

# **AUTOPILOT**

## **Satellite Downlink Manager**

## **USER GUIDE**



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# **AUTOPILOT Satellite Downlink Manager**

## **Introduction**

AUTOPILOT is a Windows9 based Satellite Downlink Manager designed to automate control of steerable antenna systems and satellite receivers.

AUTOPILOT is an interactive, user friendly system featuring icons, moveable and resizable windows, pull down menus and point and click selection of desired operations. Simple on screen controls enable the user to easily adjust and control device parameters.

A Main Display Screen provides an overview of the entire system. Icons or custom on-screen controls depict all resources on the system. The operator can click on various points on the screen to open individual windows or pull-down menus for device status and control. All devices are polled on a continuous basis with updated status information displayed on screen.

A status window lists all of the devices connected to the system and a event scheduler provides the capability for automatic operation. In addition, each device has an individual control panel associated with it.

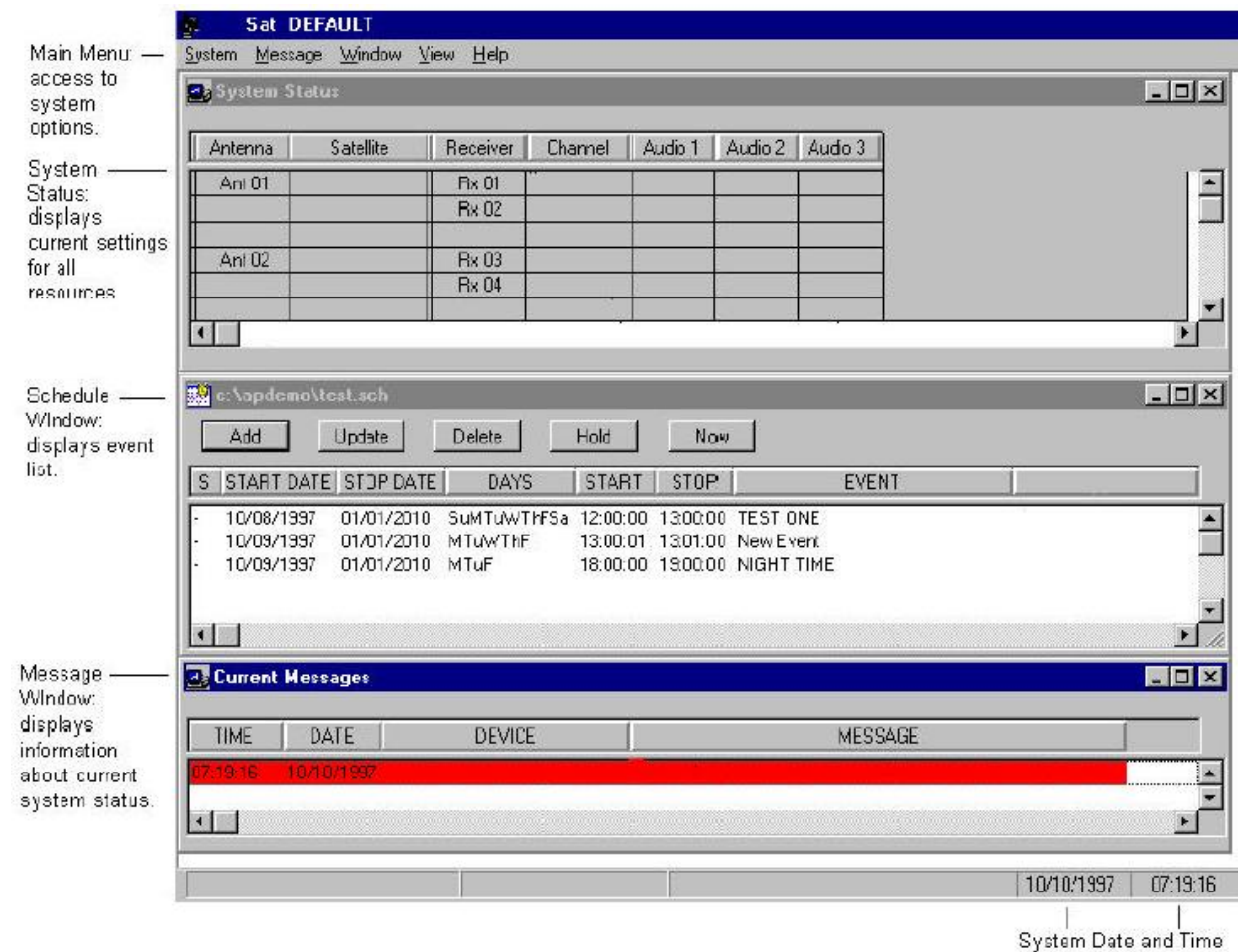
Menu options are provided for configuring the system and for setting up and maintaining a satellite parameter database.

# AUTOPILOT ENVIROMENT

## Main Screen Display

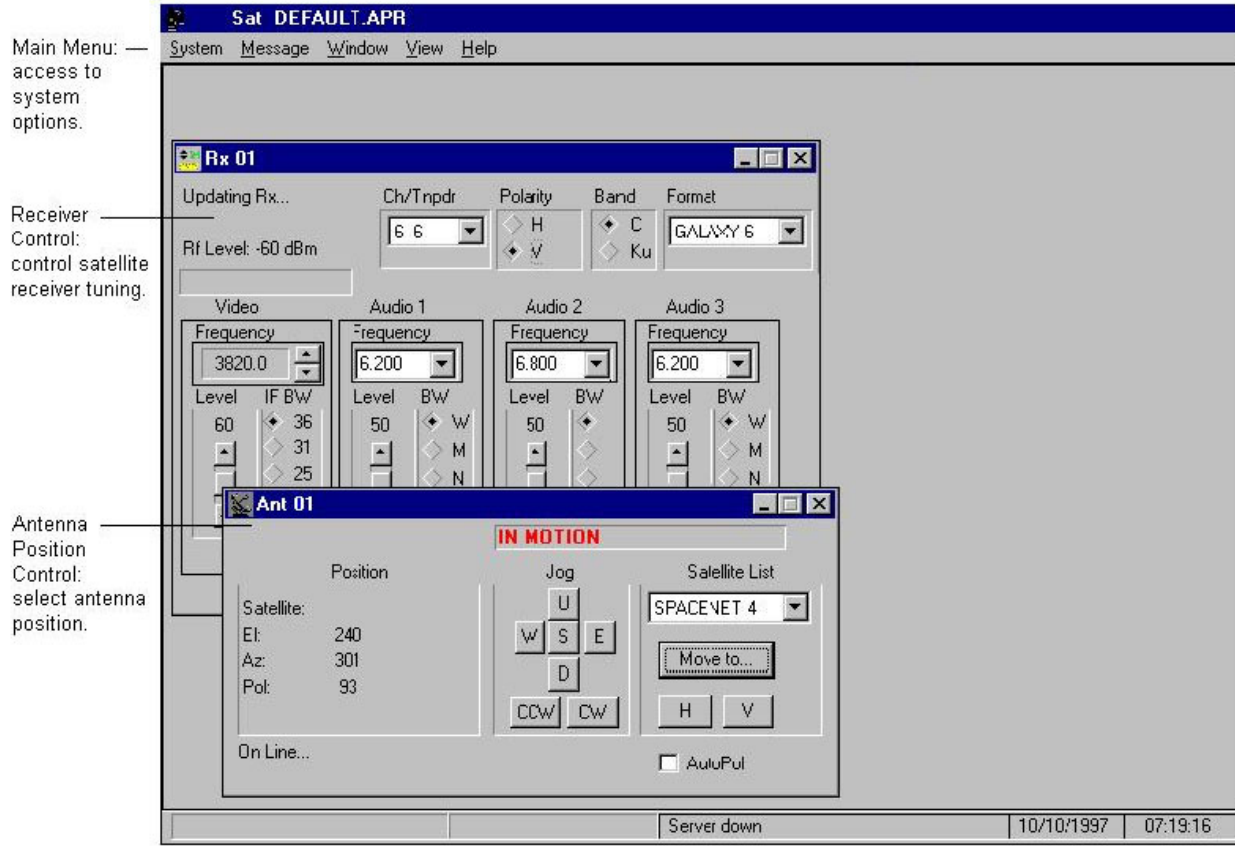
The Main Screen Display consists of a Main Menu Bar at the top of the screen and three windows,

- System Status Window - displays the status information for each IRD at the selected site.
- Schedule Window - displays the event list for automated operation.
- Current Messages - information about the current state of the AUTOPILOT program.



Additional windows are opened by selecting various options from the Menu Bar or double-clicking on specific areas of the screen.

# Device Control



Device Control Windows are provided for Antenna Control and Receiver Control.



## PULL DOWN MENUS



### System Menu

This menu is used for system administration and provides options for configuring the system.

#### *FUNCTION*

#### *Description*

#### **Configure**

The configure option is used to enter information on the devices to be controlled by AUTOPILOT. Device names, addresses and communication parameters are entered with this option.

#### **Sat Table**

The Sat Table option enables the user to enter and maintain a list of programming information for each satellite. This option is used to enter new satellite data and to modify existing transponder information.

#### **Cross Ref**

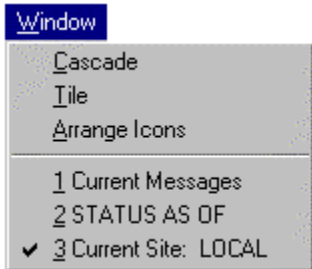
This option is used to cross reference the satellite position names entered into the antenna controller with the satellite tables used by AUTOPILOT. This option is normally only used during initial system configuration or when a new antenna controller is added to the system.

#### **Exit**

End program operation.

## Message Menu

<i>FUNCTION</i>	<i>Description</i>
<b>Clear All</b>	Clear all messages in the Current Message window.



## Window Menu

<i>FUNCTION</i>	<i>Description</i>
<b>Cascade</b>	Standard windows function to cascade windows on the screen
<b>Arrange Icons</b>	Arranges any minimized windows on the screen.
<b>1</b>	
<b>2</b>	This section lists open windows with a check beside the active window.
<b>3</b>	



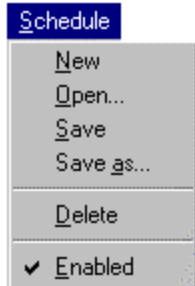
## View Menu

<i>FUNCTION</i>	<i>Description</i>
<b>Status</b>	Select the Status Window as the active window.
<b>Site</b>	Select the Site Window as the active window.
<b>Message</b>	Select the Current Message Window as the active window.



## Help Menu

<i>FUNCTION</i>	<i>Description</i>
<b>About</b>	Displays the AAbout≡ Box showing Version Number and Copyright for the AUTOPILOT software.



## Schedule Menu

This menu appears when the Schedule window is open.

<i>FUNCTION</i>	<i>Description</i>
<b>New</b>	Create new schedule file.
<b>Open...</b>	Open an existing schedule file.
<b>Save</b>	Save the currently open file.
<b>Save as..</b>	Save the currently open schedule file to a user specified file name.
<b>Delete</b>	Delete the currently open schedule file.
<b>Enabled</b>	Enable/Disable scheduler: the scheduler will only run if this option is checked.



## Antenna Menu

This menu appears when an antenna control window is opened.

<i>FUNCTION</i>	<i>Description</i>
<b>Jog Duration</b>	Enter Jog duration parameters for antenna fine tuning.
<b>Reset</b>	Reset Antenna Controller.
<b>Upload Sats</b>	Upload list of pre-programmed satellite names from controller.

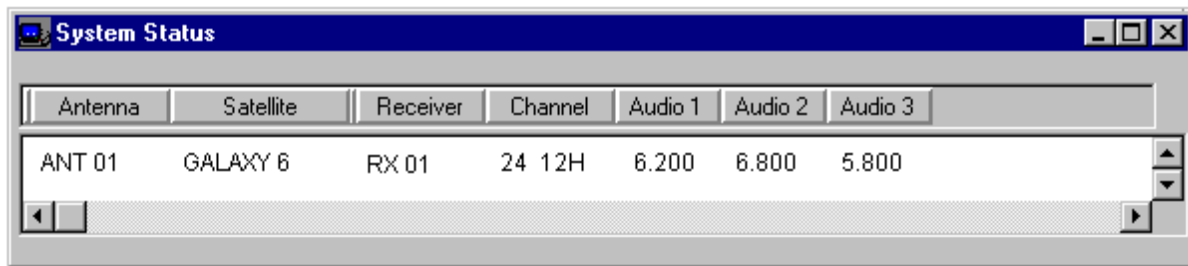
## Getting Started

## Overview

This section provides an introduction to the features of AUTOPILOT and outlines the procedures for starting the program and basic operation.

## System Status

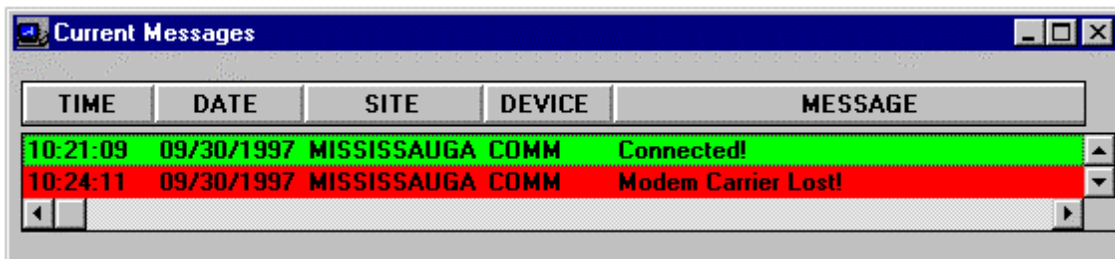
Once logged on, users will have access to both manual and automatic control of the system.



The system status window displays current settings for all devices on the system and provides a launching point for accessing control functions.

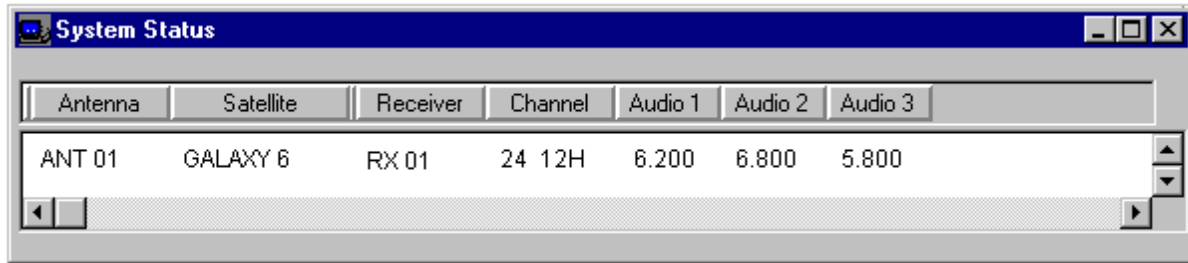
## Current Messages

The Current Message window displays recent activity by the AUTOPILOT system and indicates error conditions by a RED highlight. Normal messages are displayed in GREEN.



## Status Window Control Panel Access

For direct device control, individual control windows can be opened for each device by double-clicking on the device name in the status window. A detailed description of these control panels is described in the Direct Device Control section.



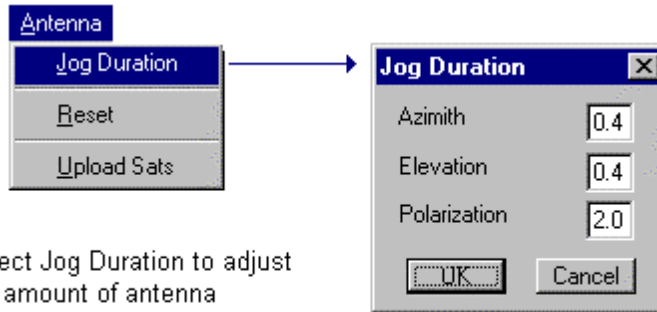
## Direct Device Control

### MOVING A SATELLITE DISH



1. FROM THE STATUS WINDOW Double-Click on the antenna you wish to move. The Antenna Control Window will open.
2. Click on the Satellite List down arrow button to display a list of satellites and click on the desired satellite.
3. Click on the "MOVE TO" button to initiate action. An "IN MOTION" indicator will appear to confirm that the dish is moving.
4. The position data will update as the dish moves to the new position.
5. Use the JOG controls to fine tune the antenna position. NOTE that the >S= button will stop antenna motion at any time.
6. The amount of antenna movement that occurs when using the Jog controls can be adjusted from the Jog duration option of the Antenna menu. This menu appears whenever an antenna control window is opened.

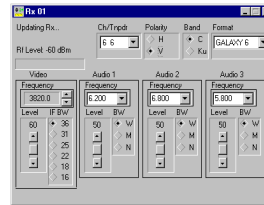
7. A RESET feature is also on this menu to reset the antenna controller in the event of a controller lock-up. This option can be used by the operator if the controller fails to respond to movement requests.



Select Jog Duration to adjust the amount of antenna movement that occurs when using the jog controls.

## CONTROLLING A SATELLITE RECEIVER

1. FROM THE STATUS WINDOW, Click on a Receiver Name to open the Receiver Control Window.
2. Select a channel by clicking on the Ch/Tnpdr down arrow button and then click on the desired channel. NOTE that the up/down arrow keys can also be used to scroll through the channels.
3. Once selected, AUTOPILOT will update the receiver with the desired transponder information including all settings for frequency, polarization, band, IF bandwidth, video level and all audio settings. These settings are defined in the Satellite Table for each satellite format.
4. Other parameters such as IF bandwidth or video level can be changed by pointing and clicking on the desired function.



## Scheduling Events

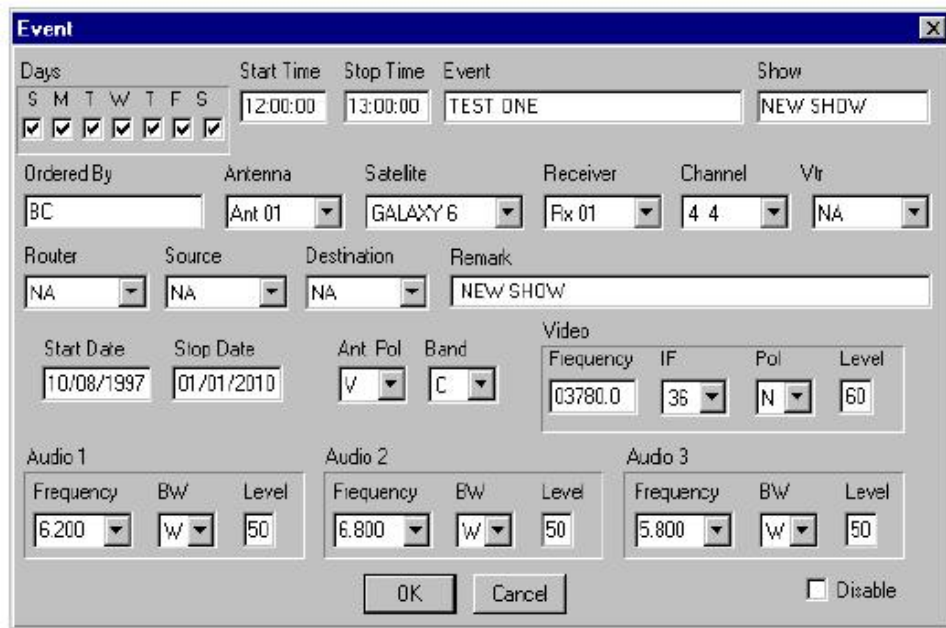


Select "Schedule" from the View Menu to schedule events.



To Enter Events:

- Click on "Add" to enter new events
- Double click on the event line to edit events.



Recording of satellite programming can be automated using the scheduling function. If the schedule window is not currently open, select the Schedule option from the View Menu. Once open, events can be entered via the Event window. Click on the Add button to enter new events or use the Update button to edit events (or just double-click on the event line to be edited)

## Schedule Controls

<b>Add</b>	- Add an event to the list.
<b>Update</b>	- Update an event already in the schedule.
<b>Delete</b>	- Delete an event from the schedule.
<b>Hold</b>	- Hold the selected event (do not execute).
<b>Now</b>	- Execute the event immediately.
<b>Stop</b>	- Stop the event immediately.

## Scheduling Events

The events can be scheduled on a weekly basis by clicking on the days of the week. One Time Only (OTO) events are scheduled by selecting a Start and Stop date for the event.

To schedule an event the following fields are required: Event name, Antenna, Satellite, Receiver, and Channel

The receiver parameters shown in the Event window (Frequency, IF BW, etc.) can also be adjusted.

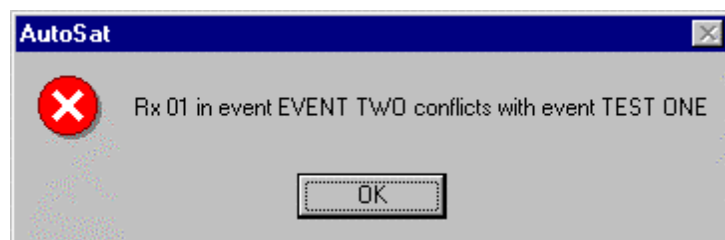
The **Disable** function allows an event to be entered but will ignore the time and date entries. In effect this event will not be scheduled.

This feature can also be used to create a set of AMacros. In other words, events with no times associated with them. These events can be executed manually by an operator by using the ANOW button in the Schedule Window.

## Conflict Checking

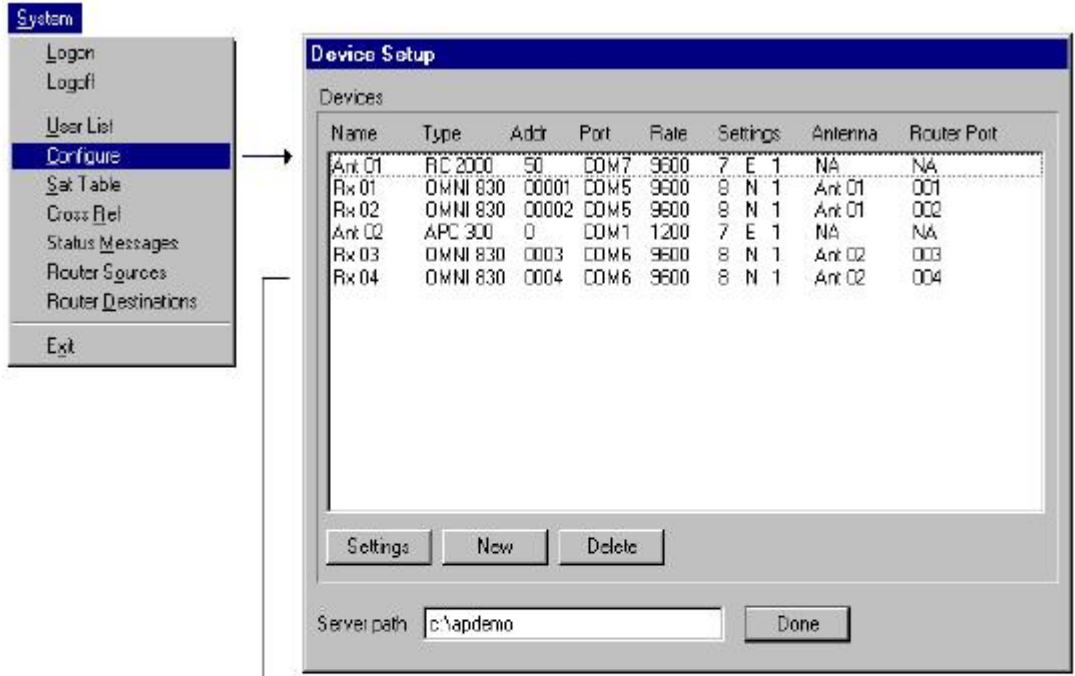
Event conflicts are automatically checked by AUTOPILOT and a warning displayed indicating the conflicting event name.

## System Configuration



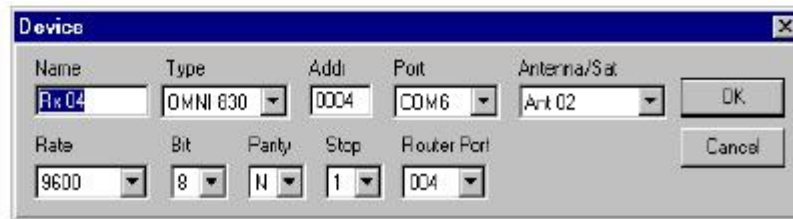
## Device Setup Window

The Device Setup Window provides access to parameters used to setup devices in the system.



Click on "New" to enter new devices.

Click on "Settings" or double click on the device line in the Device Control window to modify the device settings.

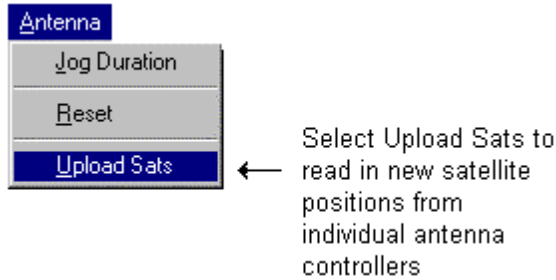


## CONFIGURING AUTOPILOT

1. Select Configure on the System Menu to open the Device Control window.
2. Click on the NEW button to bring up the Device Window.
3. Enter the Name, Type, Address, Port and Communication parameters (Rate, Bit, Parity, Stop). Click on OK when complete. Repeat for all devices to be controlled by AUTOPILOT.

For satellite receivers, enter the antenna to which the receiver is connected and a router input number if the receiver output is to be switched via a routing switch.

4. To modify an existing entry, use the Settings option or double-click on the entry.
5. Entries can be deleted by clicking on the item to be removed and selecting the Delete option.



## Adding Satellite Names to AUTOPILOT

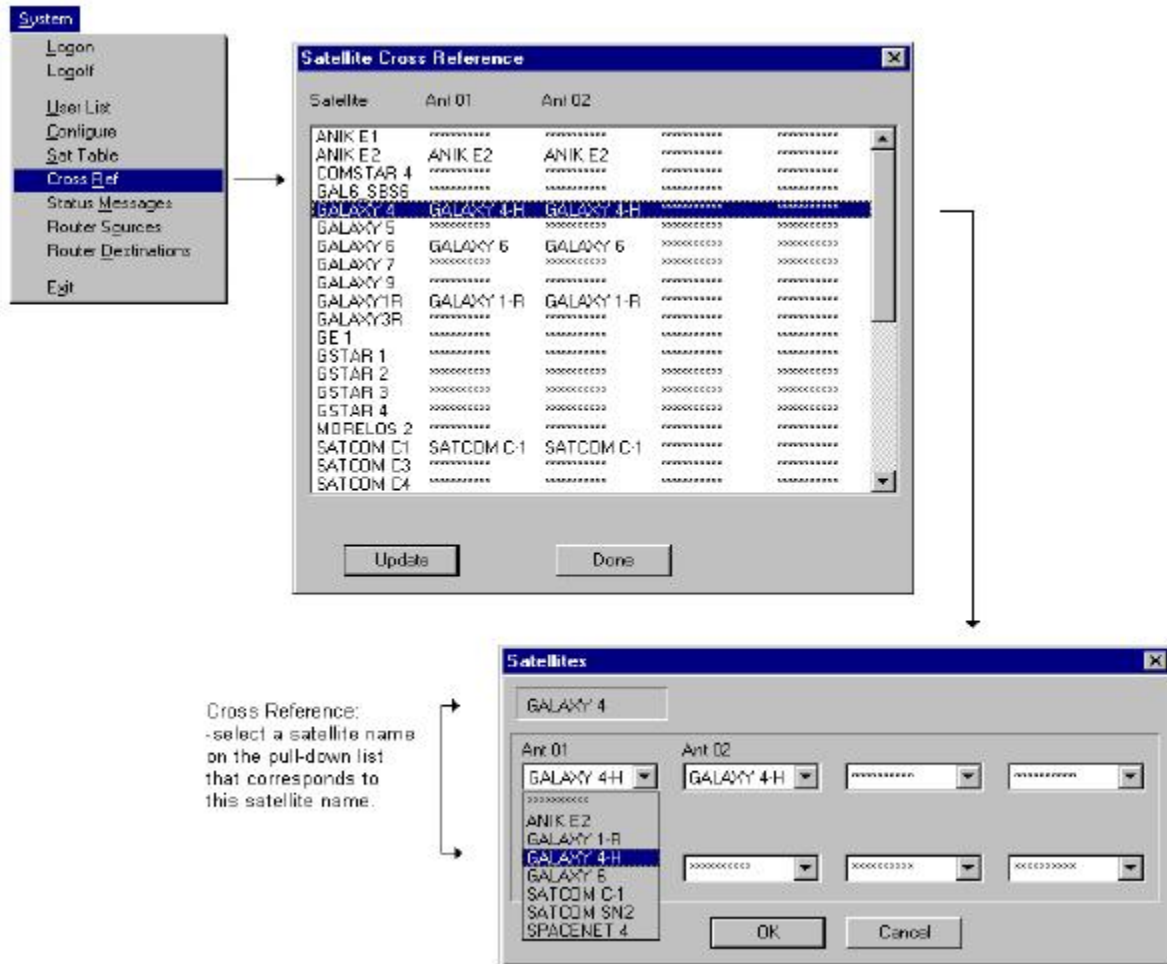
When the AUTOPILOT system is first setup or when adding new satellite names to the list, the names must be entered into AUTOPILOT.

To Add New Satellites:

1. Program each antenna controller connected to AUTOPILOT with the new satellite position information. (Refer to the manufacturer's documentation for information on programming new satellite positions.)
2. Open the Antenna control window for the antenna controller just programmed. (Double click on the controller name on the status window.)
3. Select Upload Sats from the Antenna Menu to upload the new position information to AUTOPILOT.
4. Follow the procedure outlined in the following section to cross-reference the satellite names for AUTOPILOT.

## Cross Referencing Satellite Names

The satellite names programmed into each antenna controller must be cross-referenced or Alinked to the corresponding satellite table in AUTOPILOT. This is necessary to ensure that when a satellite position is chosen the antenna will automatically move to the correct position AND the receiver(s) connected to that dish will be automatically set up for the correct format.

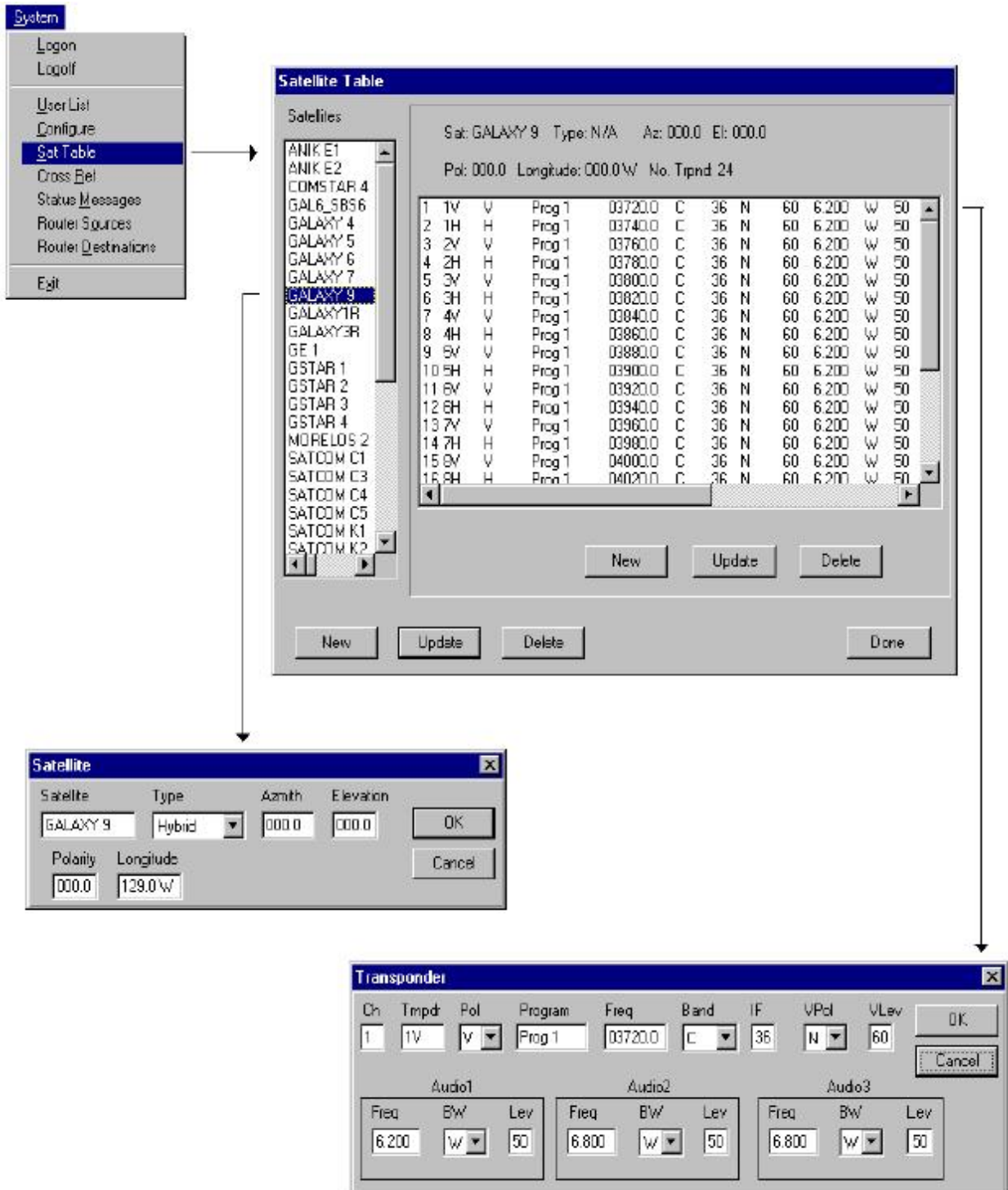


Cross reference the names programmed into each controller with the satellite names in the AUTOPILOT Satellite Table as follows:

1. Select Cross Ref on the System Menu to display the Satellite Cross Reference Window.
2. Double-click on a satellite name.
3. The Satellites window will appear. Using the pull down list for each dish on the system, select the appropriate satellite name on the list. Click OK when complete.
4. Repeat item 2 and 3 for each satellite that you wish to access with AUTOPILOT.

## EDITING THE SATELLITE TABLES

AUTOPILOT includes a satellite database containing transponder information for each satellite. From the Sat Table entry on the System Menu, changes to satellite channels, addition of new channels or entirely new satellite tables can be created.



## EDITING THE SATELLITE TABLES

1. Select the Sat Table option on the System Menu.
2. The Satellite Table window will appear showing a list of satellites on the left side with a corresponding list of transponder information displayed for each satellite.
3. For new satellite names, click on the NEW button in the bottom left corner of the window. To modify an existing name click on UPDATE. The Satellite window will appear.
4. Enter the satellite name, type and longitude (The azimuth, elevation and polarization fields may be left blank). Click OK when complete.
5. For Transponder information click on the New or Update buttons in the transponder section. The Transponder window will appear.
6. To modify an existing table double-click on the line to be changed. A window will appear that allows entry of channel name, frequency, etc. Type in the desired frequency for that transponder and change any other relevant parameters. Click on the OK button when complete. Repeat this procedure for other transponder entries.
7. Click on the DONE button when all transponders have been modified.