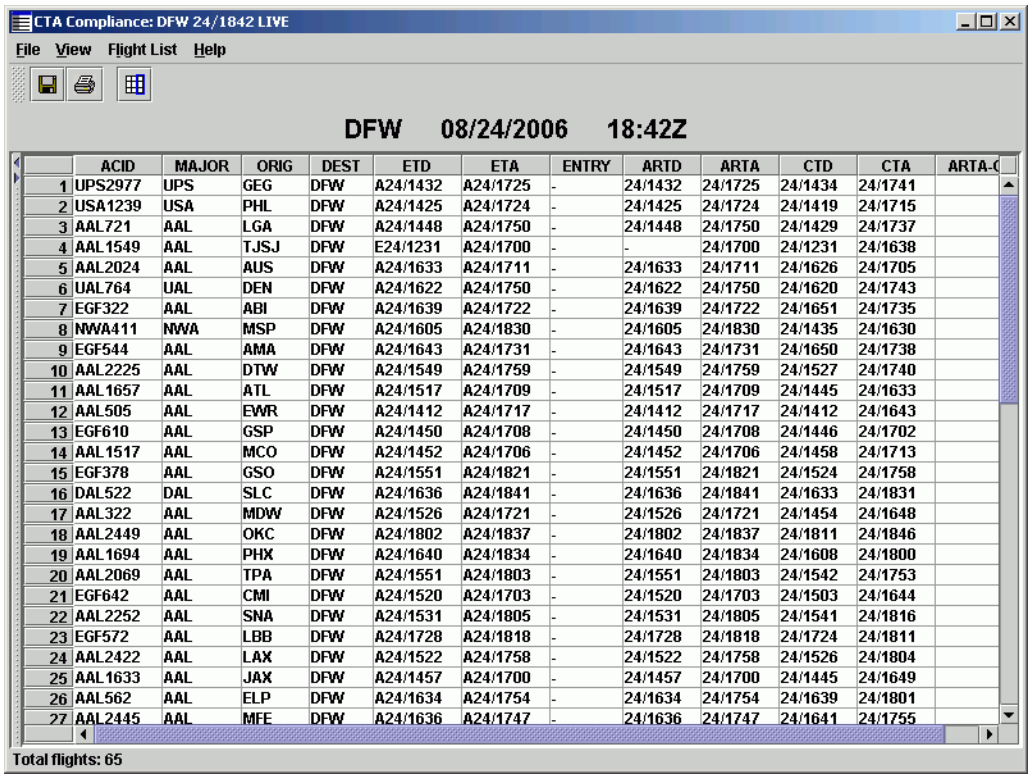
When any flight becomes noncompliant, FSM generates a flight list that includes these flights. You can access the compliance reports from the **Reports > Compliance >[Report**

Name] option from the Control Panel component. There are five possible compliance reports:

- By CTD
- By ETE
- By CTA
- Spurious Flight (Airport only)
- Cancel That Flew

For example, if you select **Reports > Compliance > By CTA**, all flights that have non-compliant CTAs are displayed with the FltAlarm CC checkboxes checked. This report also contains non-compliant alarm columns. If the flight has additional alarms (non-compliant) associated with it, those alarm checkboxes also are checkmarked. Figure 21 - 11 is an example of CTA Compliance Alarm Flight List.

> **Note:** Alarm Flight Lists include only those flights arriving at the selected airport.



	ACID	MAJOR	ORIG	DEST	ETD	ETA	ENTRY	ARTD	ARTA	CTD	CTA	ARTA-C
1	UPS2977	UPS	GEG	DFW	A24/1432	A24/1725	-	24/1432	24/1725	24/1434	24/1741	
2	USA1239	USA	PHL	DFW	A24/1425	A24/1724	-	24/1425	24/1724	24/1419	24/1715	
3	AAL721	AAL	LGA	DFW	A24/1448	A24/1750	-	24/1448	24/1750	24/1429	24/1737	
4	AAL1549	AAL	TJSJ	DFW	E24/1231	A24/1700	-	-	24/1700	24/1231	24/1638	
5	AAL2024	AAL	AUS	DFW	A24/1633	A24/1711	-	24/1633	24/1711	24/1626	24/1705	
6	UAL764	UAL	DEN	DFW	A24/1622	A24/1750	-	24/1622	24/1750	24/1620	24/1743	
7	EGF322	AAL	ABI	DFW	A24/1639	A24/1722	-	24/1639	24/1722	24/1651	24/1735	
8	NWA411	NWA	MSP	DFW	A24/1605	A24/1830	-	24/1605	24/1830	24/1435	24/1630	
9	EGF544	AAL	AMA	DFW	A24/1643	A24/1731	-	24/1643	24/1731	24/1650	24/1738	
10	AAL2225	AAL	DTW	DFW	A24/1549	A24/1759	-	24/1549	24/1759	24/1527	24/1740	
11	AAL1657	AAL	ATL	DFW	A24/1517	A24/1709	-	24/1517	24/1709	24/1445	24/1633	
12	AAL505	AAL	EWR	DFW	A24/1412	A24/1717	-	24/1412	24/1717	24/1412	24/1643	
13	EGF610	AAL	GSP	DFW	A24/1450	A24/1708	-	24/1450	24/1708	24/1446	24/1702	
14	AAL1517	AAL	MCO	DFW	A24/1452	A24/1706	-	24/1452	24/1706	24/1458	24/1713	
15	EGF378	AAL	GSO	DFW	A24/1551	A24/1821	-	24/1551	24/1821	24/1524	24/1758	
16	DAL522	DAL	SLC	DFW	A24/1636	A24/1841	-	24/1636	24/1841	24/1633	24/1831	
17	AAL322	AAL	MDW	DFW	A24/1526	A24/1721	-	24/1526	24/1721	24/1454	24/1648	
18	AAL2449	AAL	OKC	DFW	A24/1802	A24/1837	-	24/1802	24/1837	24/1811	24/1846	
19	AAL1694	AAL	PHX	DFW	A24/1640	A24/1834	-	24/1640	24/1834	24/1608	24/1800	
20	AAL2069	AAL	TPA	DFW	A24/1551	A24/1803	-	24/1551	24/1803	24/1542	24/1753	
21	EGF642	AAL	CMI	DFW	A24/1520	A24/1703	-	24/1520	24/1703	24/1503	24/1644	
22	AAL2252	AAL	SNA	DFW	A24/1531	A24/1805	-	24/1531	24/1805	24/1541	24/1816	
23	EGF572	AAL	LBB	DFW	A24/1728	A24/1818	-	24/1728	24/1818	24/1724	24/1811	
24	AAL2422	AAL	LAX	DFW	A24/1522	A24/1758	-	24/1522	24/1758	24/1526	24/1804	
25	AAL1633	AAL	JAX	DFW	A24/1457	A24/1700	-	24/1457	24/1700	24/1445	24/1649	
26	AAL562	AAL	ELP	DFW	A24/1634	A24/1754	-	24/1634	24/1754	24/1639	24/1801	
27	AAL2445	AAL	MFE	DFW	A24/1636	A24/1747	-	24/1636	24/1747	24/1641	24/1755	

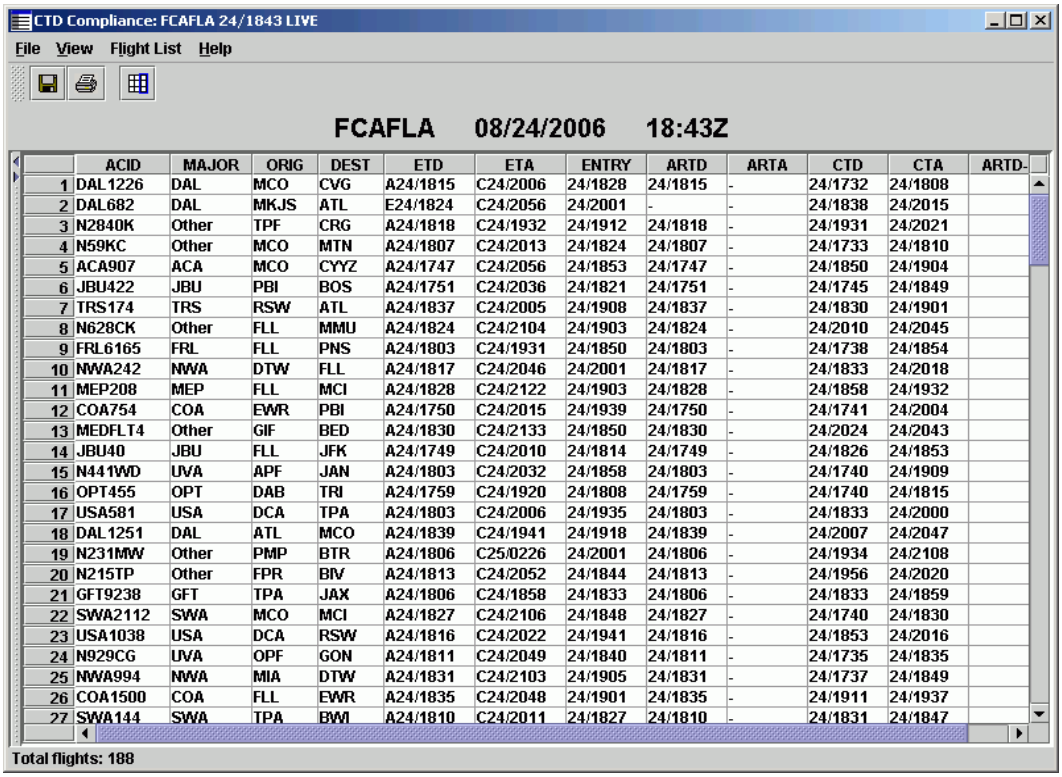
Figure 21 - 11 : CTA Compliance Alarm Report

To view the Compliance alarm columns on the generated report, select the alarms from the Add/Remove Columns window. If a flight is non-compliant, the checkbox under the Alarm type is selected. The Compliance Alarm columns are defined below:

1. **CC** – These flights violated their CTA Compliance. Flights arriving more than five minutes before or more than five minutes after their Control Time of Arrival (CTA).
2. **EC** – These flights violated their CTD Compliance. The departure boundaries are more than five minutes before or more than five minutes after their estimated departure clearance time. Any flight, which has an ARTD of five minutes earlier or five minutes later than the most recent EDCT, is displayed in the CTD Compliance report.
3. **EA** – These flights violated the Actual ETE vs. Original ETE alarm. ETMS generates this Alarm when the difference between the ETE estimated by ETMS and actual flight time is greater than a specified value, but the flight status is not "cancelled." The default value is 15 minutes. ETMS estimates ETE using OCTA - OCTD. ETMS calculates actual flight time using ARTA -ARTD.
4. **SF** – This alarm detects the cancellation of a false flight used to ignite a substitution stream. Flights submitted as FX cancellations with no corresponding entries in the OAG trigger the Spurious Flights Alarm.
5. **CF** – This alarm detects any flights that were cancelled but later flew without the flight being reinstated properly.

By CTD Compliance Report

The By CTD Compliance report checks for flights which violate departure compliance in a delay program. The default departure boundaries are more than five minutes before or more than five minutes after their estimated departure clearance time. Any flight that has an ARTD of five minutes earlier or five minutes later than the most recent OrigEDCT is included in the By CTD Compliance report, as shown in Figure 21 - 12.



	ACID	MAJOR	ORIG	DEST	ETD	ETA	ENTRY	ARTD	ARTA	CTD	CTA	ARTD-
1	DAL1226	DAL	MCO	CVG	A24/1815	C24/2006	24/1828	24/1815	-	24/1732	24/1808	
2	DAL682	DAL	MKJS	ATL	E24/1824	C24/2056	24/2001	-	-	24/1838	24/2015	
3	N2840K	Other	TPF	CRG	A24/1818	C24/1932	24/1912	24/1818	-	24/1931	24/2021	
4	N59KC	Other	MCO	MTN	A24/1807	C24/2013	24/1824	24/1807	-	24/1733	24/1810	
5	ACA907	ACA	MCO	CYYZ	A24/1747	C24/2056	24/1853	24/1747	-	24/1850	24/1904	
6	JBU422	JBU	PBI	BOS	A24/1751	C24/2036	24/1821	24/1751	-	24/1745	24/1849	
7	TRS174	TRS	RSW	ATL	A24/1837	C24/2005	24/1908	24/1837	-	24/1830	24/1901	
8	N628CK	Other	FLL	MMU	A24/1824	C24/2104	24/1903	24/1824	-	24/2010	24/2045	
9	FRL6165	FRL	FLL	PNS	A24/1803	C24/1931	24/1850	24/1803	-	24/1738	24/1854	
10	NWA242	NWA	DTW	FLL	A24/1817	C24/2046	24/2001	24/1817	-	24/1833	24/2018	
11	MEP208	MEP	FLL	MCI	A24/1828	C24/2122	24/1903	24/1828	-	24/1858	24/1932	
12	COA754	COA	EWR	PBI	A24/1750	C24/2015	24/1939	24/1750	-	24/1741	24/2004	
13	MEDFLT4	Other	GIF	BED	A24/1830	C24/2133	24/1850	24/1830	-	24/2024	24/2043	
14	JBU40	JBU	FLL	JFK	A24/1749	C24/2010	24/1814	24/1749	-	24/1826	24/1853	
15	N441WD	UVA	APF	JAN	A24/1803	C24/2032	24/1858	24/1803	-	24/1740	24/1909	
16	OPT455	OPT	DAB	TRI	A24/1759	C24/1920	24/1808	24/1759	-	24/1740	24/1815	
17	USA581	USA	DCA	TPA	A24/1803	C24/2006	24/1935	24/1803	-	24/1833	24/2000	
18	DAL1251	DAL	ATL	MCO	A24/1839	C24/1941	24/1918	24/1839	-	24/2007	24/2047	
19	N231MW	Other	PMP	BTR	A24/1806	C25/0226	24/2001	24/1806	-	24/1934	24/2108	
20	N215TP	Other	FPR	BIV	A24/1813	C24/2052	24/1844	24/1813	-	24/1956	24/2020	
21	GFT9238	GFT	TPA	JAX	A24/1806	C24/1858	24/1833	24/1806	-	24/1833	24/1859	
22	SWA2112	SWA	MCO	MCI	A24/1827	C24/2106	24/1848	24/1827	-	24/1740	24/1830	
23	USA1038	USA	DCA	RSW	A24/1816	C24/2022	24/1941	24/1816	-	24/1853	24/2016	
24	N929CG	UVA	OPF	GON	A24/1811	C24/2049	24/1840	24/1811	-	24/1735	24/1835	
25	NWA994	NWA	MIA	DTW	A24/1831	C24/2103	24/1905	24/1831	-	24/1737	24/1849	
26	COA1500	COA	FLL	EWR	A24/1835	C24/2048	24/1901	24/1835	-	24/1911	24/1937	
27	SWA144	SWA	TPA	BWI	A24/1810	C24/2011	24/1827	24/1810	-	24/1831	24/1847	

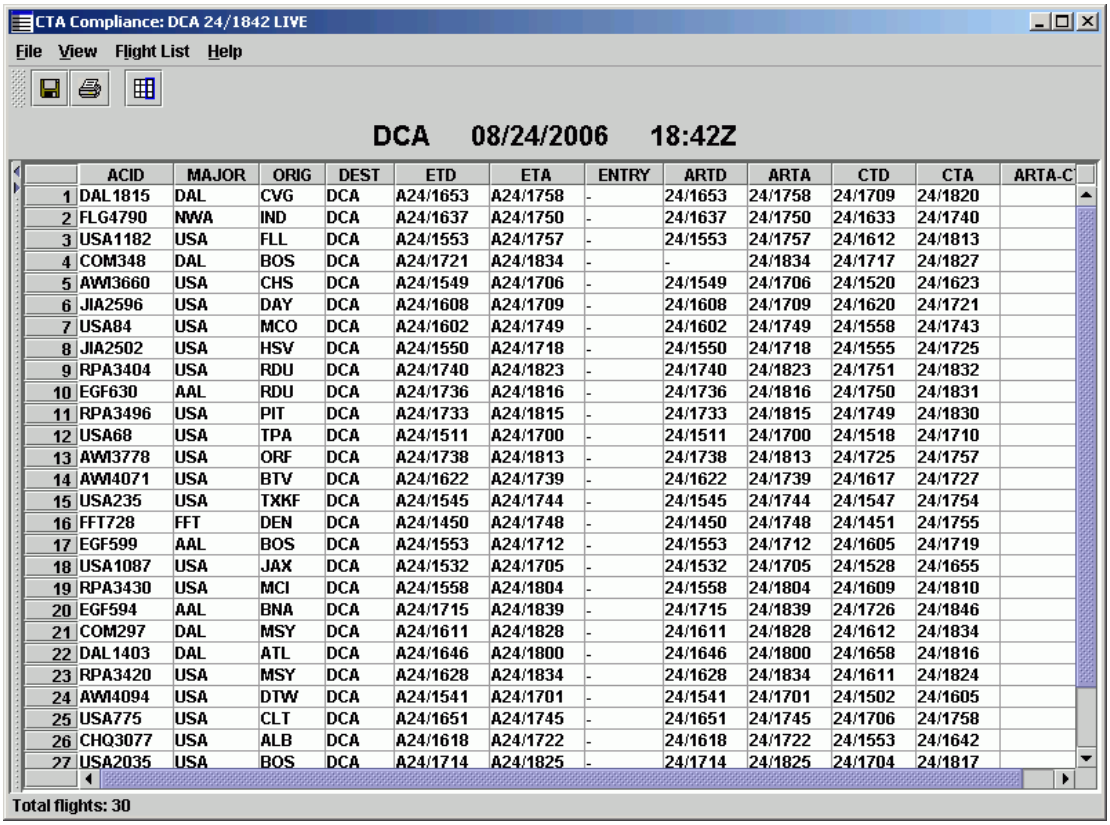
Figure 21 - 12 : CTD Compliance

By ETE Compliance Report

The By ETE Compliance report compares the Actual ETE vs. Original ETE. FSM includes flights in the *By ETE* Compliance report when the difference between the ETE estimated by ETMS and actual flight time is greater than a specified value, but the flight status is not “cancelled.” The default value is 15 minutes. ETMS estimates ETE using OCTA - OCTD. ETMS calculates actual flight time using ARTA - ARTD.

By CTA Compliance Report

The By CTA Compliance reports check for flights which violate arrival compliance in a delay program. By default, flights that violate arrival compliance are defined as those flights arriving more than five minutes before or more than five minutes after their Control Time of Arrival. If ETMS detects any of the specified conditions, the flight is included in the By CTA Compliance Flight List, as shown in Figure 21 - 13.



	ACID	MAJOR	ORIG	DEST	ETD	ETA	ENTRY	ARTD	ARTA	CTD	CTA	ARTA-C
1	DAL1815	DAL	CVG	DCA	A24/1653	A24/1758	-	24/1653	24/1758	24/1709	24/1820	
2	FLG4790	NWA	IND	DCA	A24/1637	A24/1750	-	24/1637	24/1750	24/1633	24/1740	
3	USA1182	USA	FLL	DCA	A24/1553	A24/1757	-	24/1553	24/1757	24/1612	24/1813	
4	COM348	DAL	BOS	DCA	A24/1721	A24/1834	-	-	24/1834	24/1717	24/1827	
5	AWI3660	USA	CHS	DCA	A24/1549	A24/1706	-	24/1549	24/1706	24/1520	24/1623	
6	JIA2596	USA	DAY	DCA	A24/1608	A24/1709	-	24/1608	24/1709	24/1620	24/1721	
7	USA84	USA	MCO	DCA	A24/1602	A24/1749	-	24/1602	24/1749	24/1558	24/1743	
8	JIA2502	USA	HSV	DCA	A24/1550	A24/1718	-	24/1550	24/1718	24/1555	24/1725	
9	RPA3404	USA	RDU	DCA	A24/1740	A24/1823	-	24/1740	24/1823	24/1751	24/1832	
10	EGF630	AAL	RDU	DCA	A24/1736	A24/1816	-	24/1736	24/1816	24/1750	24/1831	
11	RPA3496	USA	PIT	DCA	A24/1733	A24/1815	-	24/1733	24/1815	24/1749	24/1830	
12	USA68	USA	TPA	DCA	A24/1511	A24/1700	-	24/1511	24/1700	24/1518	24/1710	
13	AWI3778	USA	ORF	DCA	A24/1738	A24/1813	-	24/1738	24/1813	24/1725	24/1757	
14	AWI4071	USA	BTV	DCA	A24/1622	A24/1739	-	24/1622	24/1739	24/1617	24/1727	
15	USA235	USA	TXKF	DCA	A24/1545	A24/1744	-	24/1545	24/1744	24/1547	24/1754	
16	FFT728	FFT	DEN	DCA	A24/1450	A24/1748	-	24/1450	24/1748	24/1451	24/1755	
17	EGF599	AAL	BOS	DCA	A24/1553	A24/1712	-	24/1553	24/1712	24/1605	24/1719	
18	USA1087	USA	JAX	DCA	A24/1532	A24/1705	-	24/1532	24/1705	24/1528	24/1655	
19	RPA3430	USA	MCI	DCA	A24/1558	A24/1804	-	24/1558	24/1804	24/1609	24/1810	
20	EGF594	AAL	BNA	DCA	A24/1715	A24/1839	-	24/1715	24/1839	24/1726	24/1846	
21	COM297	DAL	MSY	DCA	A24/1611	A24/1828	-	24/1611	24/1828	24/1612	24/1834	
22	DAL1403	DAL	ATL	DCA	A24/1646	A24/1800	-	24/1646	24/1800	24/1658	24/1816	
23	RPA3420	USA	MSY	DCA	A24/1628	A24/1834	-	24/1628	24/1834	24/1611	24/1824	
24	AWI4094	USA	DTW	DCA	A24/1541	A24/1701	-	24/1541	24/1701	24/1502	24/1605	
25	USA775	USA	CLT	DCA	A24/1651	A24/1745	-	24/1651	24/1745	24/1706	24/1758	
26	CHQ3077	USA	ALB	DCA	A24/1618	A24/1722	-	24/1618	24/1722	24/1553	24/1642	
27	USA2035	USA	BOS	DCA	A24/1714	A24/1825	-	24/1714	24/1825	24/1704	24/1817	

Figure 21 - 13 : CTA Compliance

Spurious Flight Compliance Report

The Spurious Flight Compliance report detects the cancellation of false flights used to ignite a substitution stream. Flights submitted as FX cancellations with no corresponding entries in the OAG are included in the Spurious Flight List.

Cancel That Flew Compliance Report

The Cancel That Flew Compliance report includes any flight that was cancelled and later flew.

Program Delay Histogram

You can access the Program Delay Histogram from the **Reports > Delay Histograms** menu on the Control Panel. Program delay is the amount of delay that non-cancelled, non-active, controlled flights have received due to a Traffic Management Initiative. Program delay is calculated using Max (0, [CTA - BETA]), therefore any time a flight's CTA is updated the Program delay is recalculated.

The title of the histogram is centered over the graph and reads “Program Delay Histogram: [APT] [ADL Date] [ADL Time]” for airports and “Program Delay [FEA/FCA] [ADL Date] [ADL Time]” for FEAs and FCAs. The title bar of the Program Delay Histogram shows the status of the data:

- Live mode – Program Delay: [APT or FEA/FCA] dd/hhmm Live
- Frozen in Live Mode – TProgram Delay: [APT or FEA/FCA] dd/hhmm Live: Frozen
- Historical Mode – TProgram Delay: [APT or FEA/FCA] [yyyy]/[Mmm]/[dd] [hhmm] HIST
- Frozen in Historical Mode – Program Delay: [APT or FEA/FCA] [yyyy]/[Mmm]/[dd] [hhmm] HIST: Frozen

Note: Histograms are not available for GDT Mode.

The flight data displayed on the histogram is dynamic. Each time FSM receives an ADL for the airport, FEA, or FCA, data on the histogram updates.

The X-axis shows the Program Delay in minutes. Flights are grouped on the X-axis of the graph in 15-minute bins:

- The smallest bin is 0-14 minutes
- The largest bin is 150+ minutes

The Y-axis indicates the number of flights:

- The minimum value on the Y-axis is 0
- The maximum value on the Y-axis is calculated by FSM

The bars showing the distribution of flights are green. Each bar has a tool-tip which displays the total number of flights in that bin. Double-clicking a bar opens a Flight List for the flights represented by that bar.

Program Delay Histogram Menu

The Program Delay Histogram has three menus: File, Histogram, Help.

1. File Menu
   - **Save As** – Saves the Program Delay Histogram as a .jpg image in a directory that you specify. The default location for saved images is …\fsm\data\default_user\reports, and the default file name is atc_delay.jpg.
   - **Print** – Sends a .jpg image of the active Program Delay Histogram to a printer that you specify
   - **Close** – Closes the Program Delay Histogram
2. Histogram Menu
   - **Freeze Data** – When checked, prevents the Program Delay Histogram from updating when new ADLs arrive
3. Help Menu
   - **Histogram** – Opens the on-line help for the Program Delay Histogram component

Absolute Delay Histogram

You can access the Absolute Delay Histogram from the **Reports > Delay Histograms** menu on the Control Panel. Absolute delay is the total amount of delay that non-cancelled flights have received. This includes delays assigned by the NAS and ATC, as well as airline delay. Absolute delay is calculated using Max (0, [ETA - (IGTA - Taxi)]), therefore any time a flight's ETA is updated the absolute delay is recalculated.

The title of the histogram is centered over the graph and reads “Absolute Delay Histogram: [APT or FEA/FCA] [ADL Date] [ADL Time].” The title bar displays the status of the data:

- Live mode – Absolute Delay: [AP or FEA/FCA] dd/hhmm Live
- Frozen in Live Mode – Absolute Delay: [APT or FEA/FCA] dd/hhmm Live: Frozen.
- Historical Mode – Absolute Delay: [APT or FEA/FCA] [yyyy]/[Mmm]/[dd] [hhmm] HIST
- Frozen in Historical Mode – Absolute Delay: [APT or FEA/FCA] [yyyy]/[Mmm]/[dd] [hhmm] HIST: Frozen

The flight data displayed on the histogram is dynamic. Each time FSM receives an ADL for the airport, FEA, or FCA, data on the histogram updates. You can freeze the data by selecting the ***Freeze Data*** on the **Histogram** menu.

The X-axis shows the Absolute Delay in minutes. FSM groups flights on the X-axis of the graph in 15-minute bins:

- The smallest bin is 0-14 minutes
- The largest bin is 360+ minutes

The Y-axis indicates the number of flights:

- The minimum value on the Y axis is 0
- The maximum value on the Y axis is calculated by FSM

The bars showing the distribution of flights are green. Each bar has a tool-tip which displays the total number of flights in that bin. Double-clicking a bar opens a Flight List for the flights represented by that bar.

Absolute Delay Histogram Menu

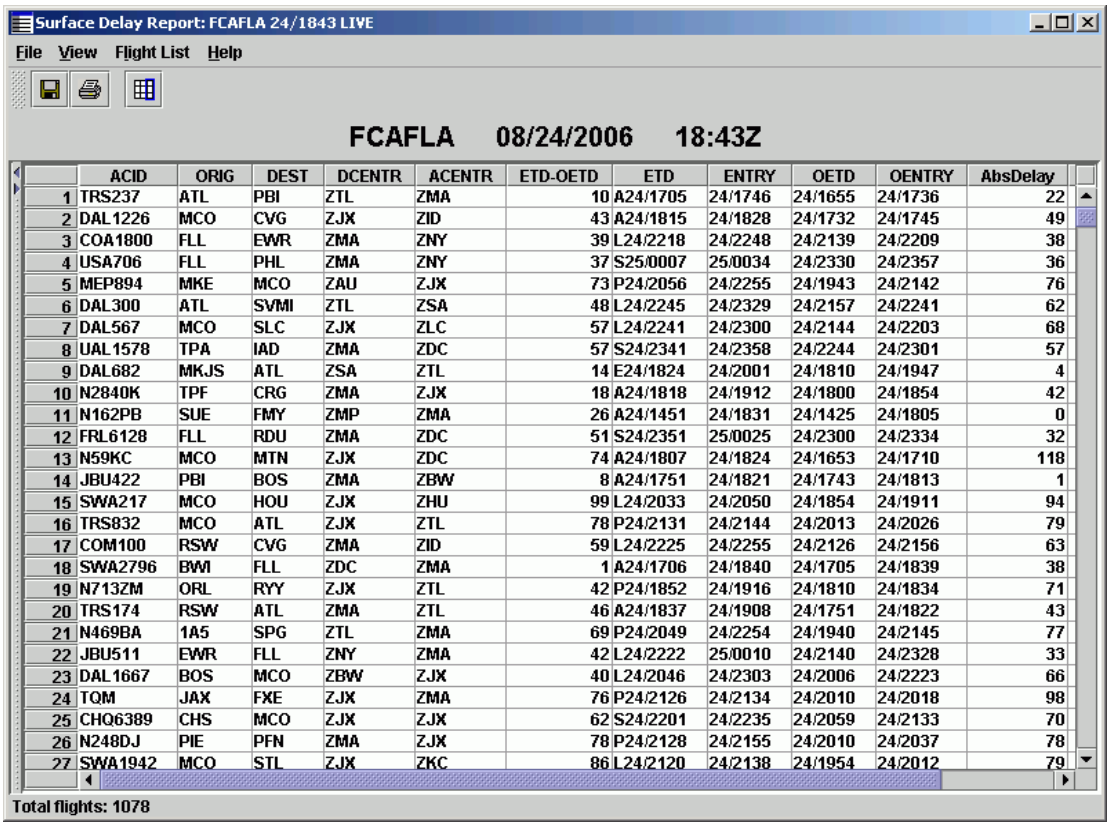
The Absolute Delay Histogram has three menus: File, Histogram, and Help.

1. File Menu
    - **Save As** – Saves the Absolute Delay Histogram as a .jpg image in a directory that you specify. The default location for saved images is …\fsm\data\default_user\reports, and the default file name is absolute_delay.jpg.
    - **Print** – Sends a .jpg image of the active Absolute Delay Histogram to a printer that you specify
    - **Close** – Closes the Absolute Delay Histogram

2. Histogram Menu
   - **Freeze Data** – When checked, prevents the Absolute Delay Histogram from updating when new ADLs arrive
3. Help Menu
   - **Histogram** – Opens the on-line help for the Absolute Delay Histogram component

Surface Delay Report

The Surface Delay Report indicates the ground delay imposed on flights and contains departure information for both arriving and departing flights. To view a Surface Delay Report, select the monitored airport, FEA, or FCA for which you want to view the report and then select **Reports > Surface Delay** from the FSM Control Panel component.



	ACID	ORIG	DEST	DCENTR	ACENTR	ETD-OETD	ETD	ENTRY	OETD	OENTRY	AbsDelay
1	TRS237	ATL	PBI	ZTL	ZMA	10	A24/1705	24/1746	24/1655	24/1736	22
2	DAL1226	MCO	CVG	ZJX	ZID	43	A24/1815	24/1828	24/1732	24/1745	49
3	COA1800	FLL	EWR	ZMA	ZNY	39	L24/2218	24/2248	24/2139	24/2209	38
4	USA706	FLL	PHL	ZMA	ZNY	37	S25/0007	25/0034	24/2330	24/2357	36
5	MEP894	MKE	MCO	ZAU	ZJX	73	P24/2056	24/2255	24/1943	24/2142	76
6	DAL300	ATL	SVMI	ZTL	ZSA	48	L24/2245	24/2329	24/2157	24/2241	62
7	DAL567	MCO	SLC	ZJX	ZLC	57	L24/2241	24/2300	24/2144	24/2203	68
8	UAL1578	TPA	IAD	ZMA	ZDC	57	S24/2341	24/2358	24/2244	24/2301	57
9	DAL682	MKJS	ATL	ZSA	ZTL	14	E24/1824	24/2001	24/1810	24/1947	4
10	N2840K	TPF	CRG	ZMA	ZJX	18	A24/1818	24/1912	24/1800	24/1854	42
11	N162PB	SUE	FMY	ZMP	ZMA	26	A24/1451	24/1831	24/1425	24/1805	0
12	FRL6128	FLL	RDU	ZMA	ZDC	51	S24/2351	25/0025	24/2300	24/2334	32
13	N59KC	MCO	MTN	ZJX	ZDC	74	A24/1807	24/1824	24/1653	24/1710	118
14	JBU422	PBI	BOS	ZMA	ZBW	8	A24/1751	24/1821	24/1743	24/1813	1
15	SWA217	MCO	HOU	ZJX	ZHU	99	L24/2033	24/2050	24/1854	24/1911	94
16	TRS832	MCO	ATL	ZJX	ZTL	78	P24/2131	24/2144	24/2013	24/2026	79
17	COM100	RSW	CVG	ZMA	ZID	59	L24/2225	24/2255	24/2126	24/2156	63
18	SWA2796	BWI	FLL	ZDC	ZMA	1	A24/1706	24/1840	24/1705	24/1839	38
19	N713ZM	ORL	RYY	ZJX	ZTL	42	P24/1852	24/1916	24/1810	24/1834	71
20	TRS174	RSW	ATL	ZMA	ZTL	46	A24/1837	24/1908	24/1751	24/1822	43
21	N469BA	1A5	SPG	ZTL	ZMA	69	P24/2049	24/2254	24/1940	24/2145	77
22	JBU511	EWR	FLL	ZNY	ZMA	42	L24/2222	25/0010	24/2140	24/2328	33
23	DAL1667	BOS	MCO	ZBW	ZJX	40	L24/2046	24/2303	24/2006	24/2223	66
24	TQM	JAX	FXE	ZJX	ZMA	76	P24/2126	24/2134	24/2010	24/2018	98
25	CHQ6389	CHS	MCO	ZJX	ZJX	62	S24/2201	24/2235	24/2059	24/2133	70
26	N248DJ	PIE	PFN	ZMA	ZJX	78	P24/2128	24/2155	24/2010	24/2037	78
27	SWA1942	MCO	STL	ZJX	ZKC	86	L24/2120	24/2138	24/1954	24/2012	79

Figure 21 - 14 : Surface Delay Report

The displayed information defaults to arrival data. To view departure data select **View > Departure Data**. The Surface Delay Report then displays both arrival and departure data. To alternate information in the report you can check or uncheck the arrival or departure boxes.

Surface Delay Report Menu

Many of the menu items for the Surface delay Report are the same as the Flight List component. The list below describes the menu items that are different for, or unique to, the Surface Delay Report; for more information on the Flight List component, see Chapter 6: Viewing Flight Information. There are four menus: File, View, Flight List, and Help.

1. File Menu
   - **Save As**
   - **Print**
   - **Close**
2. View Menu
   - **Rename Window**
   - **Arrival Data** – Toggles Arrival data off and on.
   - **Departure Data** – Toggles Departure data off and on.
   - **Add/Remove Columns**
   - **Group Flights**
   - **Sort Flights**
   - **Apply Filter**
   - **Clear Filter**
   - **Flight Info**
   - **Flight Detail**
3. Flight List Menu
   - **Freeze Data**
   - **Data/Filter Display**
   - **Set Time**
   - **Search By Callsign**
4. Help Menu
   - **Surface Delay** – General information about this report

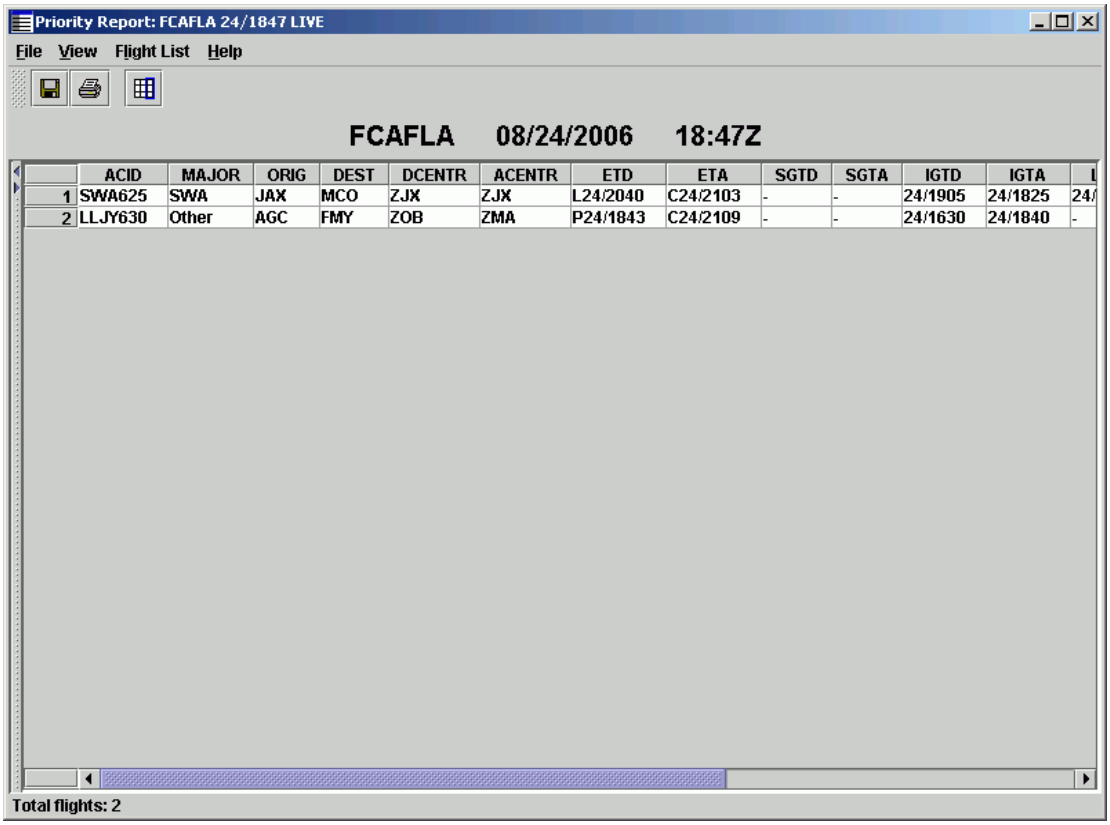
Priority Flight Report

This report identifies "priority" flights. It is similar to a Flight List, but only lists those flights tagged as Lifeguard (LFG) or Diversion Recovery (DVT) flights. To view a Priority Flight Report, select the monitored airport, FEA, or FCA for which you want to view the report and then select **Reports > Priority Flights** from the Control Panel component. Any flights that have the LFG or DVT checkboxes marked are displayed on the Priority Report.

Priority Report Menu

Many of the menu items for the Priority Report are the same as the Flight List component. The list below describes the menu items that are different for, or unique to, the Priority Report; for more information on the Flight List component, see Chapter 6: Viewing Flight Information. There are four menus: File, View, Flight List, and Help.

1. File Menu
   - **Save As**
   - **Print**
   - **Close**
2. View Menu
   - **Rename Window**
   - **Arrival Data** – Toggles Arrival data off and on.
   - **Departure Data** – Toggles Departure data off and on.
   - **Add/Remove Columns**
   - **Group Flights**
   - **Sort Flights**
   - **Apply Filter**
   - **Clear Filter**
   - **Flight Info**
   - **Flight Detail**
3. Flight List Menu
   - **Freeze Data**
   - **Data/Filter Display**
   - **Set Time**
   - **Search By Callsign**
4. Help Menu
   - **Priority** – General information about this report

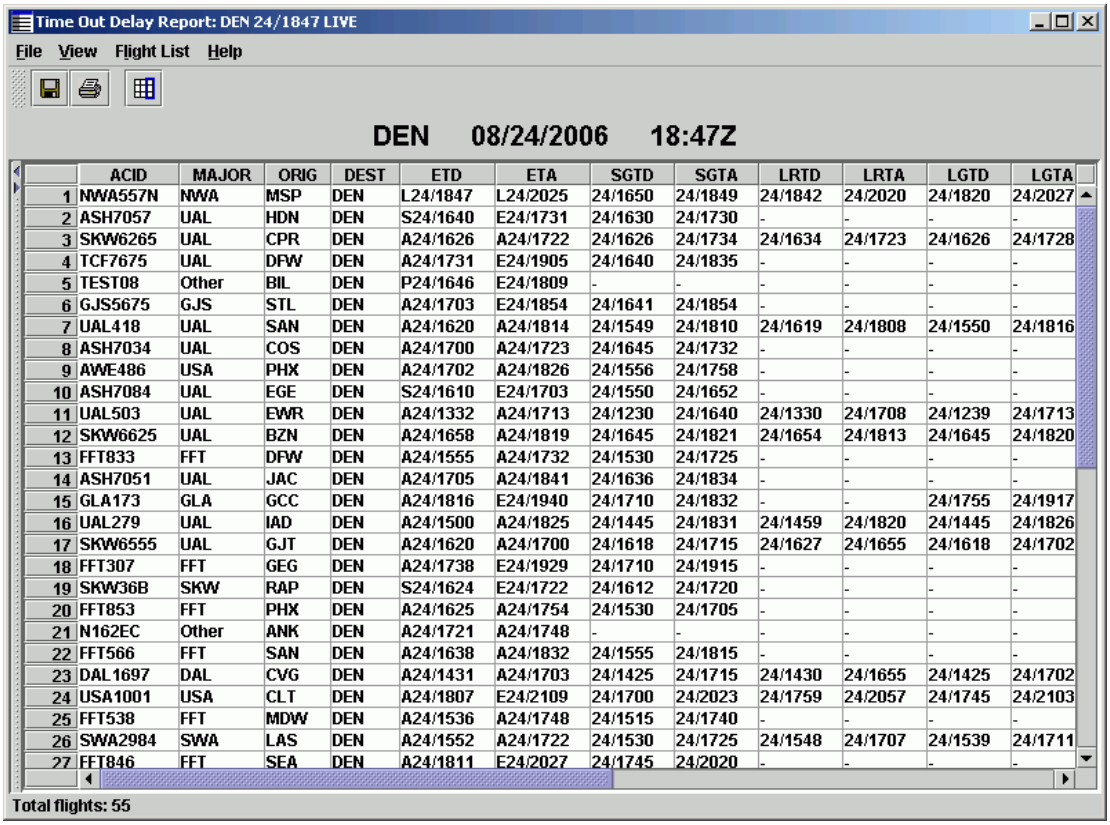


	ACID	MAJOR	ORIG	DEST	DCENTR	ACENTR	ETD	ETA	SGTD	SGTA	IGTD	IGTA	L
1	SWA625	SWA	JAX	MCO	ZJX	ZJX	L24/2040	C24/2103	-	-	24/1905	24/1825	24/
2	LLJY630	Other	AGC	FMY	ZOB	ZMA	P24/1843	C24/2109	-	-	24/1630	24/1840	-

Figure 21 - 15 : Priority Report

Time Out Delay Report

The Time Out Delay Report provides a quick picture of flights that are contributing to the Time Out delay problem. The report is in the same format as FSM Flight Lists and includes all *inactive* (no E or A prefix to the ETD) flights with a delay status of ‘TOD'. To view the Time Out Delay Report, select an airport being monitored and then select **Reports > Time out Delay** from the FSM Control Panel component. The Time Out Delay report flight list shows all flights that have triggered the TOD alarm with the TOD checkbox selected (see Figure 21 - 16).



	ACID	MAJOR	ORIG	DEST	ETD	ETA	SGTD	SGTA	LRTD	LRTA	LGTD	LGTA
1	NWA557N	NWA	MSP	DEN	L24/1847	L24/2025	24/1650	24/1849	24/1842	24/2020	24/1820	24/2027
2	ASH7057	UAL	HDN	DEN	S24/1640	E24/1731	24/1630	24/1730	-	-	-	-
3	SKW6265	UAL	CPR	DEN	A24/1626	A24/1722	24/1626	24/1734	24/1634	24/1723	24/1626	24/1728
4	TCF7675	UAL	DFW	DEN	A24/1731	E24/1905	24/1640	24/1835	-	-	-	-
5	TEST08	Other	BIL	DEN	P24/1646	E24/1809	-	-	-	-	-	-
6	GJS5675	GJS	STL	DEN	A24/1703	E24/1854	24/1641	24/1854	-	-	-	-
7	UAL418	UAL	SAN	DEN	A24/1620	A24/1814	24/1549	24/1810	24/1619	24/1808	24/1550	24/1816
8	ASH7034	UAL	COS	DEN	A24/1700	A24/1723	24/1645	24/1732	-	-	-	-
9	AWE486	USA	PHX	DEN	A24/1702	A24/1826	24/1556	24/1758	-	-	-	-
10	ASH7084	UAL	EGE	DEN	S24/1610	E24/1703	24/1550	24/1652	-	-	-	-
11	UAL503	UAL	EWR	DEN	A24/1332	A24/1713	24/1230	24/1640	24/1330	24/1708	24/1239	24/1713
12	SKW6625	UAL	BZN	DEN	A24/1658	A24/1819	24/1645	24/1821	24/1654	24/1813	24/1645	24/1820
13	FFT833	FFT	DFW	DEN	A24/1555	A24/1732	24/1530	24/1725	-	-	-	-
14	ASH7051	UAL	JAC	DEN	A24/1705	A24/1841	24/1636	24/1834	-	-	-	-
15	GLA173	GLA	GCC	DEN	A24/1816	E24/1940	24/1710	24/1832	-	-	24/1755	24/1917
16	UAL279	UAL	IAD	DEN	A24/1500	A24/1825	24/1445	24/1831	24/1459	24/1820	24/1445	24/1826
17	SKW6555	UAL	GJT	DEN	A24/1620	A24/1700	24/1618	24/1715	24/1627	24/1655	24/1618	24/1702
18	FFT307	FFT	GEG	DEN	A24/1738	E24/1929	24/1710	24/1915	-	-	-	-
19	SKW36B	SKW	RAP	DEN	S24/1624	E24/1722	24/1612	24/1720	-	-	-	-
20	FFT853	FFT	PHX	DEN	A24/1625	A24/1754	24/1530	24/1705	-	-	-	-
21	N162EC	Other	ANK	DEN	A24/1721	A24/1748	-	-	-	-	-	-
22	FFT566	FFT	SAN	DEN	A24/1638	A24/1832	24/1555	24/1815	-	-	-	-
23	DAL1697	DAL	CVG	DEN	A24/1431	A24/1703	24/1425	24/1715	24/1430	24/1655	24/1425	24/1702
24	USA1001	USA	CLT	DEN	A24/1807	E24/2109	24/1700	24/2023	24/1759	24/2057	24/1745	24/2103
25	FFT538	FFT	MDW	DEN	A24/1536	A24/1748	24/1515	24/1740	-	-	-	-
26	SWA2984	SWA	LAS	DEN	A24/1552	A24/1722	24/1530	24/1725	24/1548	24/1707	24/1539	24/1711
27	FFT846	FFT	SEA	DEN	A24/1811	E24/2027	24/1745	24/2020	-	-	-	-

Figure 21 - 16 : Time Out Delay (TOD) Report Flight List

The displayed information defaults to arrival data. To view departure data, select **View > Departure Data** (see Figure 21 - 17).

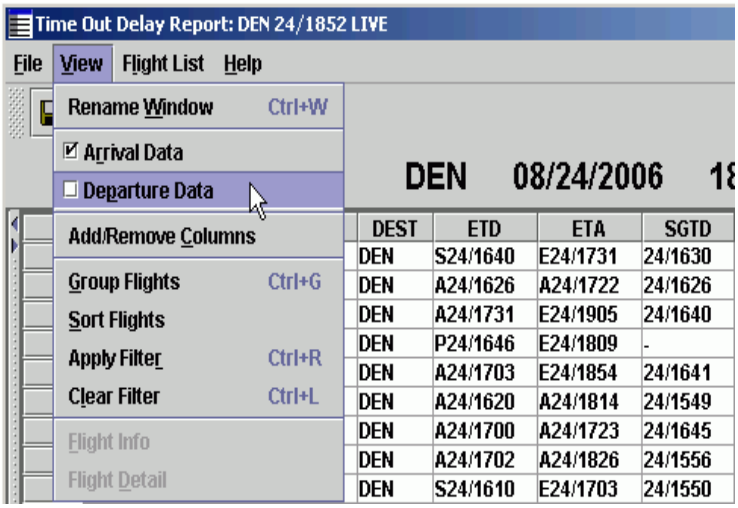


Figure 21 - 17 : TOD Delay Report with Departure Data

The Time Out Delay Report displays both arrival and departure data. To alternate information in the report you can check or uncheck the arrival or departure boxes.

Time Out Delay Report Menu

Many of the menu items for the Time Out Delay Report are the same as the Flight List component. The list below describes the menu items that are different for, or unique to, the Time Out Delay Report; for more information on the Flight List component, see Chapter 6: Viewing Flight Information. There are four menus: File, View, Flight List, and Help.

1. File Menu
   - **Save As**
   - **Print**
   - **Close**
2. View Menu
   - **Rename Window**
   - **Arrival Data** – Toggles Arrival data off and on.
   - **Departure Data** – Toggles Departure data off and on.
   - **Add/Remove Columns**
   - **Group Flights**
   - **Sort Flights**
   - **Apply Filter**
   - **Clear Filter**
   - **Flight Info**
   - **Flight Detail**
3. Flight List Menu
   - **Freeze Data**
   - **Data/Filter Display**
   - **Set Time**
   - **Search By Callsign**
4. Help Menu
   - **Time Out** – General information about this report

Time Out Cancel Report

The Time Out Cancel Report provides a quick picture of flights, from your operation, which are contributing to the Time Out cancel problem. The report is in the same format as FSM Flight Lists and includes all flights with a cancellation status of Time Out Cancelled (ToCnx). To view the Time Out Cancel report, select a monitored airport, FEA, or FCA and then select **Reports > Time Out Cancel** from the Control Panel component. The Time Out Cancel report shows all flights that have triggered the ToCnx alarm and the

ToCnx checkboxes are selected for all flights included in the report. The Time Out Cancelled report format is identical to the Time Out Delayed report as shown in Figure 21 - 16.

The displayed information defaults to arrival data. Select the **View > Departure Data** checkbox to view Departure Data in the Flight List. The Time Out Cancel Report then displays both arrival and departure data. To alternate information in the report you can check or uncheck the arrival or departure boxes.

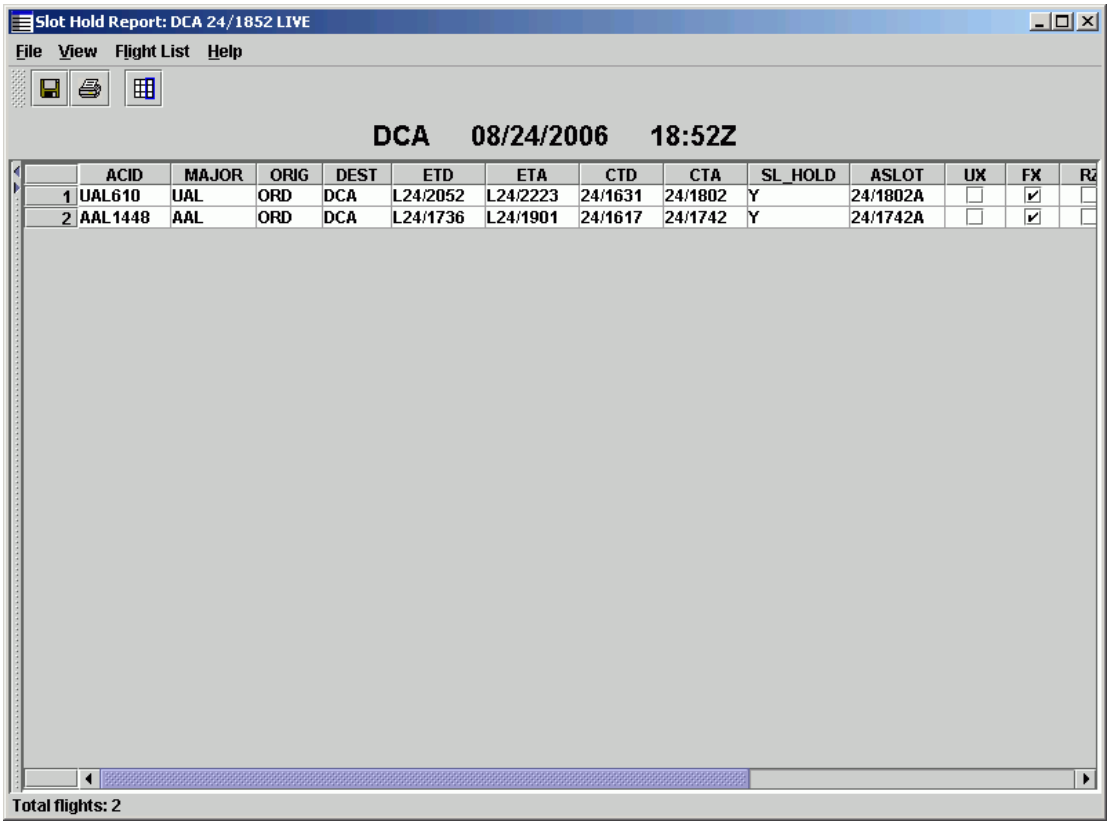
Time Out Cancel Report Menu

Many of the menu items for the Time Out Cancel Report are the same as for the Flight List component. The list below describes the menu items that are different for, or unique to, the Time Out cancel Report; for more information on the Flight List component, see Chapter 6: Viewing Flight Information. There are four menus: File, View, Flight List, and Help.

1. File Menu
   - **Save As**
   - **Print**
   - **Close**
2. View Menu
   - **Rename Window**
   - **Arrival Data** – Toggles Arrival data off and on.
   - **Departure Data** – Toggles Departure data off and on.
   - **Add/Remove Columns**
   - **Group Flights**
   - **Sort Flights**
   - **Apply Filter**
   - **Clear Filter**
   - **Flight Info**
   - **Flight Detail**
3. Flight List Menu
   - **Freeze Data**
   - **Data/Filter Display**
   - **Set Time**
   - **Search By Callsign**
4. Help Menu
   - **Time Out Cancel** – General information about this report

Slot Hold Report

The Slot Hold Report lists cancelled flights that currently have their slots held. (see Figure 21 - 18) This report is similar to an FSM Flight List, but only lists those flights whose slot hold flag is set to 'Y.' To view a Slot Hold Report, select the monitored airport for which you want to view the report and then select **Reports > Slot Hold** in the Control Panel component.



	ACID	MAJOR	ORIG	DEST	ETD	ETA	CTD	CTA	SL_HOLD	ASLOT	UX	FX	RA
1	UAL610	UAL	ORD	DCA	L24/2052	L24/2223	24/1631	24/1802	Y	24/1802A	☐	☑	☐
2	AAL1448	AAL	ORD	DCA	L24/1736	L24/1901	24/1617	24/1742	Y	24/1742A	☐	☑	☐

Figure 21 - 18 : Slot Hold Report

The displayed information defaults to arrival data. To view departure data, select **View > Departure Data** checkbox in the dropdown menu. The Slot Hold Report then displays both arrival and departure data. To alternate information in the report you can check or uncheck the arrival or departure boxes.

Slot Hold Report Menu

Many of the menu items for the Slot Hold Report are the same as for the Flight List component. The list below describes the menu items that are different for, or unique to, the Slot Hold Report; for more information on the Flight List component, see Chapter 6: Viewing Flight Information. There are four menus: File, View, Flight List, and Help.

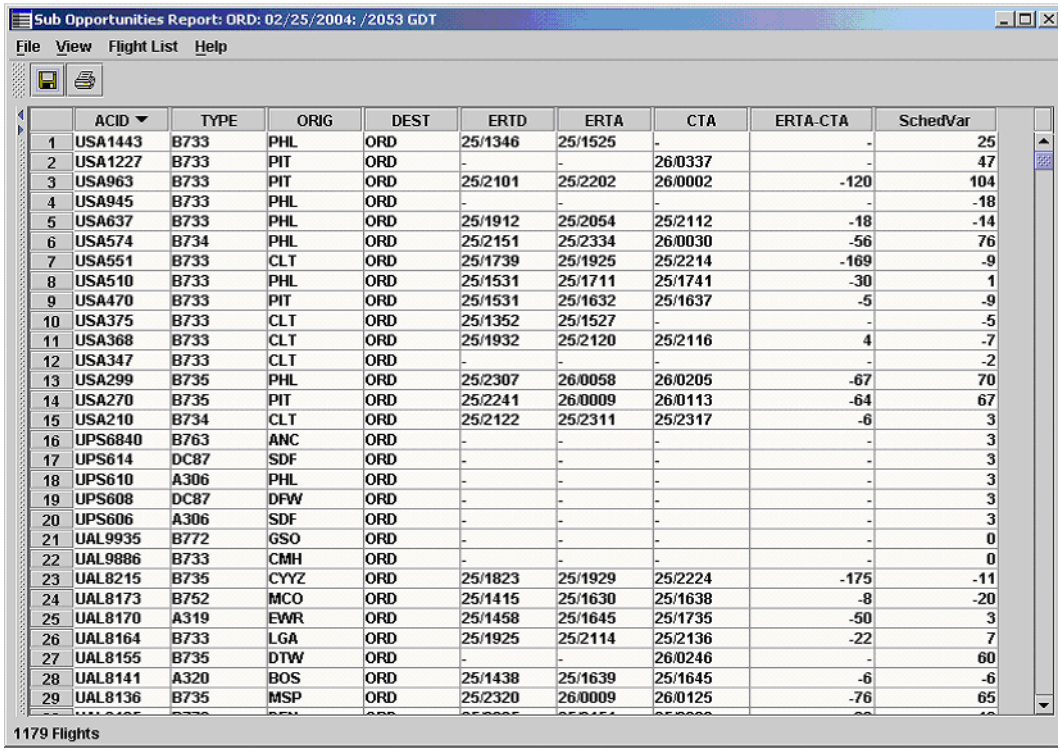
1. File Menu
   - **Save As**
   - **Print**

- **Close**

2. View Menu
   - **Rename Window**
   - **Arrival Data** – Toggles Arrival data off and on.
   - **Departure Data** – Toggles Departure data off and on.
   - **Add/Remove Columns**
   - **Group Flights**
   - **Sort Flights**
   - **Apply Filter**
   - **Clear Filter**
   - **Flight Info**
   - **Flight Detail**
3. Flight List Menu
   - **Freeze Data**
   - **Data/Filter Display**
   - **Set Time**
   - **Search By Callsign**
4. Help Menu
   - **Slot Hold** – General information about this report

Sub Opportunities Report

You can access the Sub Opportunities Report from the Control Panel by selecting **Reports > Sub Opportunities**. This report assists airlines and general aviation customers in identifying subbing opportunities. If a flight's ERTA is updated, the ERTA-CTA column will help identify if the flight can not meet its arrival slot time (see Figure 21 - 19).



	ACID	TYPE	ORIG	DEST	ERTD	ERTA	CTA	ERTA-CTA	SchedVar
1	USA1443	B733	PHL	ORD	25/1346	25/1525	-	-	25
2	USA1227	B733	PIT	ORD	-	-	26/0337	-	47
3	USA963	B733	PIT	ORD	25/2101	25/2202	26/0002	-120	104
4	USA945	B733	PHL	ORD	-	-	-	-	-18
5	USA637	B733	PHL	ORD	25/1912	25/2054	25/2112	-18	-14
6	USA574	B734	PHL	ORD	25/2151	25/2334	26/0030	-56	76
7	USA551	B733	CLT	ORD	25/1739	25/1925	25/2214	-169	-9
8	USA510	B733	PHL	ORD	25/1531	25/1711	25/1741	-30	1
9	USA470	B733	PIT	ORD	25/1531	25/1632	25/1637	-5	-9
10	USA375	B733	CLT	ORD	25/1352	25/1527	-	-	-5
11	USA368	B733	CLT	ORD	25/1932	25/2120	25/2116	4	-7
12	USA347	B733	CLT	ORD	-	-	-	-	-2
13	USA299	B735	PHL	ORD	25/2307	26/0058	26/0205	-67	70
14	USA270	B735	PIT	ORD	25/2241	26/0009	26/0113	-64	67
15	USA210	B734	CLT	ORD	25/2122	25/2311	25/2317	-6	3
16	UPS6840	B763	ANC	ORD	-	-	-	-	3
17	UPS614	DC87	SDF	ORD	-	-	-	-	3
18	UPS610	A306	PHL	ORD	-	-	-	-	3
19	UPS608	DC87	DFW	ORD	-	-	-	-	3
20	UPS606	A306	SDF	ORD	-	-	-	-	3
21	UAL9935	B772	GSO	ORD	-	-	-	-	0
22	UAL9886	B733	CMH	ORD	-	-	-	-	0
23	UAL8215	B735	CYYZ	ORD	25/1823	25/1929	25/2224	-175	-11
24	UAL8173	B752	MCO	ORD	25/1415	25/1630	25/1638	-8	-20
25	UAL8170	A319	EWR	ORD	25/1458	25/1645	25/1735	-50	3
26	UAL8164	B733	LGA	ORD	25/1925	25/2114	25/2136	-22	7
27	UAL8155	B735	DTW	ORD	-	-	26/0246	-	60
28	UAL8141	A320	BOS	ORD	25/1438	25/1639	25/1645	-6	-6
29	UAL8136	B735	MSP	ORD	25/2320	26/0009	26/0125	-76	65

Figure 21 - 19 : Sub Opportunities Report

Sub Opportunities Report Menu

Many of the menu items for the Sub Opportunities Report are the same as for the Flight List component. The list below describes the menu items that are different for, or unique to, the Sub Opportunities Report; for more information on the Flight List component, see Chapter 6: Viewing Flight Information. There are four menus: File, View, Flight List, and Help.

1. File Menu
   - **Save As**
   - **Print**
   - **Close**
2. View Menu
   - **Rename Window**
   - **Arrival Data** – Toggles Arrival data off and on.
   - **Departure Data** – Toggles Departure data off and on.
   - **Add/Remove Columns**
   - **Group Flights**
   - **Sort Flights**

- **Apply Filter**
- **Clear Filter**
- **Flight Info**
- **Flight Detail**

3. Flight List Menu
   - **Freeze Data**
   - **Data/Filter Display**
   - **Set Time**
   - **Search By Callsign**
4. Help Menu
   - **Sub Opportunities** – General information about this report

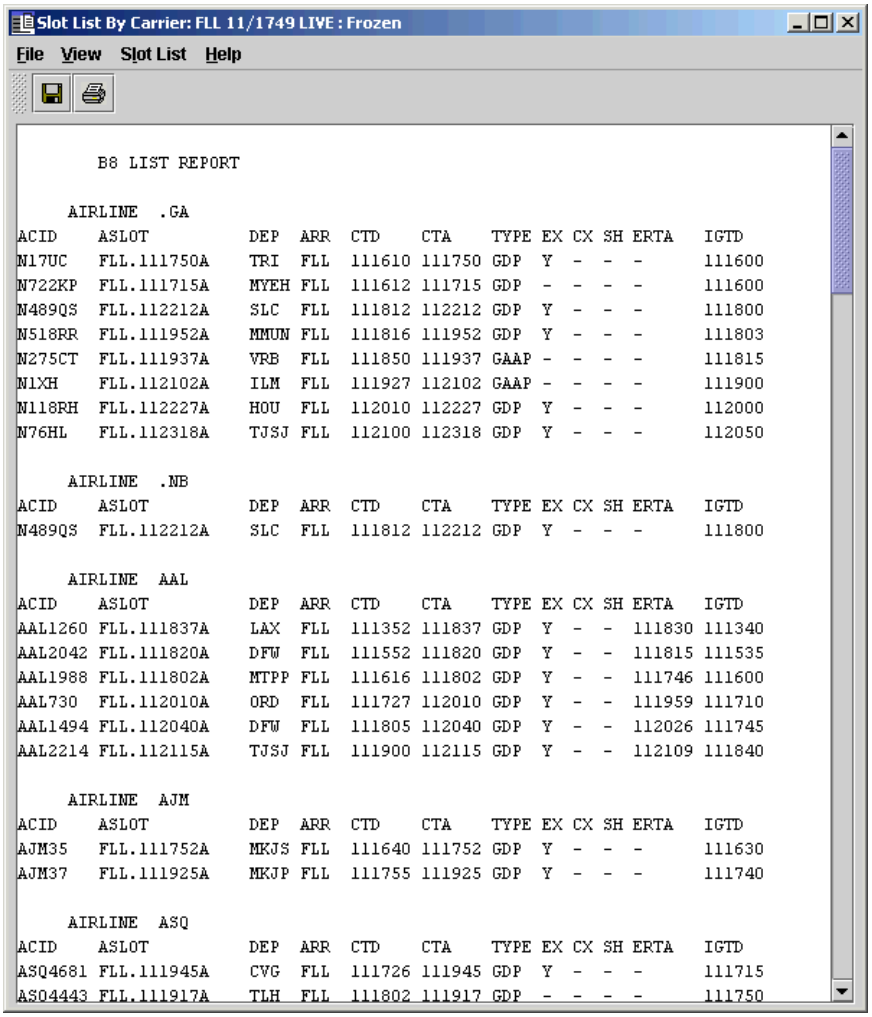
Slot List

You can view the Slot List for airlines or centers with the following two Slot List reports:

- By Carrier
- By Center

Slot List By Carrier

Select **Reports > Slot List > By Carrier** to view this report. The Slot List report generates the second part of the FADT List that FSM generates after a program runs. Included in the Slot List are the Aircraft Identification number (ACID), assigned slot time (ASLOT), departure center (DEP), arrival center (ARR), controlled time of departure (CTD), controlled time of arrival (CTA), aircraft type (TYPE), exemption status (EX), cancellation status (CX), slot hold status (SH), earliest runway time of arrival (ERTA), and initial gate time of departure (IGTD) (see Figure 21 - 20).



B8 LIST REPORT

AIRLINE .GA

ACID	ASLOT	DEP	ARR	CTD	CTA	TYPE	EX	CX	SH	ERTA	IGTD
N17UC	FLL.111750A	TRI	FLL	111610	111750	GDP	Y	-	-	-	111600
N722KP	FLL.111715A	MYEH	FLL	111612	111715	GDP	-	-	-	-	111600
N489QS	FLL.112212A	SLC	FLL	111812	112212	GDP	Y	-	-	-	111800
N518RR	FLL.111952A	MMUN	FLL	111816	111952	GDP	Y	-	-	-	111803
N275CT	FLL.111937A	VRB	FLL	111850	111937	GAAP	-	-	-	-	111815
N1XH	FLL.112102A	ILM	FLL	111927	112102	GAAP	-	-	-	-	111900
N118RH	FLL.112227A	HOU	FLL	112010	112227	GDP	Y	-	-	-	112000
N76HL	FLL.112318A	TJSJ	FLL	112100	112318	GDP	Y	-	-	-	112050

AIRLINE .NB

ACID	ASLOT	DEP	ARR	CTD	CTA	TYPE	EX	CX	SH	ERTA	IGTD
N489QS	FLL.112212A	SLC	FLL	111812	112212	GDP	Y	-	-	-	111800

AIRLINE AAL

ACID	ASLOT	DEP	ARR	CTD	CTA	TYPE	EX	CX	SH	ERTA	IGTD
AAL1260	FLL.111837A	LAX	FLL	111352	111837	GDP	Y	-	-	111830	111340
AAL2042	FLL.111820A	DFW	FLL	111552	111820	GDP	Y	-	-	111815	111535
AAL1988	FLL.111802A	MTPP	FLL	111616	111802	GDP	Y	-	-	111746	111600
AAL730	FLL.112010A	ORD	FLL	111727	112010	GDP	Y	-	-	111959	111710
AAL1494	FLL.112040A	DFW	FLL	111805	112040	GDP	Y	-	-	112026	111745
AAL2214	FLL.112115A	TJSJ	FLL	111900	112115	GDP	Y	-	-	112109	111840

AIRLINE AJM

ACID	ASLOT	DEP	ARR	CTD	CTA	TYPE	EX	CX	SH	ERTA	IGTD
AJM35	FLL.111752A	MKJS	FLL	111640	111752	GDP	Y	-	-	-	111630
AJM37	FLL.111925A	MKJP	FLL	111755	111925	GDP	Y	-	-	-	111740

AIRLINE ASQ

ACID	ASLOT	DEP	ARR	CTD	CTA	TYPE	EX	CX	SH	ERTA	IGTD
ASQ4681	FLL.111945A	CVG	FLL	111726	111945	GDP	Y	-	-	-	111715
ASQ4443	FLL.111917A	TLH	FLL	111802	111917	GDP	-	-	-	-	111750

Figure 21 - 20 : Reports > Slot List > By Carrier

Slot List By Center

Select **Reports > Slot List > By Center** to view this report. This report allows any field facilities to recreate a slot list should the list normally transmitted by the ETMS not be received. The report is based on the current ADL. FSM allows the user to select a center's (or centers') report to view. Users can select US and Canadian Centers.

To Generate a Slot List By Center report

1. From the main Control Panel select **Reports > Slot List > By Center**. The Slot List By Center dialog box opens (see Figure 21 - 21).

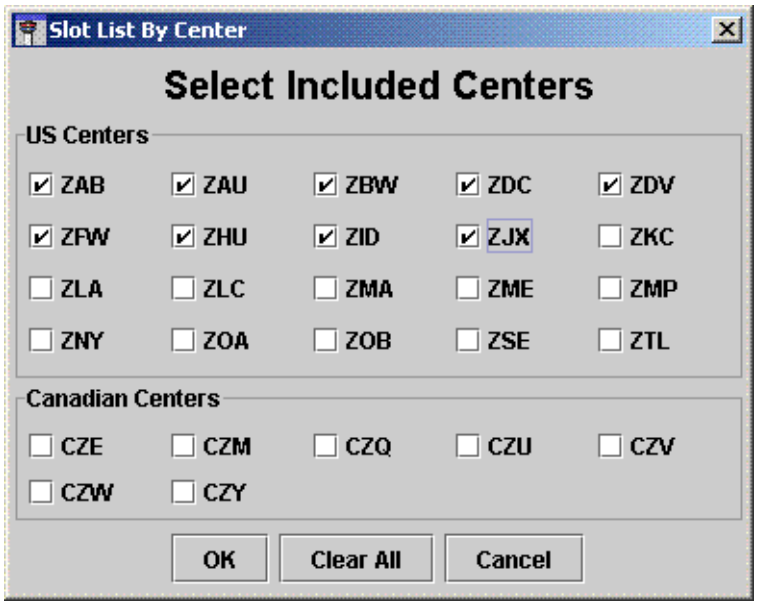
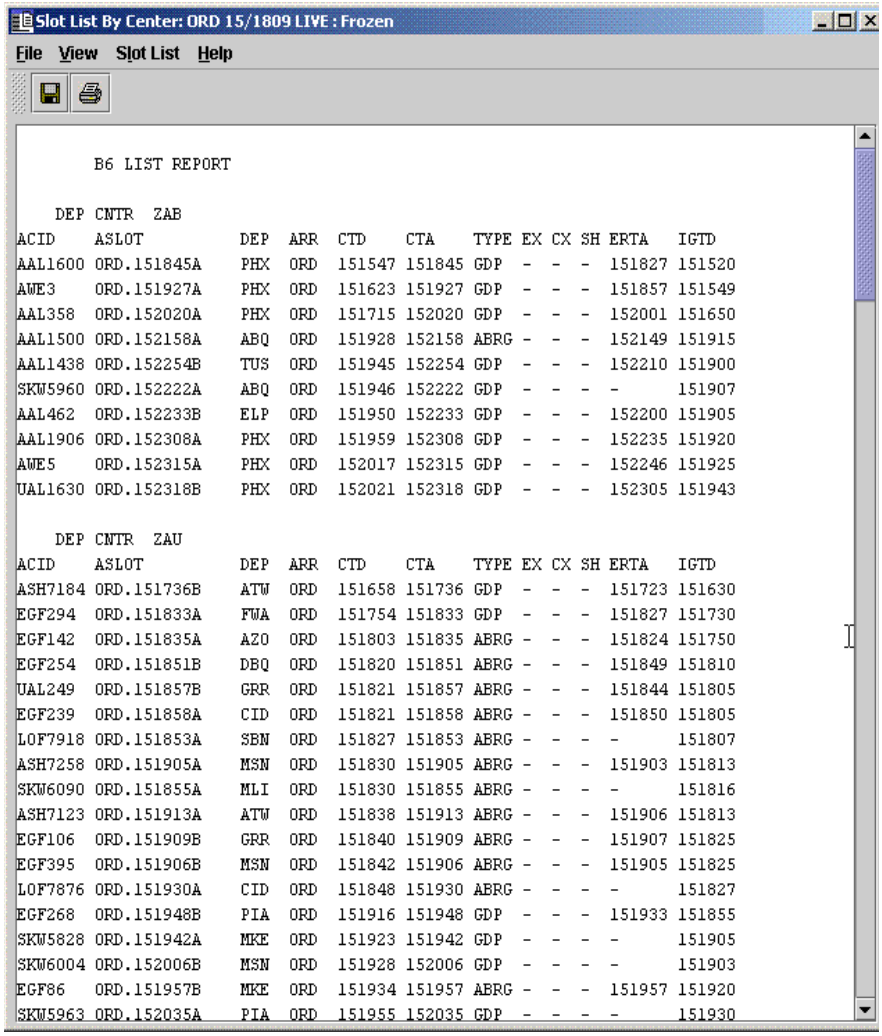


Figure 21 - 21 : Slot List by Center

2. Select the Centers to be included in the report and click **OK**. Clicking **Clear All** erases all selections in the Slot List By Center dialog box. Clicking **OK** after you click **Clear All** returns you to the Time Line window. Clicking **Cancel** closes the Slot List By Center dialog box without taking any action.

   Clicking OK opens the List Report. The data fields and menu options in the Slot List by Center report are the same as the Slot List by Carrier report. Note that the Slot List by Center report title is B6 List Report (see Figure 21 - 22).



B6 LIST REPORT

DEP CNTR ZAB

ACID	ASLOT	DEP	ARR	CTD	CTA	TYPE	EX	CX	SH	ERTA	IGTD
AAL1600	ORD.151845A	PHX	ORD	151547	151845	GDP	-	-	-	151827	151520
AWE3	ORD.151927A	PHX	ORD	151623	151927	GDP	-	-	-	151857	151549
AAL358	ORD.152020A	PHX	ORD	151715	152020	GDP	-	-	-	152001	151650
AAL1500	ORD.152158A	ABQ	ORD	151928	152158	ABRG	-	-	-	152149	151915
AAL1438	ORD.152254B	TUS	ORD	151945	152254	GDP	-	-	-	152210	151900
SKW5960	ORD.152222A	ABQ	ORD	151946	152222	GDP	-	-	-	-	151907
AAL462	ORD.152233B	ELP	ORD	151950	152233	GDP	-	-	-	152200	151905
AAL1906	ORD.152308A	PHX	ORD	151959	152308	GDP	-	-	-	152235	151920
AWE5	ORD.152315A	PHX	ORD	152017	152315	GDP	-	-	-	152246	151925
UAL1630	ORD.152318B	PHX	ORD	152021	152318	GDP	-	-	-	152305	151943

DEP CNTR ZAU

ACID	ASLOT	DEP	ARR	CTD	CTA	TYPE	EX	CX	SH	ERTA	IGTD
ASH7184	ORD.151736B	ATW	ORD	151658	151736	GDP	-	-	-	151723	151630
EGF294	ORD.151833A	FWA	ORD	151754	151833	GDP	-	-	-	151827	151730
EGF142	ORD.151835A	AZO	ORD	151803	151835	ABRG	-	-	-	151824	151750
EGF254	ORD.151851B	DBQ	ORD	151820	151851	ABRG	-	-	-	151849	151810
UAL249	ORD.151857B	GRR	ORD	151821	151857	ABRG	-	-	-	151844	151805
EGF239	ORD.151858A	CID	ORD	151821	151858	ABRG	-	-	-	151850	151805
LOF7918	ORD.151853A	SBN	ORD	151827	151853	ABRG	-	-	-	-	151807
ASH7258	ORD.151905A	MSN	ORD	151830	151905	ABRG	-	-	-	151903	151813
SKW6090	ORD.151855A	MLI	ORD	151830	151855	ABRG	-	-	-	-	151816
ASH7123	ORD.151913A	ATW	ORD	151838	151913	ABRG	-	-	-	151906	151813
EGF106	ORD.151909B	GRR	ORD	151840	151909	ABRG	-	-	-	151907	151825
EGF395	ORD.151906B	MSN	ORD	151842	151906	ABRG	-	-	-	151905	151825
LOF7876	ORD.151930A	CID	ORD	151848	151930	ABRG	-	-	-	-	151827
EGF268	ORD.151948B	PIA	ORD	151916	151948	GDP	-	-	-	151933	151855
SKW5828	ORD.151942A	MKE	ORD	151923	151942	GDP	-	-	-	-	151905
SKW6004	ORD.152006B	MSN	ORD	151928	152006	GDP	-	-	-	-	151903
EGF86	ORD.151957B	MKE	ORD	151934	151957	ABRG	-	-	-	151957	151920
SKW5963	ORD.152035A	PIA	ORD	151955	152035	GDP	-	-	-	-	151930

Figure 21 - 22 : Reports > Slot List > By Center

Slot List Report Menu

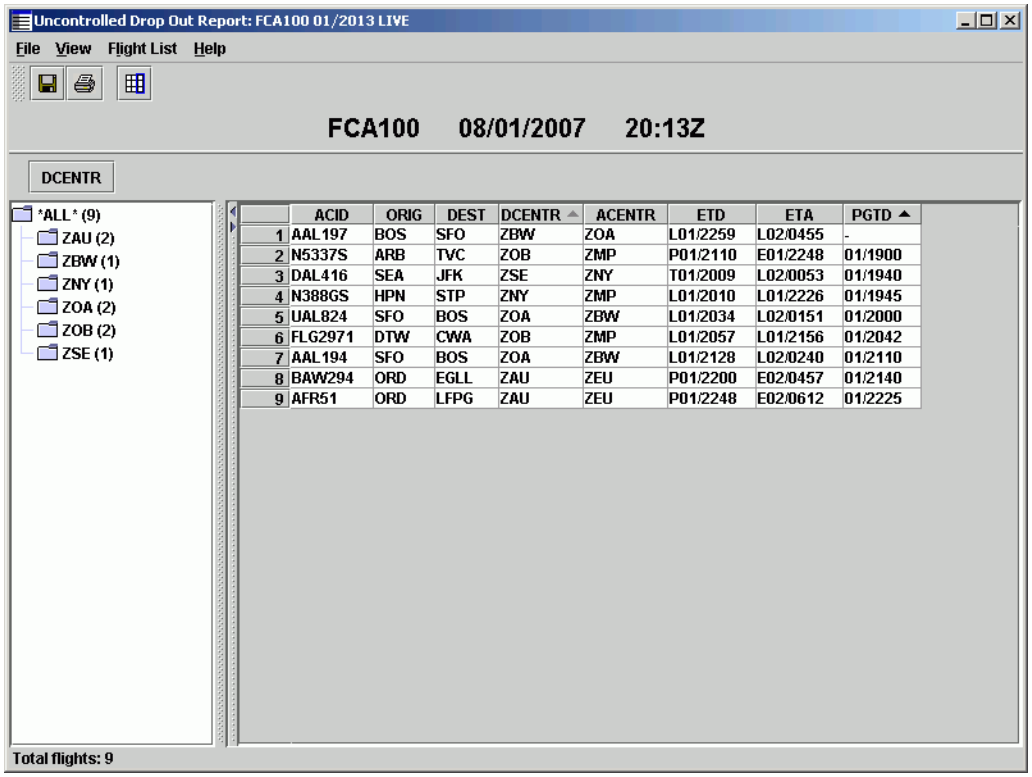
Slot List Report has four menus: File, View, Slot List, and Help.

1. File Menu
   - **Save As** – Saves the list as a file so that you can access it later.
   - **Print** – Prints the report.
   - **Close** – Closes the report window.
2. View Menu
   - **Freeze Data** – When selected, this keeps the slot list from updating with the next ADL.
3. Slot List Menu
   - **Search** – Allows you to search for a specific string of data.

4. Help Menu
   - **Slot List** – General information about this report.

Uncontrolled Drop Out Report

You can use the Uncontrolled Drop Out report to view flights that have rerouted out of the currently viewed data set.



	ACID	ORIG	DEST	DCENTR	ACENTR	ETD	ETA	PGTD
1	AAL197	BOS	SFO	ZBW	ZOA	L01/2259	L02/0455	-
2	N5337S	ARB	TVC	ZOB	ZMP	P01/2110	E01/2248	01/1900
3	DAL416	SEA	JFK	ZSE	ZNY	T01/2009	L02/0053	01/1940
4	N388GS	HPN	STP	ZNY	ZMP	L01/2010	L01/2226	01/1945
5	UAL824	SFO	BOS	ZOA	ZBW	L01/2034	L02/0151	01/2000
6	FLG2971	DTW	CWA	ZOB	ZMP	L01/2057	L01/2156	01/2042
7	AAL194	SFO	BOS	ZOA	ZBW	L01/2128	L02/0240	01/2110
8	BAW294	ORD	EGLL	ZAU	ZEU	P01/2200	E02/0457	01/2140
9	AFR51	ORD	LFPG	ZAU	ZEU	P01/2248	E02/0612	01/2225

Figure 21 - 23

The Uncontrolled Drop Out Report groups flights by Center. This report can help Centers, as well as NAS Users decipher what flights no longer are controlled by the currently viewed data set.

Uncontrolled Drop Out Report Menu

Many of the menu items for the Uncontrolled Drop Out Report are the same as the Flight List component. The list below defines only the menu items that are different for, or unique to, the Uncontrolled Drop Out Report; for more information on the Flight List component, see Chapter 6: Viewing Flight Information. There are four menus: File, View, Flight List, and Help.

1. File Menu
   - **Save As** – Saves the list as a file so that you can access it later.
   - **Print** – Prints the report.

- **Close** – Closes the report window.

2. View Menu
   - **Rename Window**
   - **Arrival Data**-Toggles arrival data off and on.
   - **Departure Data**- Toggles departure data off and on.
   - **Add/Remove Columns**
   - **Group Flights**
   - **Sort Filters**
   - **Apply Filter**
   - **Clear Filter**
   - **Flight Info**
   - **Flight Detail**
3. Flight List Menu
   - **Freeze Data**
   - **Data/Filter Display**
   - **Set Time**
   - **Search By Callsign**
4. Help Menu
   - **Uncontrolled Drop Out**-General information about this report.

Understanding Coversheet Reports

FSM creates three Coversheet reports:

- FADT
- Analysis
- Carrier Statistics

FADT Report

FSM generates FADT reports when you **Run** any TMI operation. A FADT reports contains program parameters and delay statistics for that TMI operation. To review the FADT file, select **View > FADT Report** from the TMI Coversheet and the FADT Report window opens with the program information (see Figure 21 - 24).

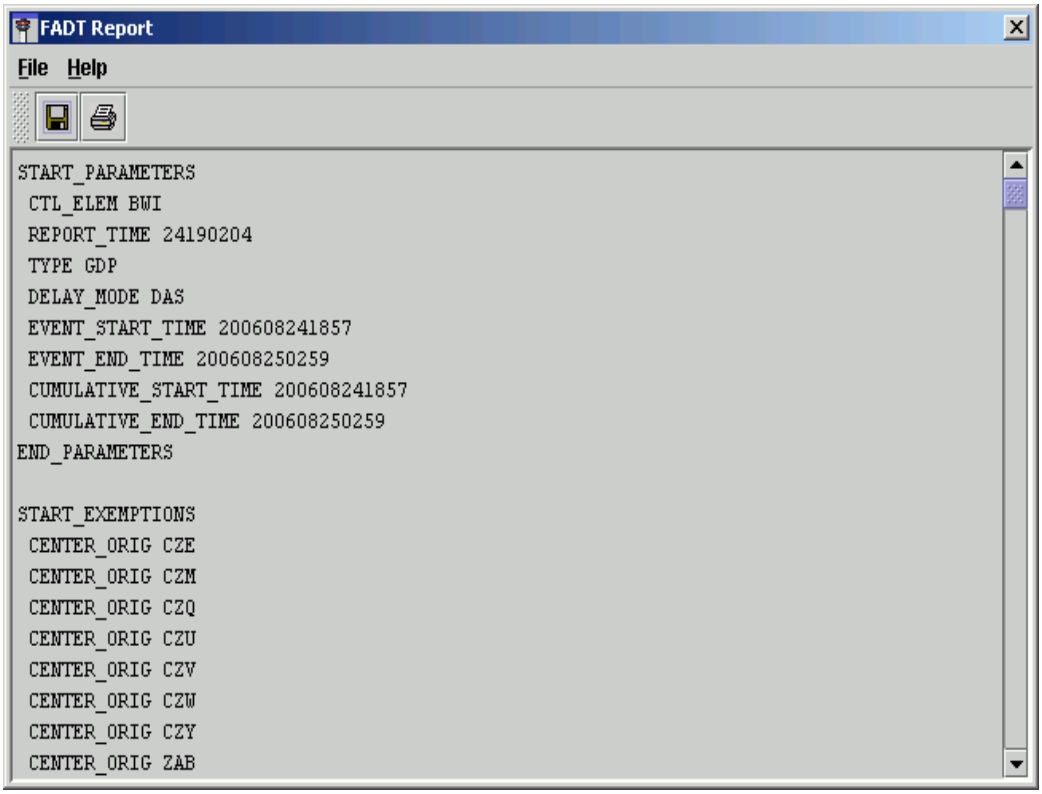
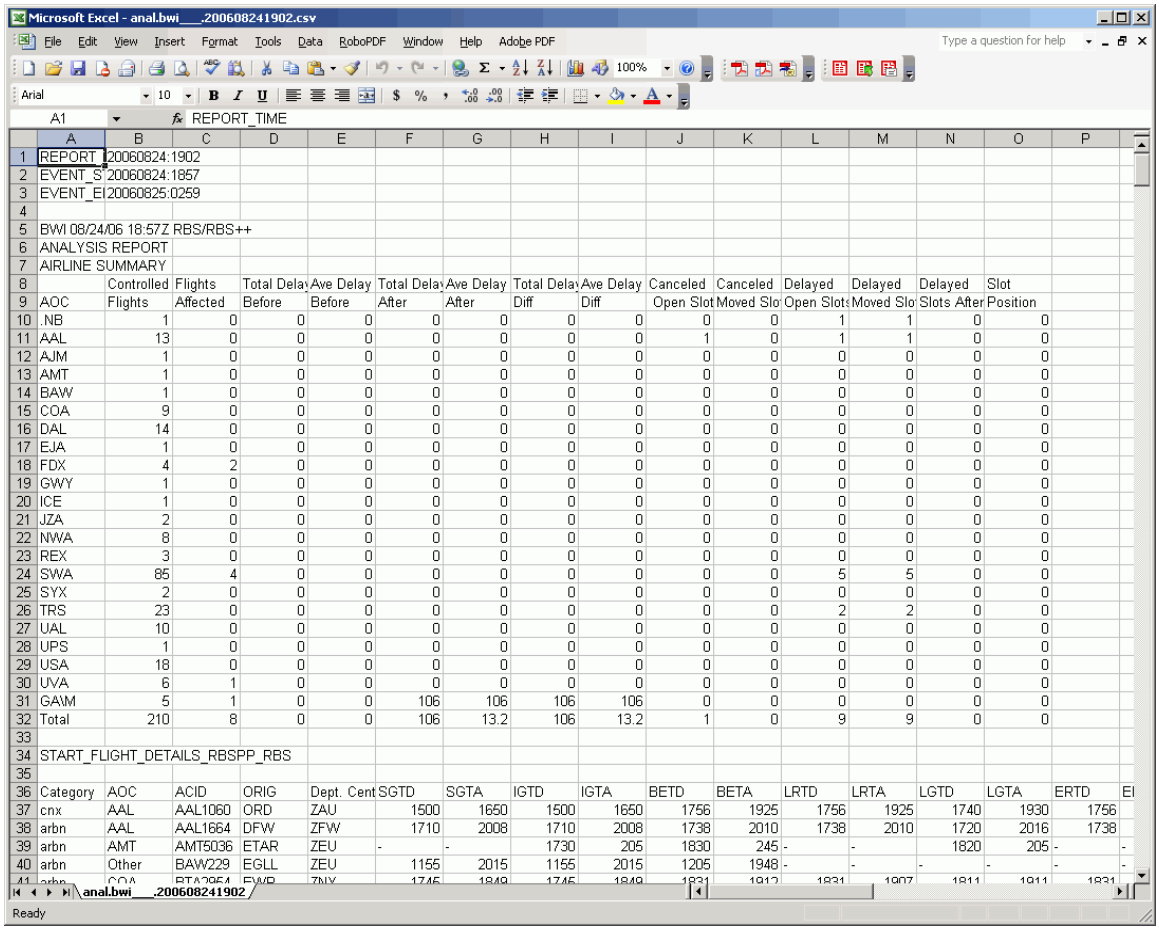


Figure 21 - 24 : FADT Report

Analysis Report

To evaluate the effects of a TMI after the program runs, select **View > Analysis Report** from the Coversheet of any program. (FSM generates the Coversheet when you click **Run** from a GDT Setup Panel after setting the desired parameters). FSM automatically opens the spreadsheet application you have indicated in your configuration files to display the Analysis Report (see Figure 21 - 25).



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	REPORT_	20060824:1902														
2	EVENT_S	20060824:1857														
3	EVENT_EI	20060825:0259														
4																
5	BWI 08/24/06 18:57Z RBS/RBS++															
6	ANALYSIS REPORT															
7	AIRLINE SUMMARY															
8		Controlled	Flights	Total Delay	Ave Delay	Total Delay	Ave Delay	Total Delay	Ave Delay	Canceled	Canceled	Delayed	Delayed	Delayed	Slot	
9	AOC	Flights	Affected	Before	Before	After	After	Diff	Diff	Open Slot	Moved Slo	Open Slots	Moved Slo	Slots After	Position	
10	.NB	1	0	0	0	0	0	0	0	0	0	1	1	0	0	
11	AAL	13	0	0	0	0	0	0	0	1	0	1	1	0	0	
12	AJM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
13	AMT	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
14	BAW	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
15	COA	9	0	0	0	0	0	0	0	0	0	0	0	0	0	
16	DAL	14	0	0	0	0	0	0	0	0	0	0	0	0	0	
17	EJA	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
18	FDX	4	2	0	0	0	0	0	0	0	0	0	0	0	0	
19	GWY	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
20	ICE	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
21	JZA	2	0	0	0	0	0	0	0	0	0	0	0	0	0	
22	NWA	8	0	0	0	0	0	0	0	0	0	0	0	0	0	
23	REX	3	0	0	0	0	0	0	0	0	0	0	0	0	0	
24	SWA	85	4	0	0	0	0	0	0	0	0	5	5	0	0	
25	SYX	2	0	0	0	0	0	0	0	0	0	0	0	0	0	
26	TRS	23	0	0	0	0	0	0	0	0	0	2	2	0	0	
27	UAL	10	0	0	0	0	0	0	0	0	0	0	0	0	0	
28	UPS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
29	USA	18	0	0	0	0	0	0	0	0	0	0	0	0	0	
30	UVA	6	1	0	0	0	0	0	0	0	0	0	0	0	0	
31	GAM	5	1	0	0	106	106	106	106	0	0	0	0	0	0	
32	Total	210	8	0	0	106	13.2	106	13.2	1	0	9	9	0	0	
33																
34	START_FLIGHT_DETAILS_RBSPP_RBS															
35																
36	Category	AOC	ACID	ORIG	Dept. Cent	SGTD	SGTA	IGTD	IGTA	BETD	BETA	LRTD	LRTA	LGTD	LGTA	ERTD
37	cnx	AAL	AAL1060	ORD	ZAU	1500	1650	1500	1650	1756	1925	1756	1925	1740	1930	1756
38	arbn	AAL	AAL1664	DFW	ZFW	1710	2008	1710	2008	1738	2010	1738	2010	1720	2016	1738
39	arbn	AMT	AMT5036	ETAR	ZEU	-	-	1730	205	1830	245	-	-	1820	205	-
40	arbn	Other	BAW229	EGLL	ZEU	1155	2015	1155	2015	1205	1948	-	-	-	-	-

Figure 21 - 25 : Analysis Report

The Analysis Report contains information pertinent to the TMI program that just ran:

- Detailed slot information for individual airlines
- Delay statistics for before and after the operation
- Arrival and departure information for individual flights

The report contains two sections. One section reflects changes that occur as a result of RBS; the other section reflects changes that occur as a result of Compression.

Carrier Statistics Report

FSM generates Carrier Statistics when you **Run** any TMI operation. The Carrier Statistics report contains delay statistics for all carriers with flights that operate at that particular airport. To view the Carrier Statistics, select **View > Carrier Statistics** from the Compression Coversheet or select **Reports > Carrier Statistics** from the Control Panel. Ensure that the desired airport is active to review the correct airport's carrier statistics when selecting Carrier Statistics from the Control Panel (see Figure 21 - 26).

Carrier Statistics: BWI: 08/24/2006: 1857 GDT : Frozen

File View Help

Element: BWI ADL Update Time: 08/24/06 18:57Z Delay Type: ◉ Program ○ ABS

Carrier Name	CDM MBR	#Flights Affected Total/Non_Exempt/Exempt/CNX	On Time %	Delay Total/Total%/ Avg /AffAvg	Delay Max / Min	%Delay / %Traffic
.NB	N	1 / 0 / 1 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
AAL	Y	31 / 0 / 30 / 1	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
AJM	N	1 / 0 / 1 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
AMT	Y	1 / 0 / 1 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
AWI	N	1 / 0 / 1 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
BAW	N	2 / 0 / 2 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
COA	Y	16 / 0 / 16 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
DAL	Y	33 / 0 / 33 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
EJA	Y	4 / 0 / 3 / 1	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
FDX	Y	9 / 2 / 7 / 0	22.2	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
FFT	N	1 / 0 / 1 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
GWY	N	3 / 0 / 3 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
ICE	N	2 / 0 / 2 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
JZA	Y	5 / 0 / 5 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
MXA	N	1 / 0 / 1 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
NWA	Y	17 / 0 / 17 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
REX	N	4 / 0 / 4 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
SWA	Y	207 / 4 / 203 / 0	1.9	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
SYK	N	1 / 0 / 1 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
SYX	N	4 / 0 / 4 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
TRS	Y	52 / 0 / 52 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
UAL	Y	21 / 0 / 21 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
UPS	Y	2 / 0 / 2 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
USA	Y	37 / 0 / 37 / 0	0.0	0 / 0.0 / 0.0 / 0.0	NA / NA	0.00
UVA	Y	7 / 1 / 6 / 0	14.3	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
GA\M	N	9 / 1 / 8 / 0	11.1	0 / 0.0 / 0.0 / 0.0	NA / 0	0.00
Total	NA	472 / 8 / 462 / 2	1.7	0 / 0.0 / 0.0 / 0.0	NA / 0	NA
Scheduled	NA	433 / 4 / 428 / 1	0.9	0 / 0.0 / 0.0 / 0.0	NA / 0	NA
Non-Sched	NA	39 / 4 / 34 / 1	10.5	0 / 0.0 / 0.0 / 0.0	NA / 0	NA

Figure 21 - 26 : Carrier Statistics Report

FSM calculates only flights with assigned arrival slots in the report metrics. That is, flights with a Control Time of Arrival (CTA) are displayed in carrier statistics. If a carrier operates at the airport, or travels through an FEA or FCA, but has no flights with a CTA, the Carrier Statistics report displays “0” or “N/A” in those rows. You can choose the type of delay to view in the report by selecting a ***Delay Type*** of either **Program** or **ABS** at the top of the report. FSM selects the **Program** delay type by default. ABS Delay is the absolute delay on a flight, including FAA and airline delay imposed on the flights. FSM calculates Absolute delay using Max (0, ETA - [IGTA - Taxi]). Program Delay is the *delay imposed only by the FAA* on flights and FSM calculates it using Max (0, CTA - BETA).

The report displays delay statistics for all carriers that operate at an airport or travel through an FEA or FCA. Carriers with no presence at the monitored airport, FEA, or FCA are not displayed in the Carrier Statistics.

> **Note:** **View > Carrier Statistics** report is not available from a Coversheet that you opened from a file.

The following information is displayed in the Carrier Statistics Report:

- Carrier Name – The airline to which the delay data corresponds.

- CDM MBR – Indicates if the carrier is a CDM member (Y/N).
- # Flights Affected – Total/Non_Exempt/Exempt/CNX
  - Total: Total number of flights for the specified time period.
  - Non-Exempt: Number of the total flights that are Non-Exempt (included) in the program.
  - Exempt: Number of the total flights that are Exempt (receive no delay) from the program.
  - CNX: Number of the total flights that are canceled (CNX).
- On Time % – Percentage of flights that arrive within 15 minutes of their ETA.
- Delay - Total/Total%/Avg/AffAvg –
  - Total: Total minutes of delay for each airline.
  - Total %: Percentage of delay attributed to the airline. FSM derives this value by dividing the total delay minutes for an airline by the total delay minutes for all airlines combined.
  - Avg: Average Delay minutes on a carrier's total number of flights.
  - Aff Avg: Average Delay minutes for the carrier's flights affected by a program.
- Delay - Max/Min –
  - Max: Shows Maximum delay amount that a carrier's flights could receive.
  - Min: Minimum delay amount that a carrier's flights could receive.
- % Delay / % Traffic – Indicates the delay equity for a carrier. A value of "1" in this column means that a carrier's delay is perfectly equitable. A value greater than "1" indicates a carrier receives worse than average delay. A value less than "1" indicates that a carrier receives less than average delay.

The bottom of the reports gives the same statistics for Scheduled/Non-Scheduled flights.

Carrier Statistics Menu Options

Carrier Statistics has three menus: File, View and Help.

1. File Menu
   - **File > Save As** – Saves the Carrier Statistics report as a .txt file in a directory that you specify.
   - **File > Print** – Prints the Carrier Statistics report viewed on your screen.
   - **File > Close** – Closes the Carrier Statistics report.
2. View Menu
   - **View > Freeze Data** – When you select the Freeze Data checkbox, the carrier statistics report does not dynamically update with every ADL. FSM selects the Freeze Data checkbox by default.
3. Help Menu

- **Help > Carrier Statistics** – Opens the on-line help for Carrier Statistics.

22: Using Query Manager

The Query Manager in FSM is a useful tool for retrieving data from FSM that is not already in one of the reports mentioned in Chapter 21: Understanding and Using FSM Reports. You can use this tool to build your own ad-hoc reports. Select **Utilities > Query Manager** from the Control Panel to access the Query Manager component. The Query Manager has built-in filters, user defined filters, and a Create Filter component that has predefined logical groupings. This chapter discusses these filters and how to use them.

Built-in Filters

Built-in Filters are pre-defined, read-only filters designed from criteria that are frequently used for viewing flight information.

Select **Utilities > Query Manager** from the Control Panel to access the Query Manager component. Double-click the ***BUILT_IN Built-in Filters*** folder or click the Expand/Collapse icon to view/hide all contents in the folder (see Figure 22 - 1). When you expand the Built-in Filters folder, you see a number of filters from which to choose. You can continue to drill down to view more detail by double-clicking the folders or by clicking their respective Expand/Collapse icons.

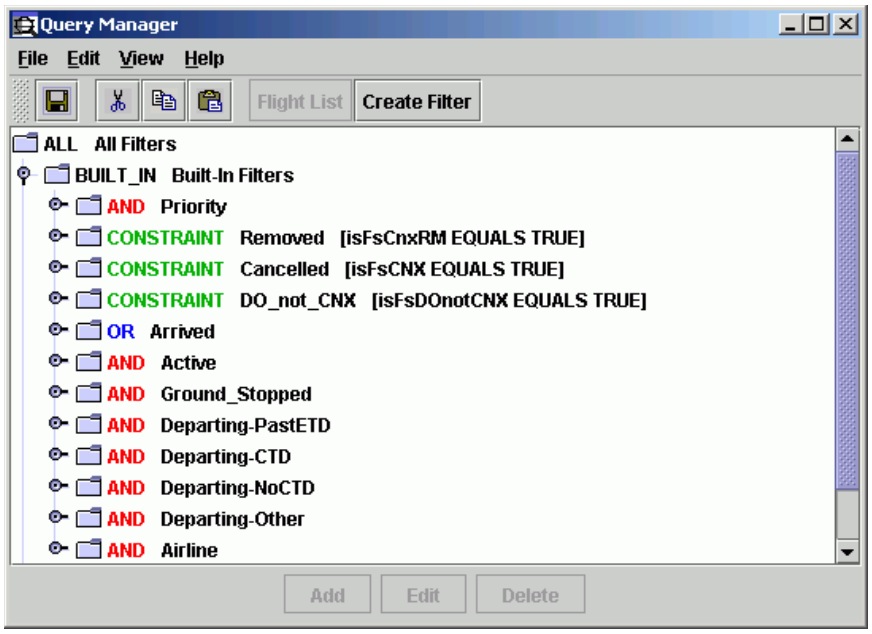


Figure 22 - 1 : Query Manager Built-In Filters

The ***AND*** filters list consists of filters that FSM compares to find a match in the data set. For an object to match an ***AND*** filter, all the filters in the list must be true. An ***OR*** filter consists of a list of filters that FSM compares to find matching flights in the data set. For an object to match an ***OR*** filter at least one of the filters in the list must be true. A ***CONSTRAINT*** is an attribute, operator, or value. FSM uses the red ***AND***, the blue ***OR***, and the green ***CONSTRAINT*** coloring as a visual aide to distinguish between the three different types of filter options.

The ***AND***, ***OR***, and ***CONSTRAINT*** filters have the ability to create new filters by copying/pasting a built-in filter selection directly into the ***USER User Defined Filters*** folder. The Built-in Filters option buttons remain grayed because they are read-only filters. You cannot edit or delete a Built-in Filter for the same reason.

User Defined Filters

User Defined Filters are active filters you create and customize based on your Flight List needs. There are two methods of creating user-defined filters:

1. Adding a New Filter
2. Editing a Built-in filter

Creating a New User Defined Filter

If you find that the existing filters do not give you the information you need, you can create a new filter.

To create a new User Defined Filter

1. Select **Utilities > Query Manager** from the Control Panel to access the Query Manager component.
2. Select the User Defined Filters folder (see Figure 22 - 2).

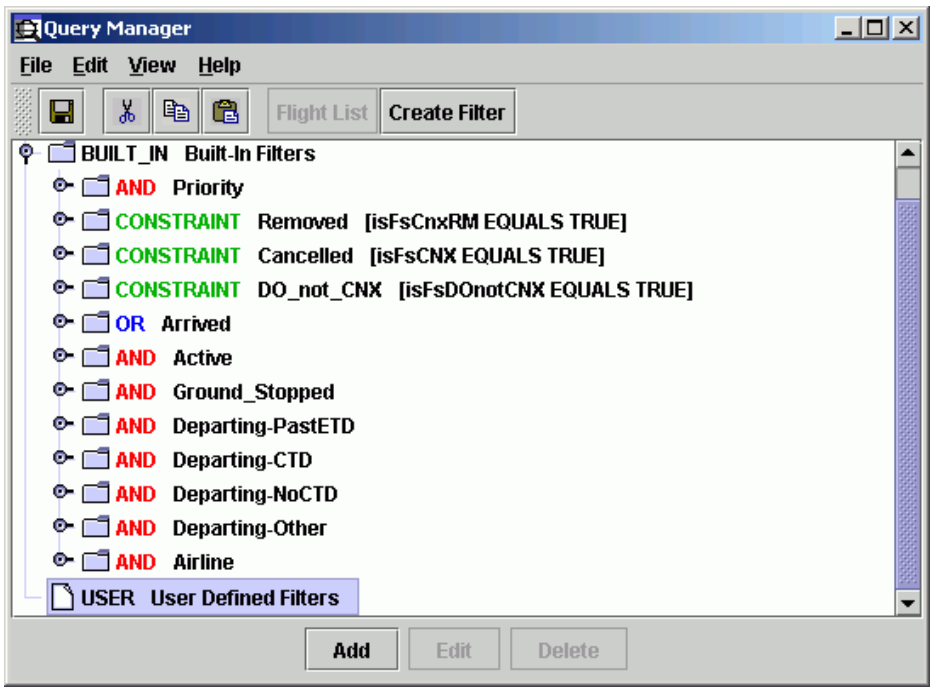


Figure 22 - 2 : User Defined Filters

3. Click **Add**.
   The Add Filter dialog box opens.

Figure 22 - 3 : Add Filter Dialog Box

4. You can select one of three filter types: ***OR List***, ***AND List***, and ***Constraint***.
5. In ***Filter name***, you can give your filter a unique name.
6. Click **OK**.
   FSM adds the new filter under the User Defined Filters folder.

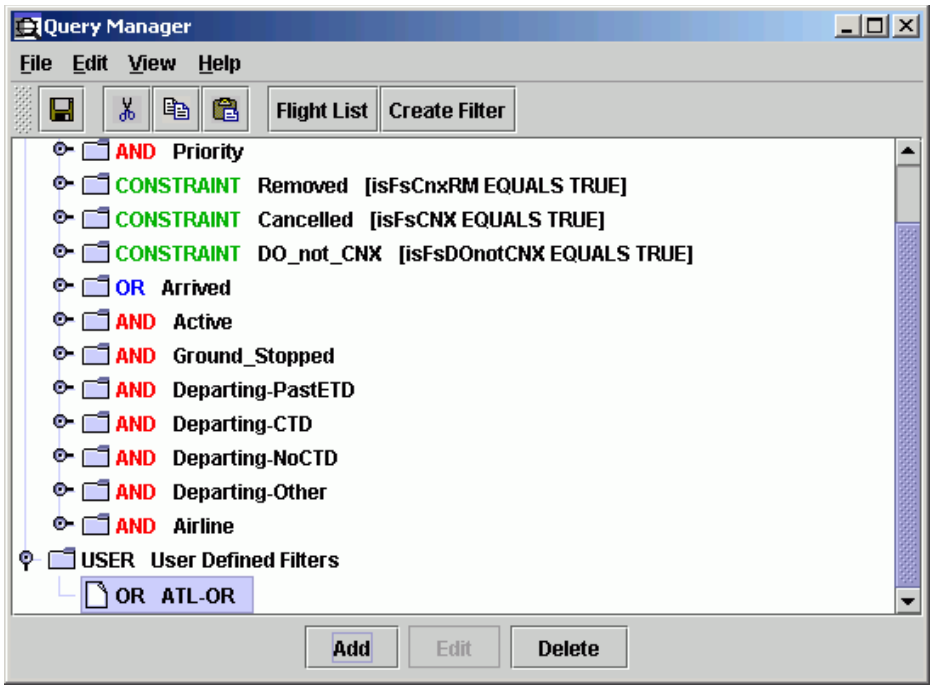


Figure 22 - 4 : New User Defined Filter

For information on creating Constraint filters, see “To create user defined Constraint filters". For information on how to add additional filters and constraints to AND and OR filters, see the following section.

To add additional filters and constraints to User Defined Filter

Once you create a new AND or an OR filter, you can add additional filters and constraints to them. There are two ways to add additional filters and constraints:

- Use the copy and paste functionality to add existing Built-in or User Defined filters to the User Defined filter.
- Highlight the filter to which you want to add filters and constraints and use the steps in “To create a new User Defined filter” above starting with step 2 to add the filter or constraint.

This section shows how to use the copy and paste method.

1. Select the Filter that you want to add to the User Defined Filter.

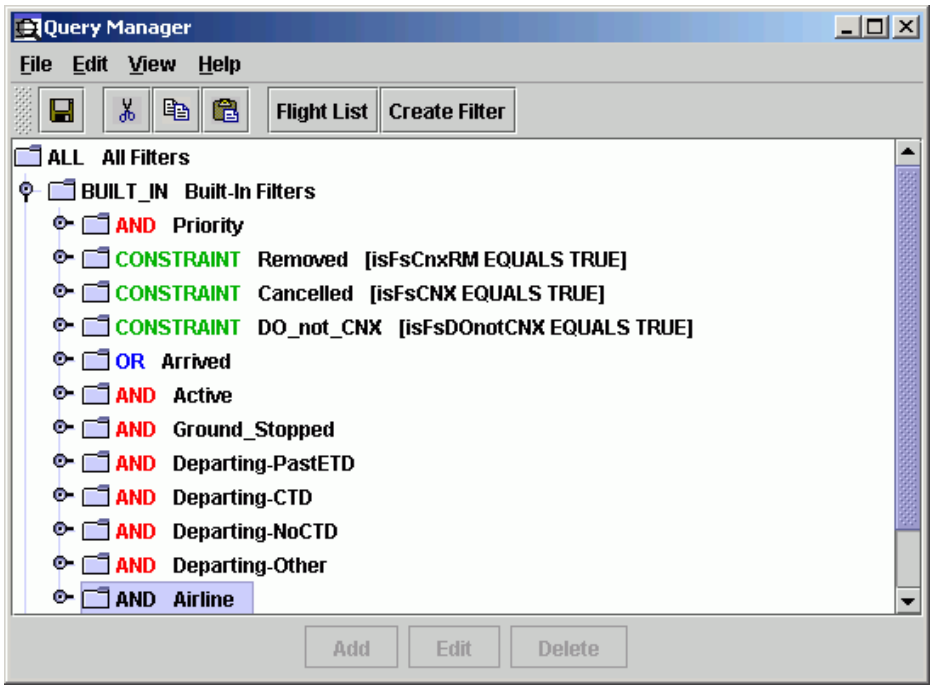


Figure 22 - 5 : Built-In Filter

2. Select **Edit > Copy**.
3. Select the User Defined Filter to which you want to add the filter.

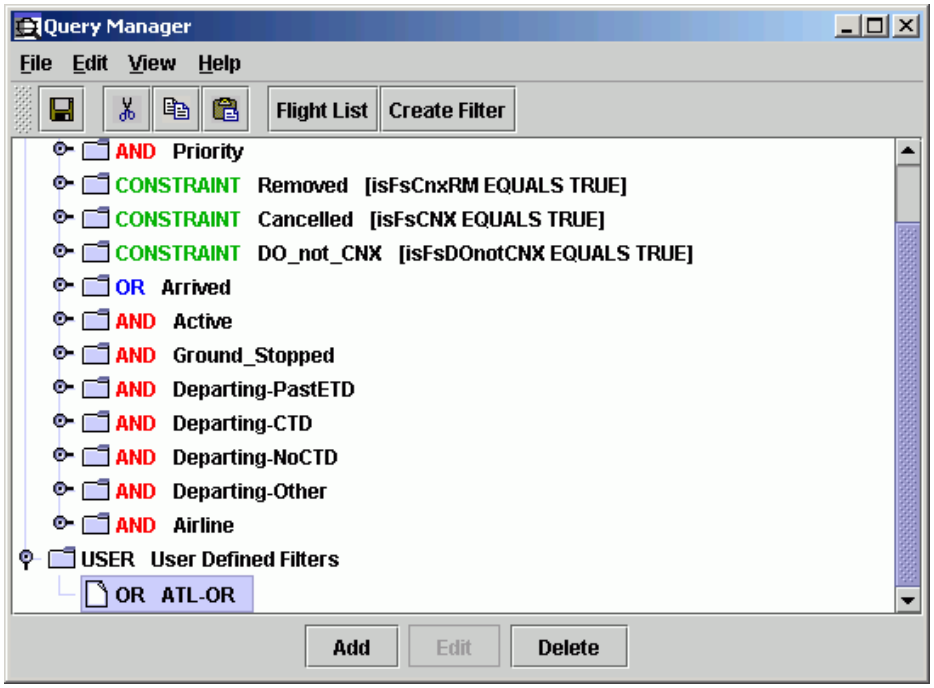


Figure 22 - 6 : User Defined Filter

4. Select **Edit > Paste**.

   The Filter is displayed below the User Defined Filter.

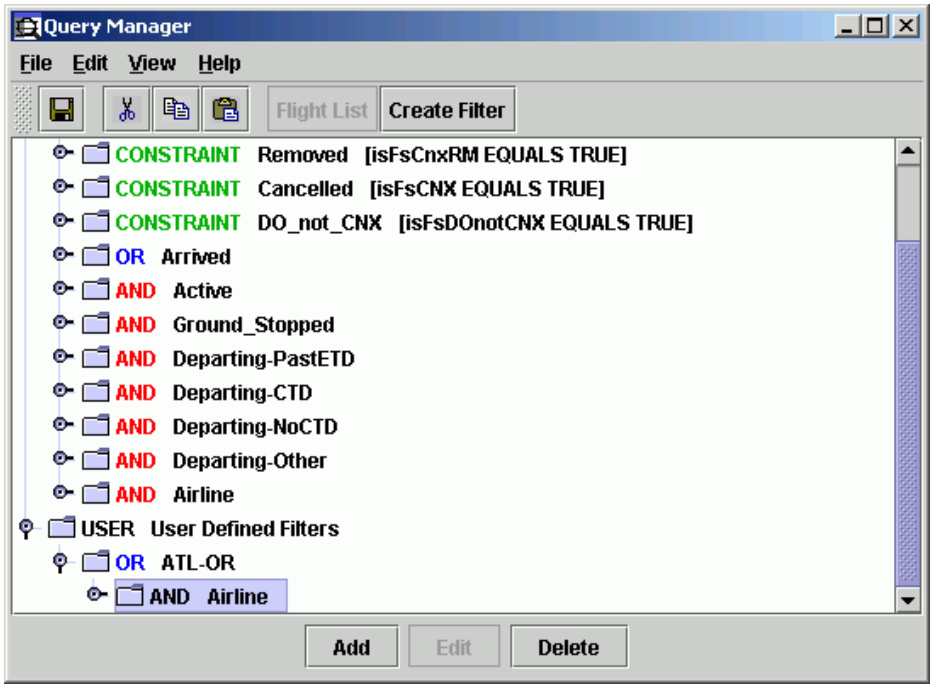


Figure 22 - 7 : Filter Added to User Defined Filter

To create user defined Constraint filters

1. From the Query Manager window, click **Add**.
2. Enter a ***Filter name***.
3. Select ***Constraint*** from the Add Filter dialog box.

Figure 22 - 8 : Add Filter Window

4. Click **OK**.
   The Edit Constraint window opens.

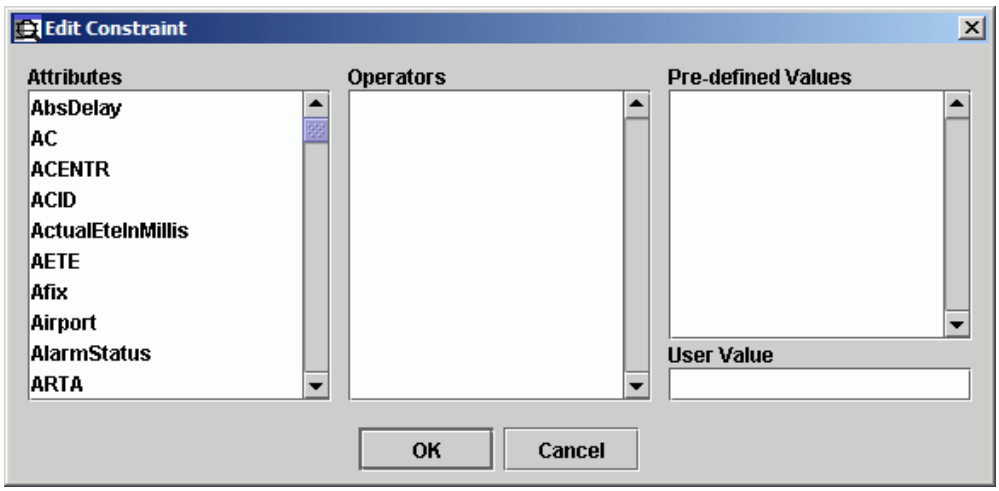


Figure 22 - 9 : Edit Constraint Window

Note: From the Edit Constraint window you must define your constraint by selecting a value from each of the three windowpanes (one value per window): Attributes, Operators and Pre-defined Values.

5. Select an attribute from the ***Attributes*** windowpane. This automatically populates the ***Operators*** windowpane with the available options based on your attribute selection.

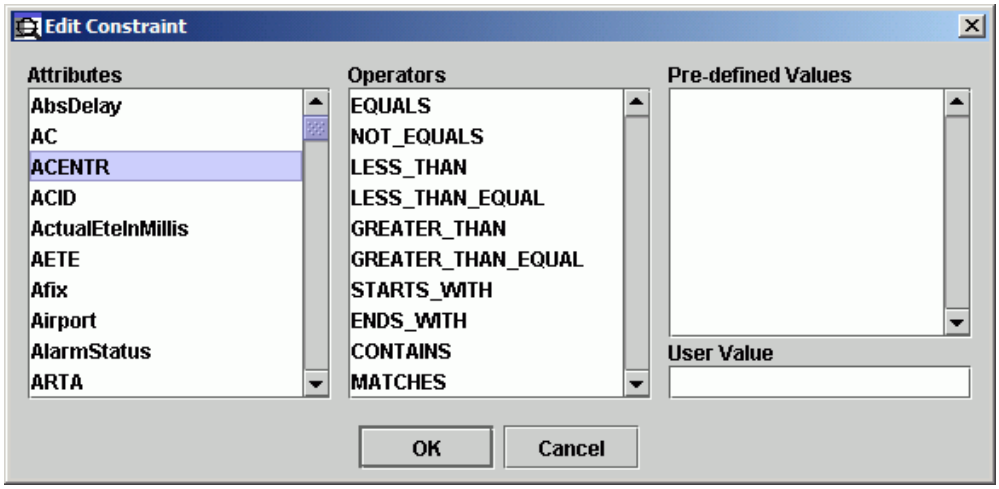


Figure 22 - 10 : Edit Constraint Window

6. Select one of the ***Operators*** listed.
7. Select one of the ***Pre-defined Values***.

   Note: Some Pre-defined Values and User Values may automatically populate as a result of the selection made in the Attributes windowpane.

8. Enter a value in the ***User Value*** text-field if no options are displayed in the ***Pre-defined Values*** windowpane.

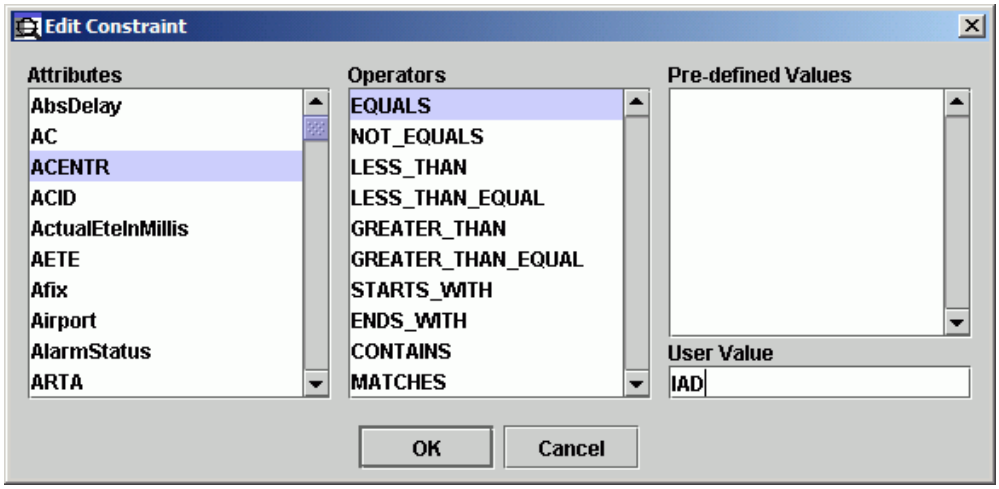


Figure 22 - 11 : Edit Constraint Window with User Value

9. Click **OK** to complete the Constraint definition.

   FSM adds the new CONSTRAINT filter under the User Defined Filters. The CONSTRAINT is displayed with the new filter name including the three values chosen from the Edit Constraints component in brackets.

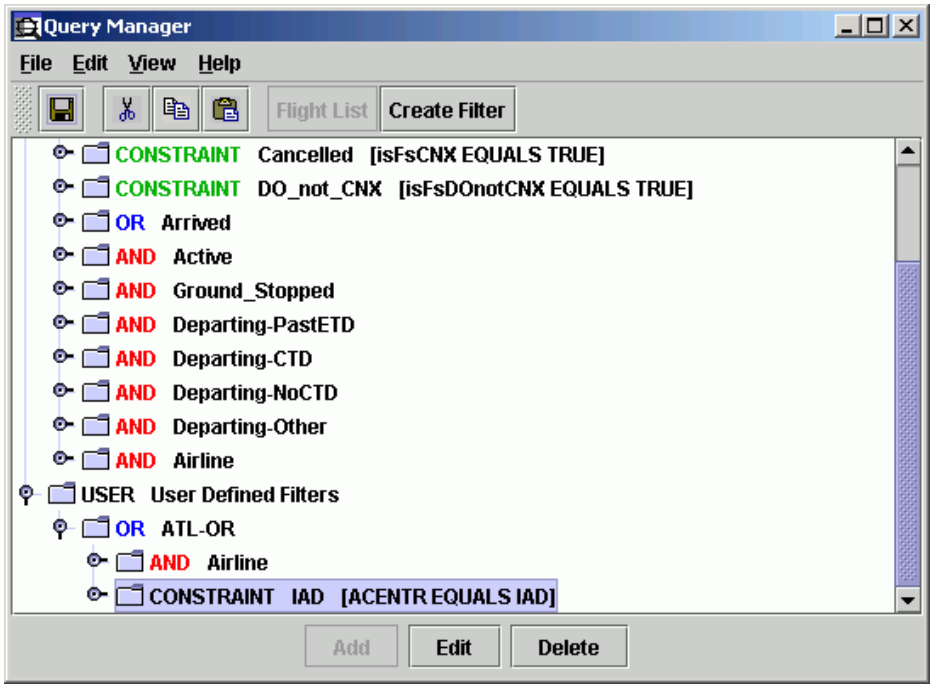


Figure 22 - 12 : Query Manager with User Defined Constraint

To edit an existing CONSTRAINT

You can edit only User Defined Constraints; you cannot amend additional filters to an existing CONSTRAINT. The Add button is disabled when an existing CONSTRAINT is highlighted.

1. Click **Edit**.

   The Edit Constraint window opens.

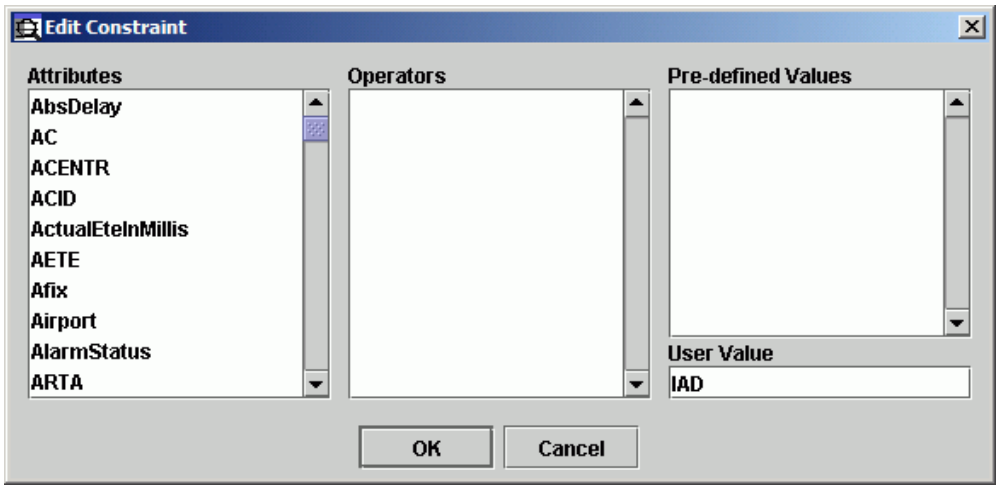


Figure 22 - 13 : Edit Constraint Window

2. Select the new value from ***Attributes***, ***Operators***, ***Pre-defined Values***, or enter a new ***User Value***.

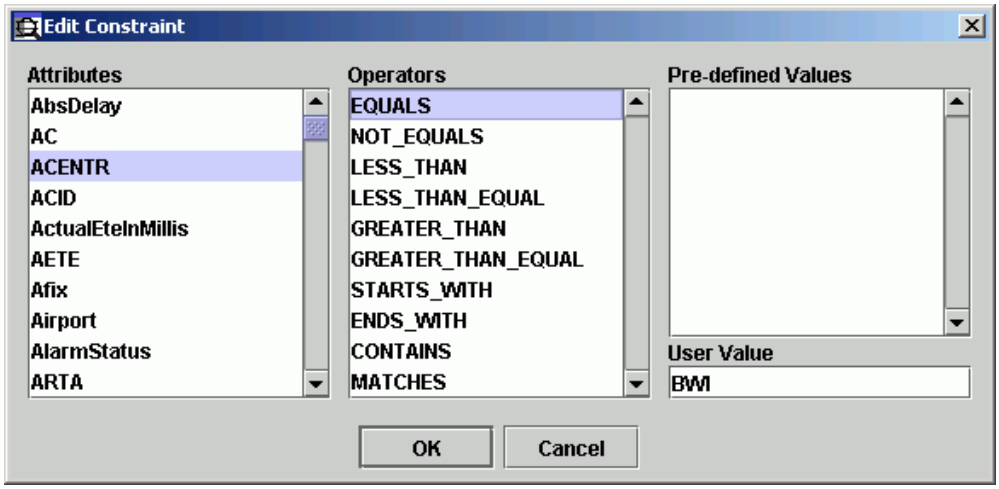


Figure 22 - 14 : Edit Constraint Window with New User Value

3. Click **OK** to complete the new Constraint definition.
   FSM changes the Constraint accordingly.

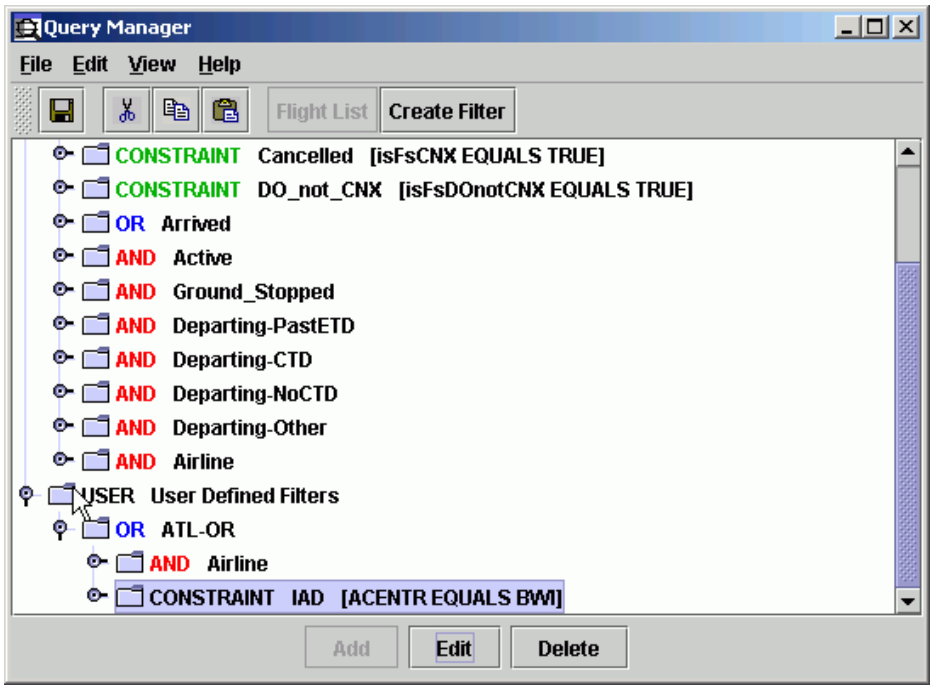


Figure 22 - 15 : Query Manager with edited User Defined Constraint

To delete a User Defined Filter

You can permanently remove user defined filters.

1. Select the filter you want to delete.
2. Click **Delete**.

To view User Defined Filter information

You can select the collapse/expand icon next to the filter name or double-click the folder to view/hide filter information (see Figure 22 - 16).

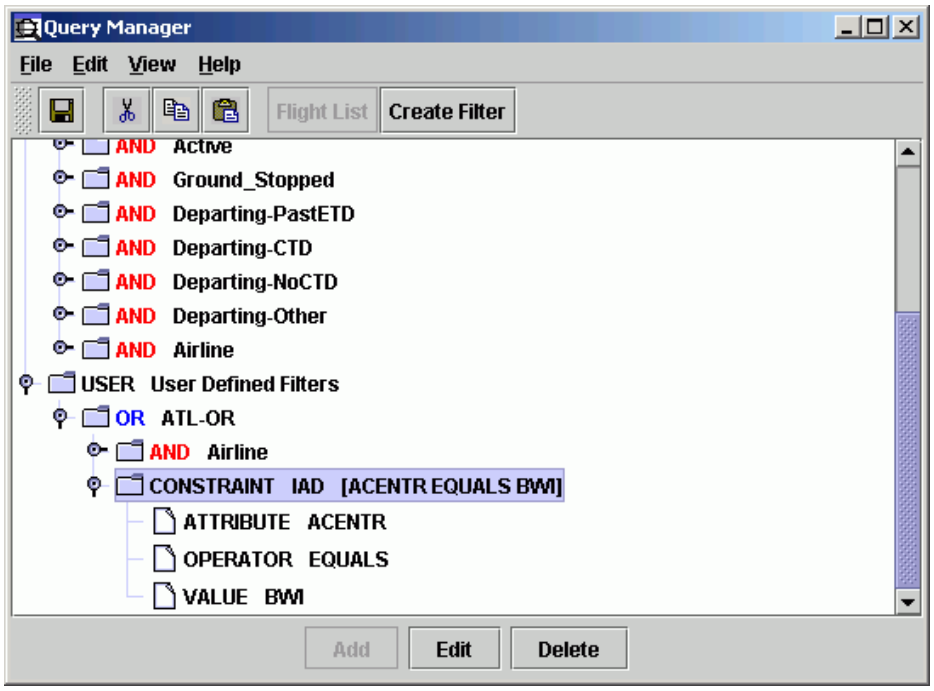


Figure 22 - 16 : User Constraint Added

Using the Create Filter Component

The Create Filter component allows you to create a filter based on a set of predefined logical groupings to search for flights within FSM. The filter it creates is just another type of User Defined Filter. It can be edited in the same as any other User Defined Filter using the methods outlined in the Chapter 22: User Defined Filters section.

You can access the Create Filter component from the Query Manager by clicking **Create Filter** or by selecting **Edit > Create Filter**.

Figure 22 - 17 : Create Filter Component

The Create Filter component has two panes. The left pane contains the logical groupings and the right pane has the associated settings for each logical grouping.

If you change at least one element of a grouping, the label on the grouping in the left pane becomes bold. If you click **Reset Group** for a logical grouping, FSM removes the bold face.

In the ***Filter Name***, you can enter a name for your filter. The ***Filter Name*** text field uses existing Query Manager name constraints.

For the filters, FSM does not allow you to enter a non-alpha value in an alpha field. For example, entering a * character does nothing in alpha fields. Also, FSM does not allow you to enter a non-numeric value in a numeric field. For example, entering the letter A does nothing in numeric fields. All text fields accept the separators "**,**", "**;**", "**:**", or space. Alphanumeric characters are valid for airport fields.

The following logical groupings are displayed in the Create Filter component:

- General – Selecting flight data for Arriving or Departing flights.
- Arrival Times – Selecting flight data for flights that have any ADL arrival time that falls within a user specified time range.
- Departure Times – Selecting flight data for flights that have any ADL departure time that falls within a user specified time range.
- Flight Time – Selecting flight data for flights that have any ADL En Route time as well as FSM calculated times that fall within a user specified time range.
- Flight Status – Selecting flight data for flights that have any of the characteristics of the following current flight statuses: Departing No Estimated Departure Clearance Time (EDCT), EDCT Issued, Departing Past Estimated Time of Departure (ETD), Flight Canceled, Flight Arrived, Flight Active, Ground Stopped, and Flight Removed, or taxied.
- Origin – Selecting flight data for all flights that are departing from individual Centers and Airports.
- Destination – Selecting flight data for all flights that are arriving at individual Centers and Airports.
- Arrival Fix – Selecting flight data for all flights that have a user specified Arrival Fix, as well as allowing the user to select flights that have an Estimated Arrival Fix Time (EAFT) that falls within a user specified time range.
- Departure Fix – Selecting flight data for all flights that have a user specified Departure Fix as well as allowing the user to select flights that have an Estimated Departure Fix Time (EDFT) that falls within a user specified time range.
- NAS User – Selecting flight data for all flights that have a user specified MAJOR and/or AC.
- User – Selecting flight data for all flights that have a specified ADL USR type.
- Aircraft Information – Selecting flight data for all flights that have a user specified aircraft category and/or class.
- Delay Metrics – Selecting flight data for all flights that have FSM calculated delay metrics that fall within a user specified interval.
- Delay Information – Selecting flight data for all flights that have ADL Delay Flag(s) as specified by the user.
- CNX/DO Information – Selecting flight data for all flights that have any ADL Cancellation Flag, Drop Out Flag or RM Flag as specified by the user.
- Control Type -- Selecting flight data for all flights that have any ADL Control Type as specified by the user.

- CDM Participation – Selecting flight data for all flights that have a user specified CDM participation status.
- Remarks – Selecting flight data for all flights that have any ADL Remarks fields as specified by the user.
- Exemption Status – Selecting flight data for all flights that have ADL CTL_EXEMPT flag status as specified by the user.
- Alarm Status – Selecting flight data for all flights that have ADL Alarms fields as specified by the user.

The "AND" operator applies to the logical groupings. In other words, the filter uses all user entered data or defaults for all selected logical groups to create the filter. If you want to avoid including a logical grouping for which you have added a value, you have to click **Reset Group** for that logical grouping to revert to the default. The label for the logical grouping should no longer is displayed in bold.

Create Filter Buttons

The Create Filter component has four buttons which allow you to reset a group, reset the whole filter, cancel the filter and create the filter. The four buttons are:

- **Reset Group** – clears all user entered data for the selected group.
- **Reset All** – clears all user entered data for that filter and resets the filter name to New Filter.
- **Create** – creates a new filter, includes all of the user entered data for that filter, checks the filter name format, and closes the Create Filter component.
- **Cancel** – closes the Create Filter component without creating the new filter.

Create Filter Menu Items

The Create Filter component has two menus, File and Help. The File menu has only a Close menu item. Selecting **File > Close** closes the Create Filter component. The Help menu has only a Create Filter menu item. Selecting **Help > Create Filter** opens the on-line help for the Create Filter component.

Creating and Saving a Filter

You can create a filter using the Create Filter component and save it to use for later sessions. The filter can have one logical grouping or a combination of several logical groupings. Once created, the new filter is displayed in Query Manager and in the Apply Filter function for all flight lists accessed after you create the new filter. When you create a filter using the Create Filter component, it is data set independent so you can use it to filter any data set in FSM.

1. Select **Utilities > Query Manager** to open the Query Manager component. The Query Manager opens.

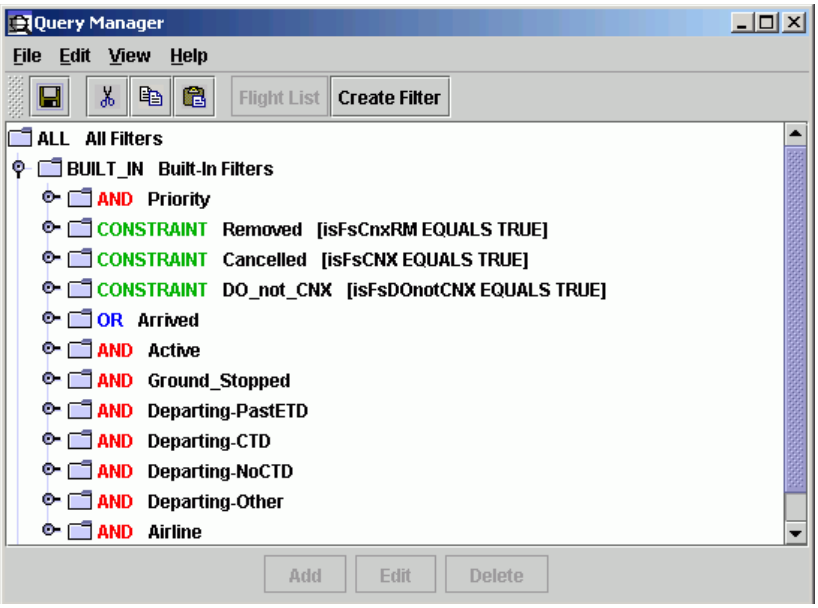


Figure 22 - 18 : Query Manager

2. Click **Create Filter**. The Create Filter component opens.

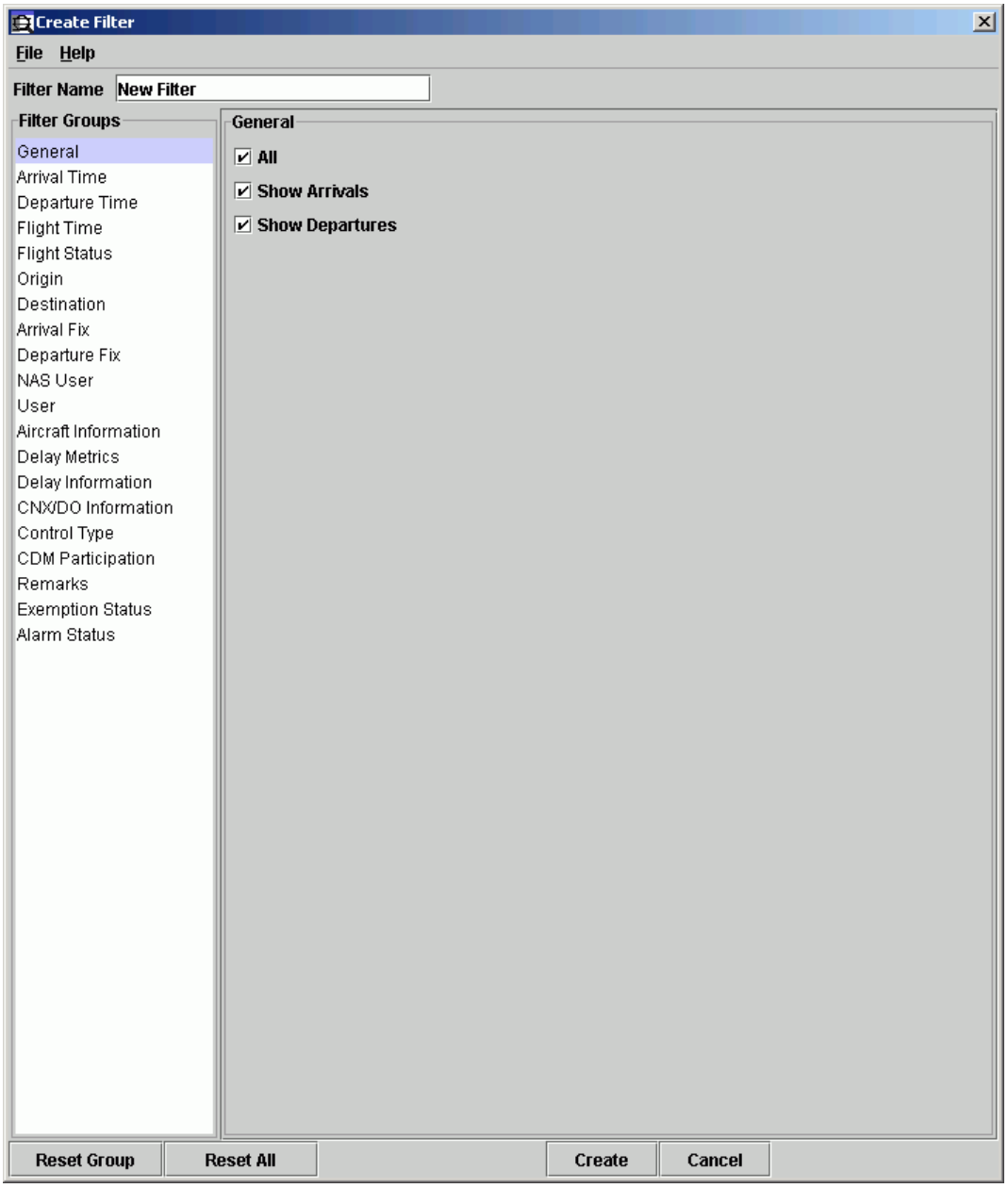


Figure 22 - 19 : Create Filter Component

3. Enter a name in ***Filter Name***. If you give the filter the same name as an existing filter, FSM appends a number (#) to the name. For example, if a filter named Arrivals already exists and you name your new filter Arrivals, FSM names the filter Arrivals(1). For this example, enter **Arrivals**.

Figure 22 - 20 : Filter Name

Note: You cannot leave the Filter Name blank, it must contain text or you receive an error message.

4. Select a logical grouping from the Filter Groups section. For this example, select **Arrival Fix**.
5. For filters with text entry fields, enter the appropriate text for your filter. For this example, enter **DALAS**.
6. For filters with time entry fields, select an operator from the dropdown box and then enter the time for which you want to filter flights. FSM provides the following

operators, =, <,>, =, =, Between, Not Between. For this example, select = and enter **091900**.

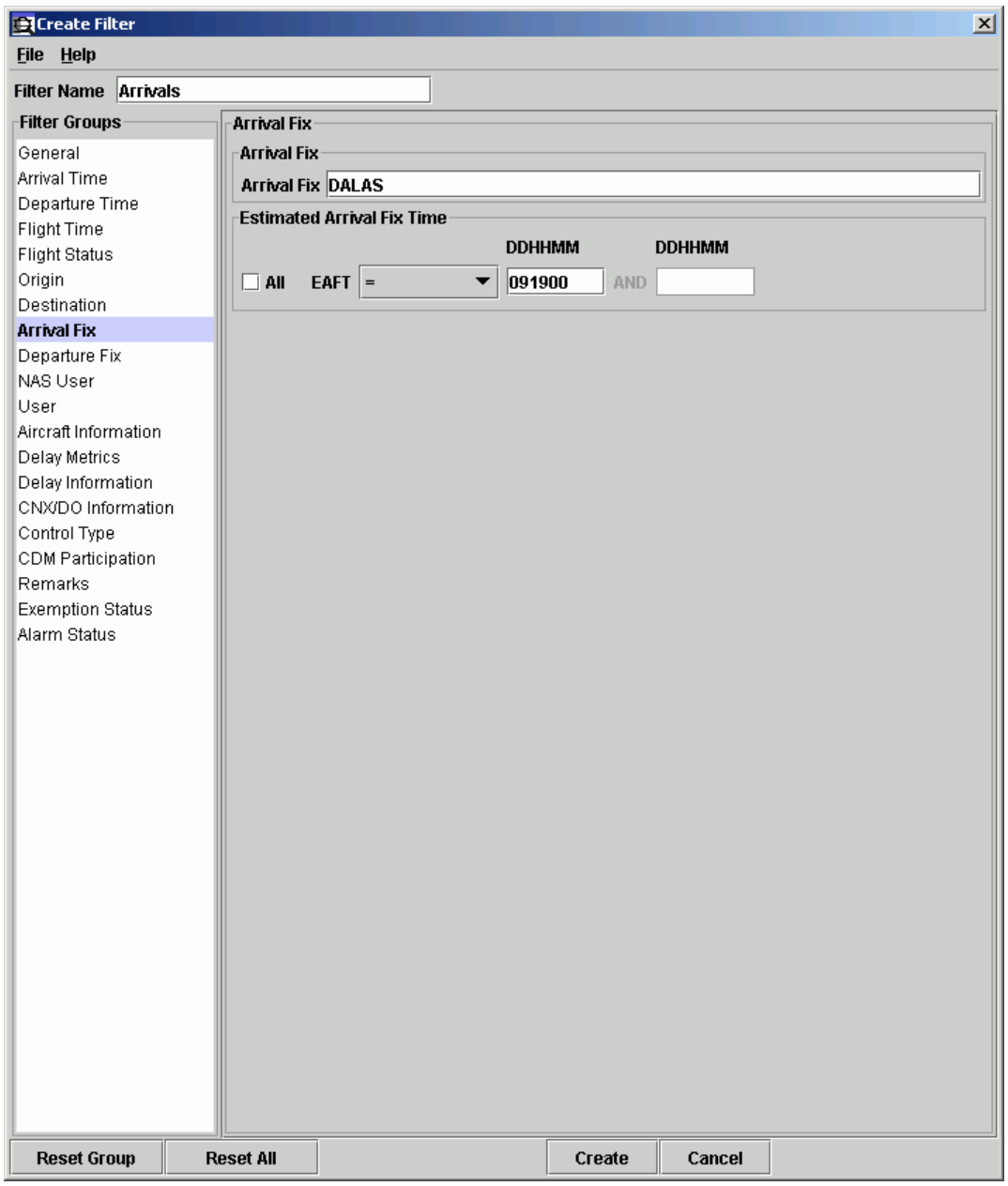


Figure 22 - 21 : Arrival Fix Logical Group

7. You can add an additional logical grouping by selecting it from the Filter Groups section. For this example, select **Destination**.
8. Uncheck ***All*** in the Arrival Center section.
9. Select **ZTL** and **ZDC** from the Arrival Center section. This causes FSM to filter the flight list to show all flights arriving at those centers. You can select ***All*** to include all centers or deselect ***All*** to remove all centers from consideration. If you

do not select a Center, you need to enter an airport or airports in the ***Include*** or ***Exclude*** fields.

10. Enter **BNA** in ***Include***. This causes FSM to filter the flight list for flights arriving at BNA.
11. Enter **BWI** in ***Exclude***. This causes FSM to filter out all flights arriving at BWI.

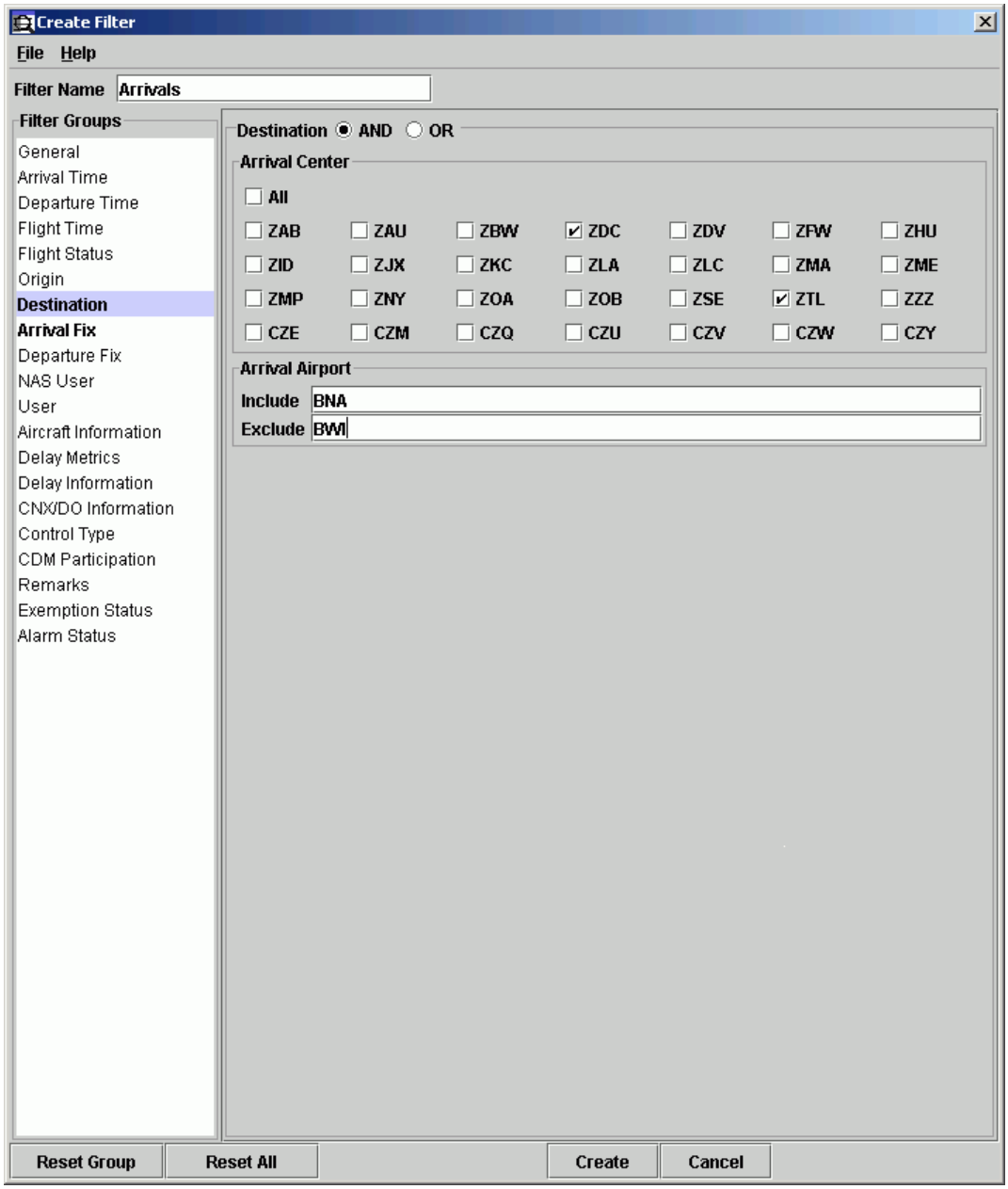


Figure 22 - 22 : Destination Logical Grouping

If you want FSM to show all flights that match all criteria entered in the Destination filter, select the ***AND*** radio button.

If you want FSM to show all flights that match any one of the criteria entered in the Destination filter, select the ***OR*** radio button.

12. Select **Arrival Time** from the Filter Groups section. Select **Between** from the ***ETA*** dropdown box. For this example, enter **091830** in the first time entry field and **091930** in the second time entry field.

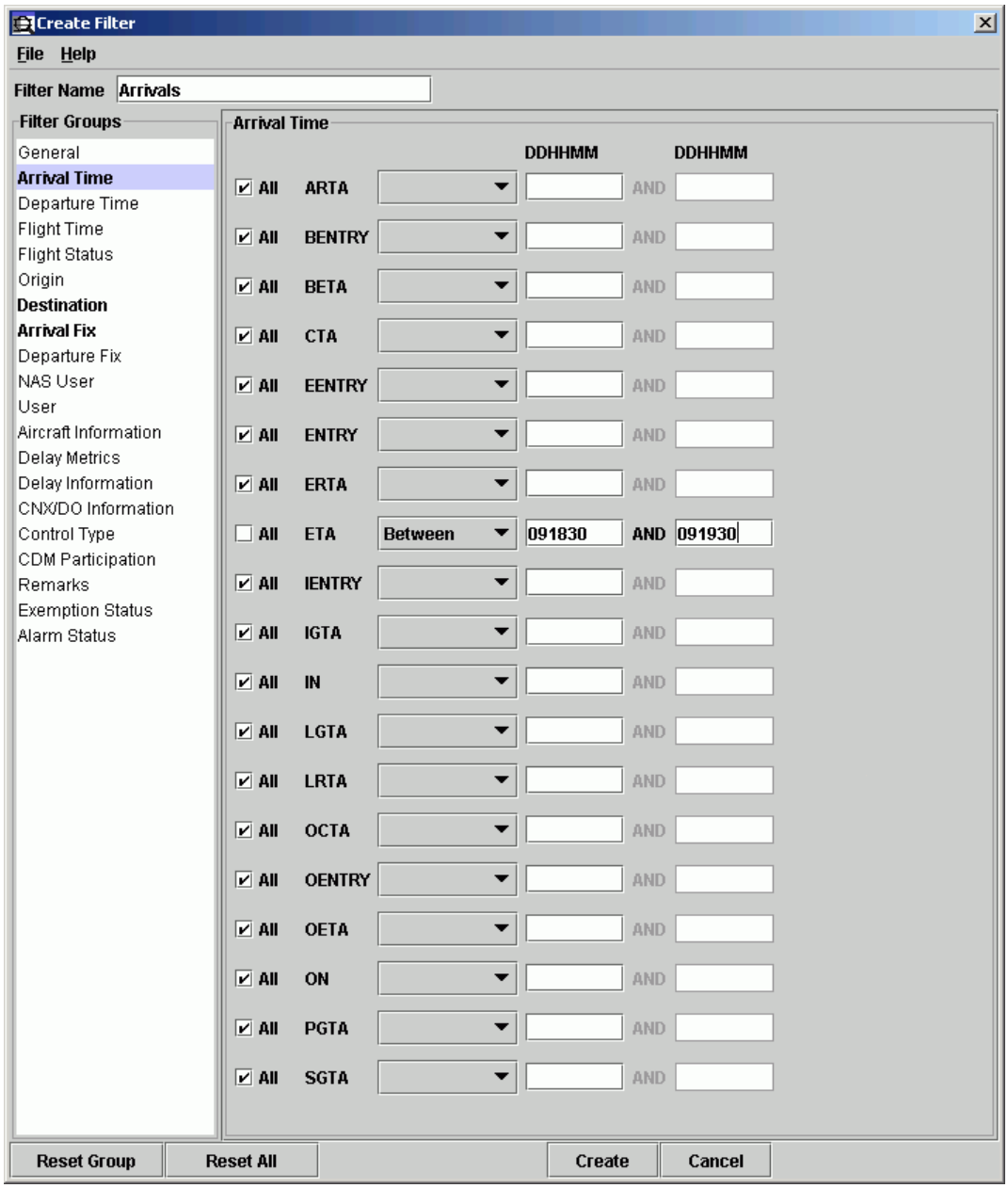


Figure 22 - 23 : Arrival Time Logical Group

Note: For a time/date field with an ***All*** checkbox, selecting the checkbox clears out any entered time/date data in the same row.

13. Once you have entered all of the criteria for your filter, click **Create**. FSM creates the filter and adds it to the User Defined Filters in the Query Manager.

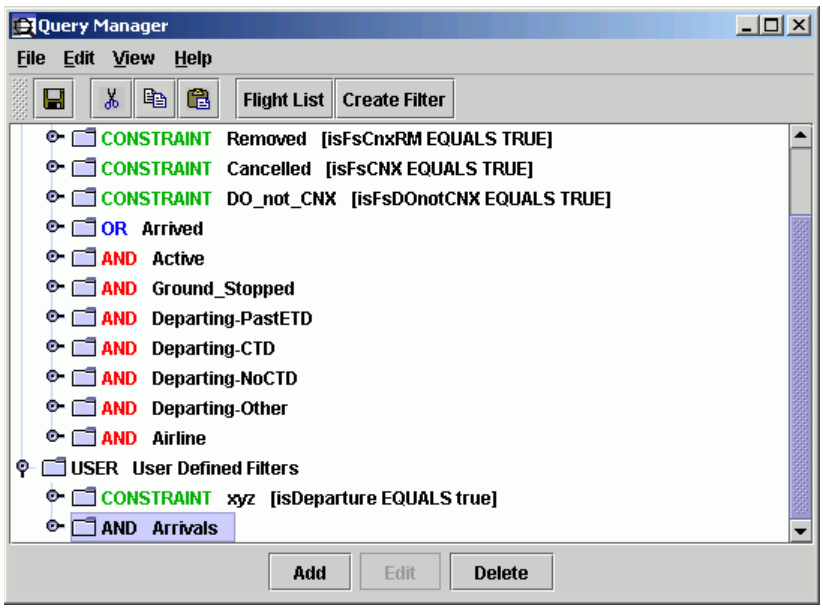


Figure 22 - 24 : Arrivals Filter is Displayed in Query Manager

If you want to use this filter in later sessions, select **File > Save** from the Query Manager component. FSM saves filters created using Create Filter to the local FSM installation. These filters will not be available to users using other FSM installations.

Renaming a User Defined Filter

If you decide that the name you gave your filter is not descriptive enough, you can rename it.

1. Select the filter name in Query Manager.
2. Select **Edit > Rename Filter**. The filter name is displayed in an editable text area.

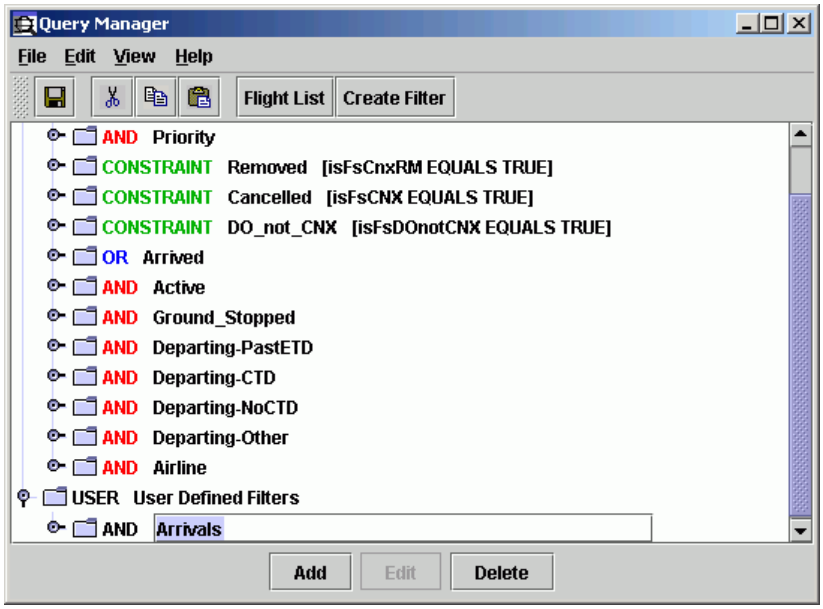


Figure 22 - 25 : Editable Filter Name

3. Enter the new name for your filter.
4. Press **Enter** to save the new name.

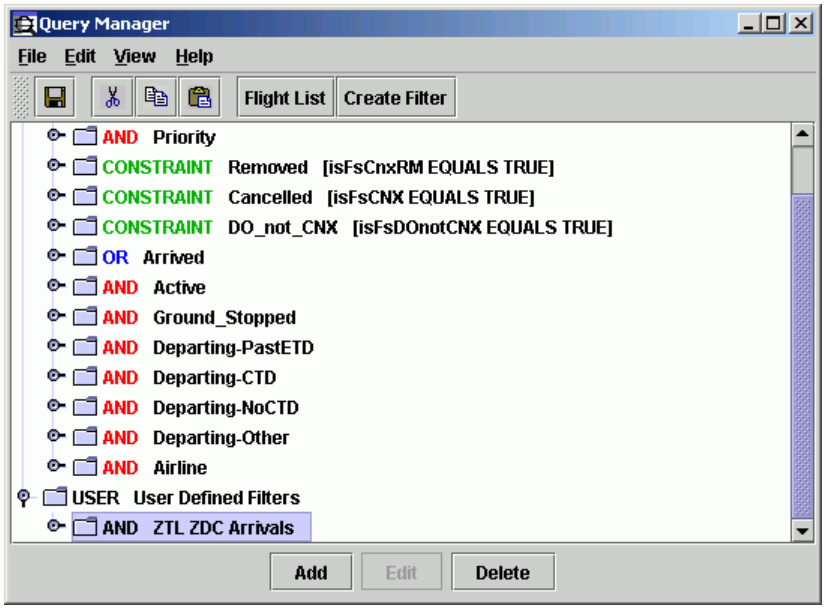


Figure 22 - 26 : Filter is Renamed

Deleting a Filter

If you no longer need a filter created using the Create Filter component, you can delete it using the same methods described in Chapter 22: User Defined Filters.

Query Manager Flight List

Access the Query Manager component by selecting **Utilities > Query Manager** from the Control Panel. When you want to see flights that meet certain criteria, you can generate a Flight List from the Query Manager component. Select any one of the Built-In or User Defined Filters. Click **Flight List** or select **View > Flight List** from the Query Manager component.

> **Note:** If you do not have a data set selected, FSM displays a "No Active Data Sets" error message.

The generated Flight List contains only those flights that meet the selected criteria. The Query Manager already contains a built-in filter for GS flights. To get a list of GS flights at any open data set, select the ***AND Ground_Stopped*** Filter. Click **Flight List** or select **View > Flight List** from the Query Manager component.

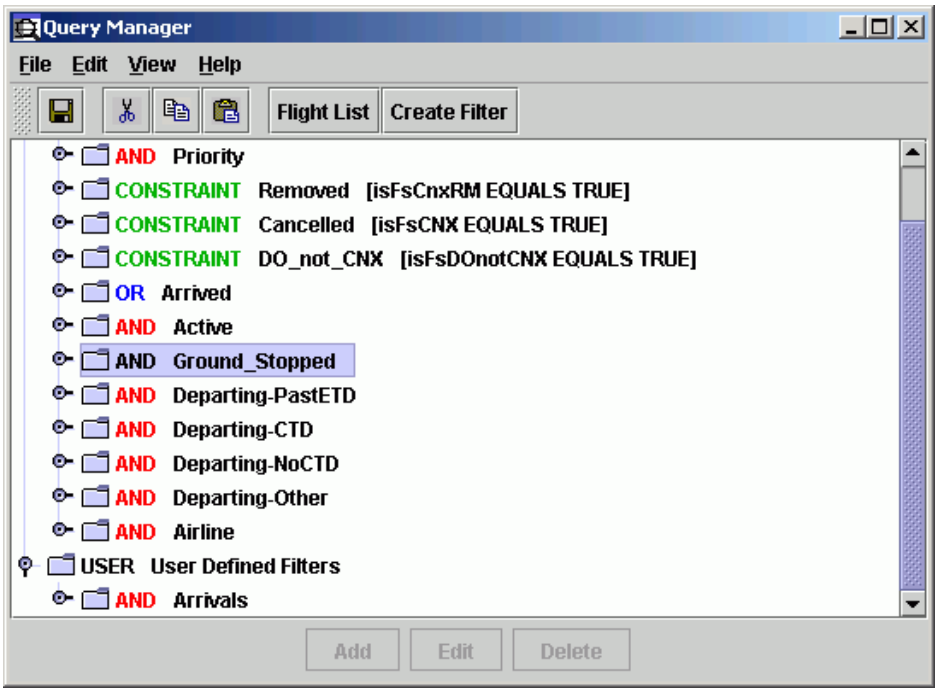


Figure 22 - 27 : Query Manager Component

When you are monitoring more than one data set, clicking Flight List opens the Set Data Set window, showing all open data sets. Select the Data Mode/Data Set and click **OK** to view that airport's GS Flight List (see Figure 22 - 28). Click **Cancel** to exit the Set Data Set window without opening a Flight List.

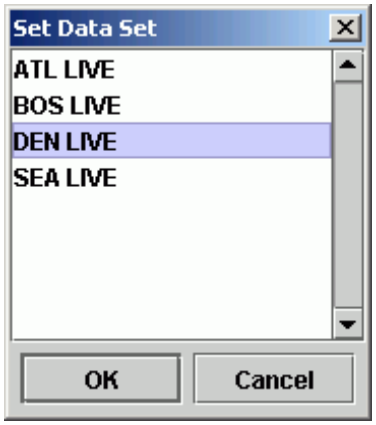


Figure 22 - 28 : Set Data Set Selection window

Opening the Flight List from the Query Manger lists all the flights that are GS at the specified data set unless otherwise defined by a customized CONSTRAINT, whereas accessing a Flight List from the Bar Graph only displays a list of flights for the selected hour.

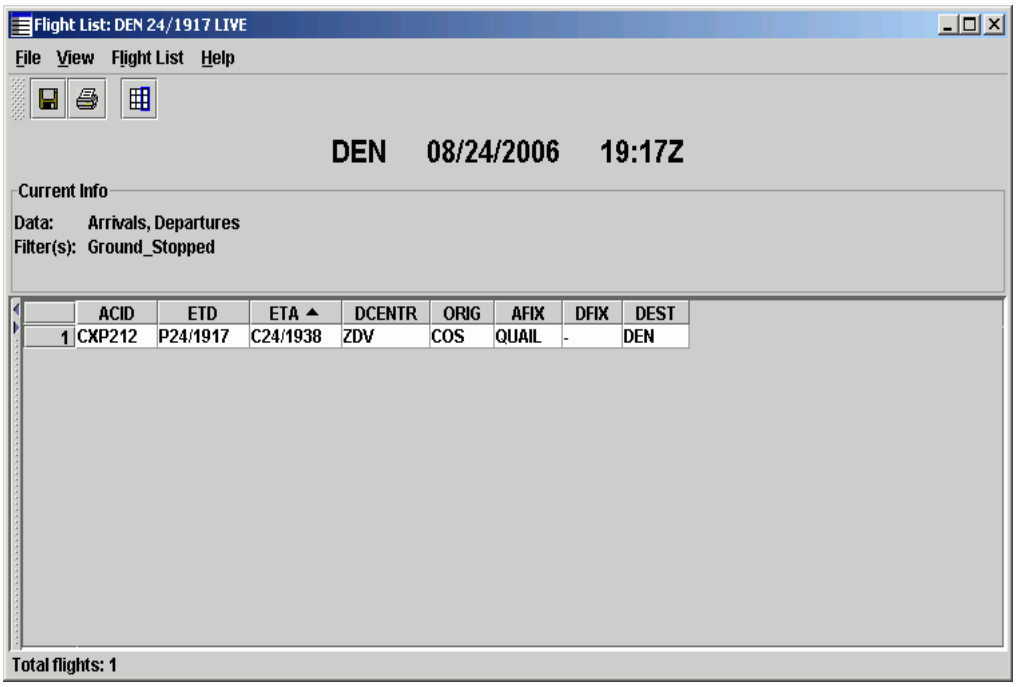


Figure 22 - 29 : Query Manager Flight List

Appendix A: Flight Status

The flight Status is displayed in the Flight Information window and can be one of the following:

- **Normal** - Flight is flying as expected.
- **FX Cancelled** - Generated when an airline sends an FX cancellation message.
- **NAS Cancelled** - A NAS Cancellation received through an RZ message. A flight cancellation message that arrives from somewhere in the NAS system other than the AOC in charge of the flight.
- **RS Cancelled -** an OAG cancellation.
- **RM** - The flight has been removed from the ETMS database.
- **RZ -** A NAS flight plan cancellation message.
- **Timeout Cancelled** - A timeout cancellation. ETMS cancels the flight because its EDT has passed and the flight has not taken off. ETMS determines the necessary lag time between the EDT and the current time before cancelling the flight. The amount of time depends upon whether ETMS received any information for the flight (e.g. flight plan).
- **DV Cancelled** - This flight has been diverted to a new arrival airport.
- **ID Cancelled** - The flight's ID has been changed. In this case, the old flight and ID is cancelled and a new flight with a new ID is created.
- **Airline Delayed (ALD)** – A carrier delayed this flight by either an FC Message (create new flights) or and FM Message (modify flights).
- **In Program** - Delayed because of inclusion in a GDP or AFP.
- **Ground Stopped** - Delayed because of inclusion in a Ground Stop Program.
- **Delay Assignment (DAS)** - A new flight was created in the database after a GDP went into effect. Because this flight has not received any GDP delay, a DAS (formerly FA Delay) is put on the new pop-up flight.
- **Timeout Delayed (TOD)-** A flight's ETD passed without the flight actually taking off. ETMS bumps the ETD time to account for possible unreported delay. Once the Time Out Delay goes into effect, ETMS determines the length of time to wait until registering the flight as **TO Canceled**.
- **Drop Out** - The flight dropped out of an FEA or FCA.

In Ground Delay Tools Mode, an *exemption status* is displayed in the Flight Information Window. Exemption status is displayed above the Flight Status in the Flight Information Window. Exemption status refers to the flight's inclusion in a Ground Delay Operation and is one of the following:

- **Excluded by Aircraft Type** - The program did not include aircraft of this type.
- **Excluded by Arrival Fix** - The program did not include this arrival fix.
- **Excluded by Arrival Time** - The flight's ETA did not fall within the program time limits.

- **Excluded by Departure Time (GS Only) -** The flight is cancelled or the ETD is before the start time or after the end time.
- **Exempted by Departing Center -** The program did not include this flight's center.
- **Exempted by Distance -** The flight is exempted because the departure airport is outside the distance specified by the program.
- **Exempted by Departing Airport -** This airport was specifically exempted from the program.
- **Exempted by Specific Flight -** This flight was specifically excluded from the program.
- **Exempted by Departure Status -** The ETD prefix is either A or E.
- **Exempted by Departure Time -** The flight's Revised EDCT (or Ptime) comes before the Current Time + Now_Plus.
- **Excluded and Exempted -** Because of program parameters, this flight met excluded and exempted status criteria. This status includes flights which do not fly within the time period of a GDP and which meet exemption criteria.
- **Not Exempted -** This flight is eligible for inclusion in the program.

When a flight triggers one of FSM's alarms, FSM generates a list of flights that have triggered an alarm. Flights trigger alarms when they do not comply with certain operations' criteria. Flights trigger alarms for the following reasons:

- **CC -** Flights arriving more than five minutes before or more than five minutes after their Control Time of Arrival.
- **CF -** Flights that were cancelled but later flew without the flight being reinstated properly.
- **EA -** The actual flight time is greater than a specified value, but the flight status is not cancelled. The default value is 15 minutes.
- **EC -** The departure boundaries are more than five minutes before or more than five minutes after their estimated departure clearance time.
- **SF -** Spurious Flights or flights submitted as SI cancellations with no corresponding entries in the OAD.

The term alerts refers to areas in which the traffic demand is projected to exceed a predefined capacity threshold. The following are flight Alerts:

- **Alerts > FADT Parameters Available** – This alert does not actually give you program parameters. Rather, you can view a listing of all the FADTs generated during that day. FADTs are reports generated when a GDP, AFP, GS, +/- Delay or Compression operation runs.

  Note: FSM does not always list the FADTs in chronological order.

- **Alerts > SCS Bridge** This alert turns red in color when there is a new SCS update. Selecting SCS Bridge displays the current subbing status and may contain the following keywords:

- **SUBS:** Indicates whether all substitutions are enabled (ON) or disabled (OFF)
- **SCS**: Indicates whether slot credit substitutions for all operators are enabled (ON) or disabled (OFF)
- **ADPT**: ON indicates that the ETMS Hub is running Adaptive Compression for this program.
- **BRIDGING:** Indicates whether bridging subs are disabled (OFF) for a particular operator (airline name, GA, or MILITARY). If bridging is off for an airline, any flight whose MAJOR field or carrier code (from ACID) matches the airline name is not used for an SCS bridge. If bridging is enabled for an operator, no line is displayed, in other words, the only allowed value for this keyword is OFF.

- **Alerts > Actual GDP Parameters Available –** This alert turns red in color when FSM receives Actual GDP Parameters through the ADL. First-time GDP Parameters, new GDP Parameters and deleted GDP Parameters all trigger this Alert. Select Actual GDP Params Updated to view the parameters in the GDP Parameter Display panel, which is similar to the GDP Setup Panel. From the GDP Parameter Display panel, you can save the parameters or close the panel.
- **Alerts>Actual AFP Parameters Available** - This alert occurs when FSM receives actual AFP Parameters through the ADL. First-time AFP Parameters, new AFP Parameters, and deleted AFP Parameters trigger this Alert. Select this to view these parameters in a static window.
- **Alerts > Proposed GDP Parameters Available -** This alert turns red when parameters for a Proposed GDP arrive through the ADL. Select Proposed GDP Parameters to view the new parameters.
- **Alerts > Proposed AFP Parameters Available** - This alert occurs when FSM receives proposed AFP parameters through the ADL. Select this to view these parameters in a static window.
- **Alerts > GS Parameters Available** – This alert turns red in color when the FAA issues a GS and FSM receives its parameters through the ADL. First-time GS Parameters, new GS Parameters, and deleted GS parameters all trigger this Alert. Select GS Parameters to view the parameters in the GS Parameter Display panel, which is similar to the GS Setup Panel. From the GS Parameter Display panel, you may save the parameters to a file or close the window.

  Note: GS parameters are not applicable to FCAs.

- **Alerts > Compression Parameters Available –** When FSM receives parameters for the compression function through the ADL, it triggers this alert. When Compression parameters arrive, Compression Parameters turn red in the Alert menu. Click the red text to view the new parameters.
- **Alerts > Blanket Parameters Available** – FSM applies this alert to all flights that are part of a specific GDP.

  Note: Blanket parameters are not applicable to FCAs.

Appendix B: FSM Data Elements

The flight information listed below can be viewed in the Flight Detail window and corresponds with ADL flight information.

Flight Information

Flight ID	Aircraft Identifier or callsign
Date	ADL date
Time	ADL Time
Aircraft Type	Aircraft Type
AC_CAT	Aircraft Category (Jet, Turbo, Prop)
Class	Aircraft Weight Class (Jumbo, Heavy, Large, Small)
Major	The carrier qualified to perform substitutions for the flight
CDM_Participant	Y or N
User	Air Carrier, Freight/Cargo, General Aviation, Military, Air Taxi, or Other.

Departure Information

DFIX	Departure Fix
EFTD	Estimated Departure Fix Time
DP	Departure Procedure
DTRSN	Departure Procedure Transition

Great Circle Distance

GCD	The distance between the origin and the destination

Arrival Information

AFIX	Arrival Fix
EAFT	Estimated Arrival Fix Time
STAR	Standard Terminal Arrival
STRSN	Standard Terminal Arrival Transition

Estimated Time Information

ETD	Estimated Time of Departure: The prefix indicates the status of the flights and the ETD is the best, estimated runway departure time considering all data sources. The prefix and ETD are determined by separate logic. The prefix values are, in increasing order of priority (that is, the ADL will show the lowest prefix from this list that applies to a flight whether or not that was the basis for the ETD: S - The flight data is based solely on OAG data. N - Early Intent Flights P - Flight Plan L - CDM Message (FM, FC) T - Taxied E - Extrapolated from active NAS message other than DZ; Flight is Airborne A - Actual (DZ NAS message) or a CDM Participant provided OFF time
ENTRY	Current, best, estimated time of entry for a flight into an FEA or FCA considering all data sources. This field is null if the flight does not fly through an FEA or FCA.
EXIT	Estimated Element Exit Time. The estimated time when the flight will exit the FEA or FCA. This field is null if the flight does not fly through an FEA or FCA.
ETE	Estimated Time En Route
ETA	Estimated Time of Arrival: The prefix indicates the status of the flights and the ETA is the best, estimated runway arrival time considering all data sources. The prefix and ETA are determined by separate logic. The prefix values are, in increasing order of priority (that is, the ADL will show the lowest prefix from this list that applies to a flight whether or not that was the basis for the ETA E - ETMS Modeling L - Airline C - Controlled Time A - Actual (AZ NAS message)

Other Flight Times

CTD/CTA	Controlled Time of Departure/Arrival
CETE	Controlled Estimated Time En Route

Other Flight Times

SGTD/SGTA	Scheduled Gate Time of Departure/Arrival (OAG)
PGTD/PGTA	Proposed Gate Time of Departure/Arrival - Based on the NAS filed flight plan
PETE	Proposed Estimated Time En Route
LRTD/LRTA	Airline Runway Time of Departure/Arrival - Based on airline data (CDM FM Messages)
LGTD/LGTA	Airline Gate Time of Departure/Arrival - Based on airline data (CDM FM Messages)
IGTD/IGTA	Initial Gate Time of Departure/Arrival - Based on either OAG or flight plan data, time never changes
IENTRY	Initial Element Entry Time into an FEA/FCA
ARTD/ARTA	Actual Runway Times of Departure/Arrival - Set by DZ/AZ NAS messages.
OUT/OFF/ON/IN	Actual airline flight times OUT - Gate push back OFF - Wheels up ON - Wheels down IN - At the gate
ERTD/ERTA	Earliest Runway Time of Departure/Arrival - Based on airline submitted data as the earliest time a flight can depart or arrive.
EENTRY	Earliest Element Entry Time
OETD/OETA	Original Estimated Time of Departure/Arrival - Matches the ETD/ETA and then freezes when: 1. Flight becomes active 2. Flight becomes controlled 3. Flight becomes time-out delayed
OENTRY	Original Element Entry Time
OETE	Original Estimated Time En Route
BETD/BETA	Based Estimated Time of Departure/Arrival - Matches the ETD/ETA and then freezes when: 1. Flight becomes active 2. Flight becomes controlled
BENTRY	Based Element Entry Time

Other Flight Times

OCTD/OCTA	Original Controlled Time of Departure/Arrival - Initial controlled times issued (never changes)

Flight Flags

Ctl Exempt	Control Exempt Flag - Flight was exempt from departure delay in the most recent TMI event.
Ctl Type	Control Type - The source of the control times most recently assigned to a flight: GS -Ground Stop AFP -Airspace Flow Program GDP - Ground Delay Program (initial, revision, or extension) COMP -Compression DAS - Delay Assignment (formerly FA) RCTL -Recontrolled (only for AFP flights) BLKT -Blanket or +/- delay adjustment SUB - Airline substitution message SCS - Slot Credit Substitution submitted by a NAS user ECR - Slot Credit Substitution submitted by an FAA user ABRG - Control times assigned when creating a bridge for Adaptive Compression performed automatically by ETMS (AFP and GDP) ADPT -Adaptive Compression SBRG -Control times assigned when creating a bridge for an SCS or ECR request (GDP and AFP) UPD -EDCT Updated by an FAA user GAAP - Unassigned slot assigned to a pop-up during a GAAP GDP
Subbable	Y or -
Ctl Element	The constrained NAS element for which controlled times are issued
Slot ID	Assigned Slot Time (dd/hhmm)
Slot Hold	Slot Hold flag - slot will not be used during compression
Div Recovery	Diversion Recovery Flag - Flight was previously diverted G - diverted while on the ground A - diverted while airborne

Flight Flags

Delay Status	Red highlighted flag indicates: ALD - Airline Delay GDP - Delayed by CTD/CTA (airport) AFP - Delayed by CTD/CTA (airspace) DAS (formerly FAD) - Pop-up flight after GDP issued GSD - Delayed by Ground Stop TOD - Time Out Delayed past the flights ETD
LTOD	Length of Time Out Delay in minutes
CNX Status	Cancellation status UX - Update cancelled FX - Airline cancelled RZ - NAS cancelled RS - OAG cancelled TO - Time Out cancelled DV - Diverted Flight RM - Remove cancelled (CSA only function)
Remark	Aircraft Remarks NRP - National Route Program flight LFG - Lifeguard or MEDVAC flight III - Minimizing CAT3 landing flight ATV - Altitude Reservation SWP - Swapping DVT - Diversion Recovery flight ADC - Advise Customs FCA - Flow Constrained Area WXR - Severe Weather Reroute
Alarm	Alarm Status CC - CTA non-compliance EC - EDCT non-compliance EA - ETE vs Actual Value SF - Spurious Flight CF - Cancelled but Flew
DO	Drop Out, Y or -

Calculations

Absolute Delay	Max (0, ETA - (IGTA - taxi))
Schedule Variation	ETA - (IGTA - taxi)

Calculations

Program Delay	Max (0, CTA - BETA)* *Note*: Program Delay changes anytime a flight's CTA changes, this includes airline substitutions and SCS messages and well as EDCT updates.

Appendix C: Glossary of Abbreviations

- **III –** Category III Flight (flight remark)
- **AAL** – American Airlines
- **AAR** – Airport Acceptance Rate
- **ADC –** Advise Customs (flight remark)
- **ADR –** Airport Departure Rate
- **ADPT** – Adaptive Compression
- **AETE –** Actual Estimated Time En route
- **Airborne Holding** – A deterministic mathematical model used to calculate predicted airborne holding.
- **AffAvgDelay** – (Affective Average Delay) total delay divided by number of non-exempted flights, calculated after running a GDP.
- **AFP –** Airspace Flow Program
- **ALD –** The carrier imposed a delay on the flight (delay status).
- **ARTD /ARTA –** Actual Runway Times (Departure/Arrival)
- **ASD** – Aircraft Situation Display
- **ASLOT –** Assigned Arrival Slot ID
- **ATA** – Actual wheels-on Arrival Time
- **ATCSCC** – Air Traffic Command System Control Center
- **ATD** – Actual wheels-off Departure Time
- **ATR-310** – Traffic Flow Management Integrated Product team
- **ATL** – Atlanta International Airport
- **ATV –** Altitude Reservation (flight remark)
- **AUA-500** – Air Traffic Systems Development, Traffic/Flight Service Station
- **BENTRY –** Based Element Entry Time
- **BETD/BETA –** Beginning Estimated Wheel Times
- **BOS** – General Edward L Logan International Airport in Boston
- **CC –** Alarm Status for flights arriving more than five minutes before or more than five minutes after their Control Time of Arrival
- **CDM** – Collaborative Decision Making
- **CETE –** Control Estimated Time En route
- **CF –** Alarm status for flights that were cancelled but later flew without the flight being reinstated properly.
- **CNX** – Cancelled Flight; Cancel
- **COA** – Continental Airlines
- **CR_TIME –** Create Time
- **CTA** – Revised OrigCTA (Control Time of Arrival) after substitution/cancellation
- **CTD** – Control Time of Departure

- **CTL_ELEM** – If a flight is controlled (i.e., has a CTD and CTA), this field indicates the constrained NAS element for which a ground delay program or ground stop was run. Currently, the CTL_ELEM can be an arrival airport, FEA, or FCA.
- **CTT** – Collaborative Technology Testbed
- **DAS (formerly FAD)** – Delay Assignment
- **DCenter** – Departure Center
- **DEP** – Departure Airport
- **DO –** Drop Out Flight
- **DP** – Departure Procedure
- **DTRSN** – Departure Procedure Transition
- **DV –** The flight was cancelled and diverted to an alternate destination (cancel status).
- **DVT –** Diversion Recovery flight (flight remark)
- **EA –** The actual flight time is greater than a specified value, but the flight status is not cancelled. The default value is 15 minutes (alarm status).
- **EC –** The departure boundaries are more than five minutes before or more than five minutes after their estimated departure clearance time (alarm status).
- **ECR –** EDCT Request Tool.
- **EENTRY –** Earliest Element Entry Time
- **EGF** – American Eagle Airlines
- **ENTRY** – Current, best, estimated time of entry for a flight into an FEA or FCA considering all data sources
- **EPS** – Airport Engineering Performance Standards
- **ERTD/ERTA –** Earliest Runway Times
- **ETA** – Updated Estimated (wheels-on) Arrival Time. Prefixes: P (proposed), E (estimated)
- **ETD** – Updated Estimated (wheels off) Departure time. Prefixes P (proposed), E (estimated)
- **ETE** – Estimate Time En Route in minutes
- **ETMS** – Enhanced Traffic Management System
- **EXIT –** Estimated Element Exit Time
- **FADT List –** Generated after running a GDP. Contains information about all ground-delayed flights (all flights that have been issued an OrigEDCT). If a center or an airline has ground-delayed flights, their call-signs, departure airports, PTimes, EDCTs and CTAs are given for each appropriate center and airline.
- **FCA –** Flow Constrained Area (flight remark)
- **FEA** – Flow Evaluation Area
- **FSM** – Flight Schedule Monitor
- **FX –** A CDM message used by the airlines to indicate a cancelled flight (cancel status).

- **GCD** – The Great Circle Distance (GCD), which is the distance between the departure airport and arrival airport.
- **GDP** – Ground Delay Program
- **GDT** – Ground Delay Tools
- **GS –** Ground Stop
- **HITL** – Human in the Loop
- **IENTRY –** Initial Element Entry Time
- **IPM –** Integrated Program Modeling
- **IGTD/IGTA –** Initial Estimated Gate Times
- **LFG** – Lifeguard Flight (flight remark)
- **LGTD/LRTD/LRTA/LGTA –** Airline Gate and Runway Times
- **LTOD –** Length of Time Out Delay
- **MOA** – Memorandum of Agreement/Military Operations Area
- **NRP –** National Route Program Flight (flight remark)
- **OAG** – Official Airline Guide
- **OCTD/OCTA –** Original Control Times
- **OENTRY –** Original Element Entry Time
- **OETD/ OETA –** Original Estimated Wheel Times
- **OETE –** Original Estimated Time En route
- **ORD** – O'Hare International Airport in Chicago
- **OOOI –** OUT/OFF/ON/IN – Time that the flight was out of the departure gate, off the departure runway, on the arrival runway, and in the arrival gate.
- **PGTD/PGTA –** Proposed Gate Times (Departure/Arrival)
- **PETE –** Filed Estimated Time En route
- **Power Run** – A Tab in the GDT *Setup* component, which allows you to model various scenarios to help evaluate what parameters are most favorable.
- **RBS** – Ration By Schedule. A ground delay algorithm based on the OAG time.
- **RBS++** – An enhanced version of RBS which automatically performs compression.
- **RM –** The flight has been removed from the ETMS database (cancel status).
- **RS –** An internal ETMS message generated when a specialist takes an OAG flight out of the database (cancel status).
- **RZ –** A NAS flight plan cancellation message (cancel status).
- **SCDT List** – Contains flight delay information for the airport that has been issued a ground delay. Contains information such as flight's call-sign, equipment type, departure airport, Ptime, etc.
- **Schedule Accuracy** – The sum of the absolute values of the difference of (actual departure time – estimated departure time) for each flight, divided by the number of valid flights.
- **SCS** – Slot Credit Substitution

- **SF –** Spurious Flights or flights submitted as SI cancellations with no corresponding entries in the OAD (alarm status).
- **SFO** – San Francisco International Airport
- **SGTD/SGTA –** Scheduled Gate Times (Departure/Arrival)
- **Slot ID** – A time slot assigned during ground delay, substitution/cancellation
- **Slot List –** A modified FADT List. In addition to the information provided by the FADT list, the slot list includes the slot ID, flight class and information about exempted flights.
- **STAR** – Standard Terminal Arrival Route
- **STRSN** – Standard Terminal Arrival Route Transition
- **SWP –** SWAP flight (flight remark)
- **TO –** The flight time out considered cancelled because no activation message has been received within a certain time of the predicted departure time (cancel status).
- **TOD –** Time Out Delay -the flight passed its ETD without taking off (delay status).
- **UDG** – User Defined Group from the Open Data Set component
- **UX –** Cancelled flight due to an EDCT update by a traffic manager (cancel status).
- **WXR –** Severe Weather Route (flight remark)

Index

A

Acronyms 4
Adaptive Compression 2
Add/Remove Columns
- Add Data Column Information 31
- Add Multiple Calculations 32
- Global Default 33
  - Remove 35
  - Set 34
- Rearrange Data Column Information 33
- Remove Data Column Information 32

Advisory 104
AFP
- Extend 1, 3
  - Get Weather Information 1
  - Send Proposed 6
- Issuing 1
  - Advisory 3
  - Coversheet 1
    - Resend 5
  - Program Manager 4
  - Program Parameters 2
- Model 1
  - Analysis Report 12
  - Data Graph 11
  - Proposed Parameters 6
  - Reload Data 13
  - User Specified Parameters 1
- Purge
  - Outside of Revised Parameters 5
- Purging 7
- Reducing Scope 5
- Revise 1, 2
  - Deciding When To 2
  - Get Weather Information 1
  - Issuing 10
  - Send Proposed 6
- Suspend Substitutions and SCS 9

Airborne Holding 1
- Using 1

Airport and Airspace Conditions
- Evaluating 1
- Analysis Report 14

B

Bar Graph
- ADL AAR Line 8
- ADL ADR Line 8
- AFP Indicators 7
- Arrival Flow Rate 7
- Buttons 36
- Changing Program Rate 8
- Color By Aircraft Category 10
- Color By Aircraft Class 10
- Color By Alarm Status 16
- Color By Arr/Dep 10
- Color By Arrival Fix 14
- Color By Carrier 11
- Color By CDM Participation 16
- Color By Centers 14
- Color By Control Type 17
- Color By Departure Fix 15
- Color By Distance 16
- Color By Exemption 15
- Color By Program Delay 17
- Color By Status 8
- Color By Substitution Status 16
- Color By User 15
- Color Schemes Selection 39
- Demand 1
- Departure Flow Rate 7
- Display 2
  - AAR 8
  - ADR 8
  - Arrival Bars 2
  - Cancelled Flights 4
  - Departure Bars 2
  - Hours Shown 7
  - Model Program Rate 8
  - Stack Departures 3
  - Time Increments 6
  - Time Indicator 7
  - Unassigned Slots 6
- Dynamic Carrier Coloring 12
- Fix Coloring 41
- Fix Order 41
- GDP Indicators 7

GDT 10
GDT Bar Graph
Display 4
GS Indicators 7
Hours Shown 7
IPM 157, 10
Legend 31, 6
Menu Bar 32
Model Program Rate 8
Recalculate Dynamic Carriers 13
Track Time 7
Bar Graphs
Tabs 37
Blanket 1
Using 4

C

Cancelled Flights
Bar Graph 4
Chapter 3 1
Common Terms 4
Component
Query Manager
Menu Bar 28
Open a Flight List 27
Components
Bar Graph 29, 41, 1
Buttons 36
Color Schemes Selection 39
Display 2
Fix Order 41
Legend 31
Menu Bar 32
Tabs 37
Control Panel 1
Buttons 13
Menu Bar 1
Coversheet 97
Advisory 104
Buttons 107
Delay Assignment 107
Examples 108
Menu Bar 98
Program Manager 117
Demand By Center 93
Menu Bar 94
Element Display 56
Accessing 56, 57
Accessing From Control Panel 58
Accessing From Map 57
Accessing From Open Data Set 57
Data 56
Menu Bar 58
GDT Bar Graph 88, 157
GDT Data Graph 90
Delay Statistics 91
Menu Bar 92
Selecting Different Scenarios 90
GDT Map 82
Distance Based GDPs 84
Menu Bar 88
Tier Based GDPs 87
Zoom Capabilities 84
GDT Setup 60
Buttons 64
Menu Bar 62
Modeling Options Tab 75, 150
Parameters Tab 65
Scope Tab 71
GDT Time Line 95
Menu Bar 96
IPM Bar Graph 157, 10
IPM Data Graph 158, 11
IPM Demand By Center 161, 14
IPM Flight List 166, 13
IPM Map 154, 12
IPM Multi Graph 128, 7
IPM Scenario Manager 121
IPM Setup 135
IPM Time Line 163, 9
Map 21
Menu Bar 25
Opening Components With 24
Viewing Parameters 23
Zoom Capabilities 22
Monitored Live Mode 1
Open Data Set 14
Buttons 20
Group By 16
Menu Bar 15
Open With 16

Sort Airports By 15
Tabs 17
Query Manager 26
Time Line 43
Buttons 48
Color Scheme Selection 52
Fix Coloring 54
Fix Order 54
Flight Information 45
Icons 46
Menu Bar 48
Tabs 51
Compression
Adaptive 2
Issuing 1, 8
Advisory 7
Coversheet 6
GAAP GDP 10
GDT Mode 4
Parameters 5
Suspend Substitutions and SCS 3
Versus Revision 1
AFP 3
GDP 1
Contact Information 2
Control Panel 1
Buttons 13
Menu Bar 1
Conventions 3
Count Lists 9
Coversheet 97
Advisory 104
AFP 1
Analysis Report 14, 12
Buttons 107
Delay Assignment 107
Examples 108
GDP 1
Menu Bar 98
Program Manager 117
Resending 5
Custom Group. See User Defined Group

D

Data Graph
GDT 10
IPM 158, 11
Data Set
Opening
Monitored Live 2
Data Set Button
Opening Components From 11
Data Time
Historical Mode 7
Definitions 4
Demand By Center 93
GDT 13
IPM 161, 14
Menu Bar 94
Demand Counts 9
Demand Versus Capacity
Evaluating
Bar Graph 1
Time Line 1

E

ECR
Control Types 12
Earliest EDCT 7
EDCT Change Request 1
Locating Flight 5
Menu Bar 2
Opening 3
SCS Response
Viewing 11
Update Options 11
View Flight Information 6
EDCT Compliance
Adjusting 7
Confirming 4, 6
Monitoring 1
Adding ADL Fields 4
Column Positioning 4
Compliance List
Menu Bar 4
Exporting Compliance List to Excel 5

Single Flight 3
EDCT Remove
Remove Flights 8
EDCT Restore
Restore Flights 8
Element Display 56
Accessing 56, 57
Accessing From Control Panel 58
Accessing From Map 57
Accessing From Open Data Set 57
Data 56
Menu Bar 58

F

Figure 3-13 19
Fix Coloring 41
Flight Detail Window
ADL Data Elements 47
ADL Information 1
Menu Bar 50
Flight Information
ADL 1
Bar Graph 7
Compliance Reports 50
Flight List
Buttons 27
Filters 24
Grouping Information 36
Menu 26
Opening 27
Sorting Information 39
Flight Reports 50
Query Manager 51
Search By Callsign 42
Time Line 7
Viewing 1
Color By Aircraft Category 10
Color By Aircraft Class 10
Color By Alarm Status 16
Color By Arr/Dep 10
Color By Arrival Fix 14
Color By Carrier 11
Color By CDM Participation 16
Color By Centers 14
Color By Control Type 17
Color By Departure Fix 15
Color By Distance 16
Color By Exemption 15
Color By Program Delay 17
Color By Status 8
Color By Substitution Status 16
Color By User 15
Coloring 7
Dynamic Carrier Coloring, Time Line
Dynamic Carrier Coloring 12
Flight Detail Window 47
Flight Info Window 44
Flight List 24
GDT Time Line 22
Open Arrival Slots 20
Problem Flights 50
Right-Click 3
Roll-Over 1
Single Flight 42
Time Line 18
Flight Count 20
Flight List 21
Flight Information Window
Flight Status 1
Flight List
Add/Remove Columns 31, 32, 33
Global Default 33
Apply Filters 40
Buttons 27
Exporting 41
Filters 24
Format 29
GDT 12
Grouping Information 36
IPM 166, 13
Menu 26
Opening 27
From Bar Graph 28
From Map 28
From Open Data Set 28
From Time Line 28
Selecting Information 29
Sorting Information 39
Multi-level 40

Flight Status 1
FSM
Opening 1
Data Set 1
Monitored Live 2
User Defined Groups 13
FSM Overview 1
FSM Reports
Understanding 1

G

GDP
Extend 1, 3
Get Weather Information 1
Send Proposed 6
GAAP
Revise 6
Issuing 1
Advisory 3
Coversheet 1
Resend 5
Example 9
Program Manager 4
Program Parameters 2
Model
Reload Data 16
Modeling 1
Proposed Parameters 4
User Specified Parameters 1
Purge
Outside of Revised Parameters 5
Purging 7
Revise 1, 2
Deciding When To 2
Get Weather Information 1
Issuing 10
Send Proposed 6
Suspend Substitutions and SCS 9
GDT Bar Graph 88, 157
GDT Data Graph 90
Delay Statistics 91
Menu Bar 92
Selecting Different Scenarios 90
GDT Map 82
Distance Based GDPs 84
Menu Bar 88
Tier Based GDPs 87
Zoom Capabilities 84
GDT Mode
Data Time
Modify 6
GDT Setup 60
Buttons 64
Menu Bar 62
Tabs
Modeling Options 75, 150
Parameters 65
Power Run Options 76
Scope 71
GDT Time Line 95
Menu Bar 96
Glossary 1
Ground Delay Tools
Components 58
Coversheet 97
Demand By Center 93
GDT Bar Graph 88, 157
GDT Data Graph 90
GDT Map 82
GDT Setup 60
GDT Time Line 95
Data Time
Modify 6
Ground Delay Tools Mode
Understanding 3
Ground Stop
GS
Issuing 1
GS
Extending 4
Issuing 1
Coversheet 7, 8
Advisory 9
Parameters 9
Resending 11
Example 11
Query Manager 14
Moving to GDP From 6
Purging 1
Reducing Scope 4

GS Issuing
Parameters 1

H

Historical Mode
Data Time
Update 7
Managing Data 10
Opening Components From 7
Set Time 5
Understanding 2

I

Icons
Time Line 46
Integrated Program Model
modeling 1
Open New GDT Mode Instance 6
IPM 1
components 119
Metrics tab 8
Multi Graph 128, 7
Scenario Manager 121
Multi Graph 128
Bar Graph 133
Menu Bar 129
Metrics Tab 134
Panel Buttons 132
Scenario Tabs 132
Tabs 132
Scenario Manager 121
Available Box 123
Menu Bar 122
Panel Buttons 123
Scenario Box 124
Scenario Tabs 125
Setup Tab 123
Tabs 123
IPM Setup
components 135
Bar Graph 157, 10
Data Graph 158, 11
Demand By Center 161, 14
Flight List 166, 13
Map 154, 12
Time Line 163, 9
Menu Bar 140
opening 136
Panel Buttons 141
Tabs 138
Modeling 150
Parameters 142
Power Run Options 151
Scope 147

M

Map 21
GDT 11
IPM 154, 12
Menu Bar 25
Opening Components From 24
Viewing Parameters 23
Zoom Capabilities 22
Metrics Tab 8
Model Program Rate
Changing 8
Reset 9, 5
Monitored Live
Components
Bar Graph 29
Element Display 56
Map 21
Query Manager 26
Time Line 43
Understanding 1
Monitored Live Mode
Components 1
Control Panel 1
Open Data Set 14
Monitoring
Airport 8
FEA or FCA 8

O

Open Data Set 14
Active Historical Tab 10
All Live Tab 8
Buttons 20
Group By 16
Menu Bar 15

Monitored Live 2
Open With 16
Sort Airports By 15
Tabs 17
User Defined Groups 13
Open data Set
Using 1
Opening
Components
From All Live Tab 8
From Data Set Buttons 11
From Historical Mode 7
From Map 4
Data Set 1
GDT Components 10

P

Program Delivery
Monitoring 1
AFP Parameters 12
Bar Graph 1
Blanket Parameters 15
Carrier Statistics 8
Compression Parameters 14
Delay Histograms 10
FADT 11
Flight Compliance 10
Flight Counts 9
Flight List 2
GDP Parameters 12
GS Parameters 14
NAS Users 4
Parameters Block 15
Priority Flight List 4
Program Parameters 11
SCS Bridge 12
Slot Hold 4
Slot List 5
Slot List By Carrier 5
Slot List by Center 6
Sub Opportunities 4
Surface Delay Report 4
Time Line 1
Time Out Cancel List 4
Time Out Delay List 4
Program Manager 117
Cancelling 119
Program Rate
Apply Changes 5
Clear Changes 5
Model
Reset 5
Specifying 3
Viewing 4
Modifying 3
Specify Model Program Rate
Menu Bar 5

Q

Query Manager 26
Built-in Filters 1
Create Filter 10
Buttons 13
Menu Bar 13
Saving 13
Using 13
Deleting a Filter 21
Flight List 22
Menu Bar 28
Open a Flight List 27
Renaming a Filter 20
User Defined Filters 2
Using 1

R

Remove Flights 8
Reports
Analysis 35
Carrier Statistics 36
Compliance 12
Absolute Delay Histogram 18
By CTA 13, 15
By CTD 14
Cancel That Flew 16
Program Delay Histogram 16
Spurious That Flew 16
Counts 1
By Aircraft Category 6
By Aircraft Class 7
By Arrival Fix 8

By Centers 5
By Demand 4
By Departure Fix 9
By Unassigned Slot 11
By User 10
Menu Bar 3
Viewing 1
Coversheet 34
FADT 34
Priority
Flight 20
Priority Flight
Menu Bar 21
Slot Hold 26
Menu Bar 26
Slot List 29
Menu Bar 32
Slot List By Carrier 29
Slot List By Center 30
Sub Opportunities 27
Menu Bar 28
Surface Delay 19
Menu Bar 20
Time Out Cancel 24
Menu Bar 25
Time Out Delay 22
Menu Bar 24
Uncontrolled Dropout 33
Menu Bar 33
Restore Flights 8

S

Set Time
Historical Mode 5
Specify Model Program Rate
Menu Bar 5
Spreadsheet
Exporting flight list 41

T

Technical Cues 6
Time Line 43
Buttons 48
Color By Aircraft Category 10
Color By Aircraft Class 10
Color By Alarm Status 16
Color By Arr/Dep 10
Color By Arrival Fix 14
Color By Carrier 11
Color By CDM Participation 16
Color By Centers 14
Color By Control Type 17
Color By Departure Fix 15
Color By Distance 16
Color By Exemption 15
Color By Program Delay 17
Color By Status 8
Color By Substitution Status 16
Color By User 15
Color Scheme Selection 52
Fix Coloring 54
Fix Order 54
Flight Count 20
Flight Information
Viewing 18
Viewing From Time Line 45
Flight List 21
GDT 9
Change Flight Display 23
GDT Time Line 22
Icons 46
IPM 163, 9
Menu Bar 48
Open Slots in Carrier Color 20
Recalculate Dynamic Carriers 13
Tabs 51
TMI
Evaluating
Carrier Statistics Report 2
Issuing 1
Advisory 3
Coversheet 1
Resend 5
Program Manager 4
Program Parameters 2
Purging 7

U

Unassigned Slots
Bar Graph 6

User Defined Group
- Delete 17
- Load From Adaptation 20
- Rename 17
- Save 18

User Defined Groups 13
- Add Components to 17
- And FSM Functionality 14
- And FSM Settings 13
- Close 17
- Creating 14
- Remove Components From 17

V

Visual Cues 6

W

Windows Convention 6

Windows Conventions
- Menu Bar 7
- Shortcut Buttons 9
- Tabs 10
- Title Bar 7
- Toolbar 8