TeraCapCon User's Manual

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SeaSpace CORPORATION

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Revision History

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3.0.1	Rev. C	June 1999
3.1	Rev. D	March 2000

How to Contact Customer Support at SeaSpace

If you experience problems with your TeraScan system or have questions concerning TeraScan, you can contact Customer Support by telephone or fax or via the Internet at the following addresses.

SeaSpace Corporation
12120 Kear Place
Poway, CA 92064 USA

Tel: (858) 746-1160
Fax: (858) 746-1199
Internet: support@seaspace.com

Customer Support will best be able to help you if you provide them with the following information.

- The version number of your TeraCapCon software.

  To get this information, select **Help** from the TeraCapCon main screen, then select **About** from the **Help** menu. An information panel with the version of your TeraCapCon software will appear on the screen.

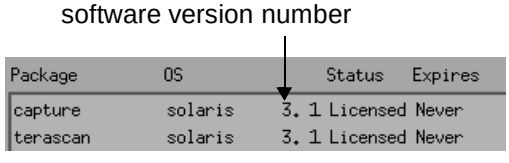
- The version number of your TeraScan® software.

  To get this information, call up the **TeraScan Launchpad**:

  ```
  % launchpad &
  ```

  Click on the **Configuration** tab, then click on the **Licenses** manager to call up the TeraScan Software Manager. Then click on the **Licenses** tab of the Software Manager.

  On the lower portion of the panel, you will find the version number and other system information as shown below.

  The version number of your operating system. Enter:

  ```
  % uname -sr
  ```

- The hardware platform of your system. Enter:

  ```
  % uname -i
  ```

- Any error message associated with the problem you are experiencing.
- ALL standard output and any standard error associated with the technique you are using. The best thing to do is to redirect all output to a file and attach the file to the mail message.
- For all problems concerning data acquisition, please include verbatim output of the corresponding $PASSDIR/schedlog and $PASSDIR/logfiles/schedjob.* files.

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1

What Is TeraCapCon?

TeraCapCon is the TeraScan Capture Control GUI that enables the user to program the TeraScan system for the automatic capture, archiving, and processing of satellite data from polar-orbiting meteorological satellites and from any geostationary meteorological satellites that have constant dissemination schedules (for example, Meteosat).

From TeraCapCon, the user can: (1) Define the autoschedule rules that govern the daily updates of the pass-capture schedule; (2) Modify the pass-capture schdule, if necessary, by adding, deleting, or editing pass records; (3) View coverage for passes of polar-orbiting satellites visible at their own receiving site or at other receiving sites.

polar-orbiting satellite — A satellite that orbits the Earth from Pole to Pole at an altitude of about 500 miles (800 km) every 100 minutes (about 14 times a day). The satellite thus scans the entire Earth once every 24 hours, covering approximately the same part of the Earth at about the same time each day.

NOAA POES satellites — A series of Polar-orbiting Operational Environmental Satellites launched and operated by the U.S. National Oceanic and Atmospheric Administration.

DMSP satellites — A series of polar-orbiting weather satellites that constitute one part of the Defense Military Satellite Program. These satellites are launched and operated by the U.S. Air Force. Their signal is available only to the U.S. military and other authorized users equipped with the necessary decoder, and in the Antarctic, where signal reception does not require a decoder.

OrbView-2—A satellite launched and operated by Orbital Sciences Corporation.

Setting up the Pass Capture Program

TeraScan's automated data capture is managed by a scheduling daemon called *tsched*.[1] tsched keeps track of a list of scheduled passes (stored in $PASSDIR/schedlist) and, upon finding a pass whose start time is nearing, sets into motion the capture functions. The list of scheduled passes is automatically updated on a daily basis according to rules defined by the user. These rules specify which satellite telemetries to capture and from which satellites.

1. For more about **tsched**, run **thelp tsched.** GVAR reception from the GOES satellites is handled by a daemon called **gvarsched** and is not scheduled from TeraCapCon.

For polar-orbiting satellites, the rules can also specify pass-selection criteria such as the minimum elevation of a satellite at its highest point during a pass, or the minimum sun elevation during the pass. For geostationary satellites, the rules specify the selection of passes for capture based on start times.

For both polar-orbiting and geostationary satellites, the rules can specify whether or not the captured pass data is to be archived to tape, and if so, whether or not the pass is to be logged into the online pass catalog. The rules can also specify post-capture processing to be applied to the data.

geostationary satellite — One of several satellites positioned over the Equator at an altitude of 22,300 miles (36,000 km). A geostationary satellite orbits the Earth at the same angular speed as the Earth rotates and thus maintains its same position relative to the Earth.

There are normally two geostationary satellites continuously viewing the Americas and sending back images and sounder data. These satellites, operated by NOAA, are known as the GOES series (for Geostationary Operational Environmental Satellites):

- GOES-East (currently GOES-8) is positioned at 75° west longitude and covers the eastern Americas and the western Atlantic.
- GOES-West (currently GOES-10) is positioned at 135° west longitude and covers western North America, the eastern North Pacific as far west as Hawaii, and the South Pacific.

Other geostationary satellites from which a TeraScan system can receive images but no sounder data include:

- Japan's Geostationary Meteorological Satellite (currently GMS-5), positioned at 140° east longitude, and covering Asia, Australia, and the western Pacific.
- Europe's Meteorological Satellite (currently METEOSAT-7), positioned at 0° longitude and covering the Atlantic Ocean, Europe, Africa, and parts of South America.

Telemetries That Can Be Captured

The satellite telemetries that can be captured by your TeraScan system will depend on the particular configuration of your system[1]. A TeraScan acquisition system can be configured for reception of any of the following telemetries or any combination thereof:

- HRPT (High-Resolution Picture Transmission) from the NOAA POES satellites.
- RTD (Real Time Data) from the DMSP satellites.
- SeaWiFS data from the OrbView-2 satellite.
- Depending on location:
  - GVAR (GOES Variable) from GOES
  - PDUS (Primary Data User System) from Meteosat
  - SVISSR (Stretched Visible and Infrared Spin Scan Radiometer) from GMS

1. See your *TeraScan Operations and Maintenance Manual* to find out about your system configuration.

Which Satellites Require Capture Scheduling?

Polar-Orbiting Satellites

TeraScan's ability to automatically capture data depends on a means of predicting when data will be transmitted within receiving range of the system. For polar-orbiting satellites, TeraScan relies on a database called the *orbital elements* to predict when each satellite will be in view, where the satellite will first come into view, and the path it will follow across the sky. Based on this information, the passes of polar satellites can be scheduled for automatic data capture.

Geostationary Satellites

Geostationary satellites generally scan the Earth and transmit images according to a fixed schedule. Both the Meteosat and the GMS follow very regular dissemination schedules. The automated scheduling available in TeraScan can be used to select particular scans from among those available.

For GOES satellites, one of several schedules can be implemented by NOAA. A routine GOES schedule runs most of the time, but other schedules may be run seasonally or as warranted by urgent weather conditions. The schedule can change without prior notice. For this reason, the capture of data from GOES satellites cannot be accommodated by capture scheduling. Instead, reception of GVAR telemetry is programmed to run continuously and is referred to as *continuous scheduling*.

In a system configured with a multi-telemetry receiver for reception of data from both GOES and polar-orbiting satellites, the GOES reception is suspended during a scheduled pass of a polar-orbiter.

pass, for polar-orbiting satellites —The period of time during which a polar-orbiting satellite is visible to the respective receiving site as the satellite orbits the Earth and during which the receiving site can obtain data being transmitted by the satellite. The term is also used to refer to the set of data obtained from a satellite during a pass.

pass, for geostationary satellites — A scan of the Earth by the satellite's on-board Imager. Normally, scans for geostationary satellites occur on a fixed schedule. A scan can be a full-disc or partial Earth scan, depending on the type of satellite and the particular time in the satellite's dissemination schedule.

2

Getting Started

This chapter explains the various types of controls for running TeraCapCon. It also tells you how to start up TeraCapCon and introduces you to the basic features of the TeraCapCon GUI.

Launching TeraCapCon

There are two ways to launch TeraCapCon:

- From the Launchpad, select the **Capture** tab, then click on the **TeraCapCon** button.

  Or

- To launch TeraCapCon from the command line, enter:

  `% teracon &` *(Press Return.)*

  The ampersand (&) tells TeraCapCon to run in the background. This enables you to get back to the command line prompt, if necessary, to enter other commands or launch other applications while TeraCapCon is running.

How You Interact with TeraCapCon

TeraCapCon consists of a number of different *dialog boxes,* each of which organizes a related set of TeraCapCon operations. You will be using various types of *controls*—screen objects such as buttons, toggles, and scroll bars—to interact with the program. This chapter will first describe in general how these controls work. Later chapters explain TeraCapCon-specific operations.

Table 2-1 defines the mouse and keyboard actions used throughout this manual.

Table 2-1. Mouse and Keyboard Actions

Action	Meaning
Click on	Place the cursor on an item, then press and release the *left* mouse button.
Double-Click on	Place the cursor on an item, then quickly press and release the *left* mouse button twice.
Select	To select an item, such as from a menu or list, place the cursor on the item then click the *left* mouse button. The selected item in a list will become highlighted.
Grab and Drag	Click on an item with the *left* mouse button to select it, then press and hold down the *middle* mouse button while you move the cursor across the screen to a new position. The item you selected will be placed at the new position of your cursor when you release the mouse button.
Enter	To enter text into a text field, type the text and then press the Return key.

The Controls of TeraCapCon

This section describes the different types of controls you will be using to interact with TeraCapCon.

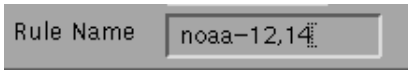
Buttons

A button like the one shown here may be either an action button or a button that calls up a dialog box. Clicking on the button will result in the action named on the button or will call to the screen the dialog box named on the button. The **Edit Scheduled** button shown is an example of a button that calls up a dialog box. Clicking on this button will open the **Edit Scheduled Pass** dialog box.

Toggle Options

Related toggle options are grouped together in rows or columns. Click on a toggle option to select it; click on it again to deselect it. The square to the left of the option lights up green to indicate that the option is selected. Here the **In-View** option is selected and the **Scheduled** option is not. Multiple toggle options in a group can be selected simultaneously. Some toggle options have text fields or pull-down menus associated with them. These fields or menus will be enabled or disabled according to whether or not the toggle option is selected.

Text Fields



To enter text into a text field, click in the field, then type the text into the field.

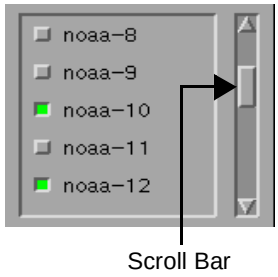
Choice Fields with Menus

There are two types of choice fields: ones with pull-down menus and ones with increment arrows. You can recognize a field that has a pull-down menu by its "handle." Simply click on the handle to see the menu of available options. If the list is long, a downward-pointing arrow will appear in the lower right corner of the menu to let you know there are more options than those showing. Click on the arrow to see the rest of the options. Click on an option to select it from the menu.

Choice Fields with Increment Arrows

Choice fields that require numerical values have increment arrows that you use to cycle through the values available for the field. You can also enter a value by typing it into the field.

Scroll Bars



At the right of many lists or menus is a scroll bar that can be used to bring into view any out-of-view options at the top or bottom of the list. To scroll through a list, place your cursor on the scroll bar, then press and hold down the left mouse button while you drag the scroll bar up or down. Or click on the arrowheads above and below the scroll bar to move up or down through the list one item at a time. (Sometimes just the arrowheads of the scroll bar are visible.)

Layout of the TeraCapCon Main Window

When TeraCapCon starts up, the first thing to appear on your screen will be the Main Window, shown in Figure 2-1.

The most prominent part of the Main Window is the Pass List area, an area that starts out blank. The Pass List area will display a list of passes when one or more **Pass Filters** have been turned on.

The Pass Filter Toggle Options

Near the top of the TeraCapCon Main Window is a row of five **Pass Filter** toggle options: **In-View**, **Scheduled**, **Auto-Sched**, **Online,** and **Cataloged**. Each toggle turns a different **Pass Filter** on and off.

The composition of the pass list displayed on the Main Window will depend on which **Pass Filters** are selected. The **Pass Filter** toggle options are described fully in Chapter 3 of this manual.

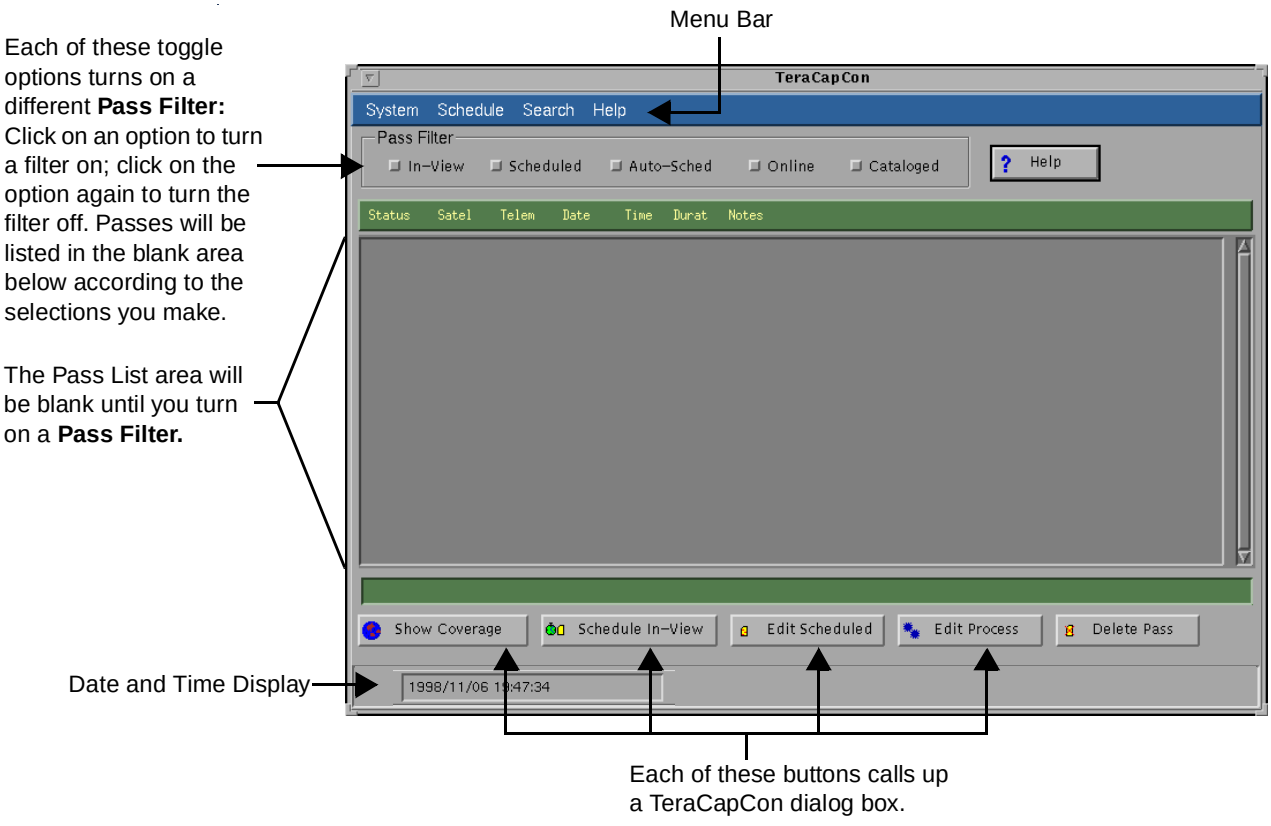
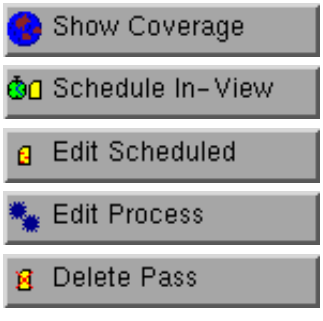


Figure 2-1: The TeraCapCon Main Window

Buttons of the Main Window



Along the bottom of the TeraCapCon Main Window is a row of buttons. Each of the first four buttons opens a TeraCapCon dialog box that corresponds with the name on the button.

These dialog boxes are described in the following sections of this manual: "The Show Coverage Dialog Box," starting on page 5-3, "Using the Schedule In-View Pass Dialog Box," starting on page 7-5, "Using the Edit Scheduled Pass Dialog Box" on page 7-7, and "Using the Edit Process Dialog Box" on page 7-9.

The fifth button (**Delete Pass**) applies to **Scheduled** passes. Clicking on this button will delete a selected **Scheduled** pass from a list of **Scheduled** passes, as explained under "Deleting a Pass from the Capture Schedule" on page 7-10.

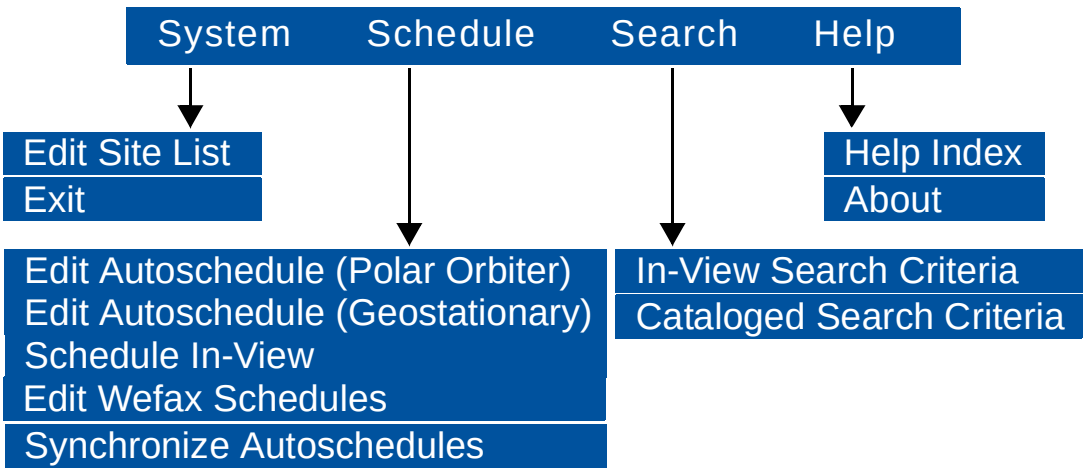


Figure 2-2: The TeraCapCon Menu Bar

Menu Bar

The menu bar at the top of the TeraCapCon Main Window holds four pull-down menus: **System**, **Schedule**, **Search**, and **Help** (Figure 2-2). Table 2-2 presents a brief description of each of the menu options.

Getting Help with TeraCapCon

Use the **Help** button on the TeraCapCon Main Window to get help about the Main Window and its controls.

Each of the other TeraCapCon dialog boxes also have their own **Help** button for calling up dialog box specific help.

From the **Help** menu of the TeraCapCon Main Window, you can call up the **Help Index** to get a list of the help topics available for TeraCapCon. Click on a topic in the **Help Index** to select it.

Date and Time Display

The date and time are displayed in the lower left corner of the TeraCapCon Main Window. The time shown can be local time or Greenwich Mean Time (GMT), depending on how the TeraScan system is set up.

Table 2-2. Road Map of the TeraCapCon Menu Bar

System > Edit Site	Calls up the **Site List Editor**. Use this box to add sites other than your own to the list of **Alternate Receiver Sites** on the **In-View Search Criteria** dialog box and to the **Receiver Site** list on the **Show Coverage** dialog box. You can then list In-View passes and view pass coverage for those sites.
System > Exit	Exits and closes TeraCapCon.
Schedule > Edit Autoschedule (Polar Orbiter)	Calls up the **Edit Autoschedule (Polar Orbiter)** dialog box. Use this box to set up automatic scheduling of data capture from polar-orbiting satellites.
Schedule>EditAutoschedule(Geostationary)	Calls up the **Edit Autoschedule (Geostationary)** dialog box. Use this box to set up automatic scheduling of data capture from geostationary satellites.
Schedule > Schedule In-View	Calls up the **Schedule In-View** dialog box.
Schedule > Edit Wefax Schedules	Calls up the **Edit Wefax Schedules** dialog box.
Schedule > Synchronize Autoschedules	Remakes the pass schedule list based on the currently active autoschedule records.
Search > In-View Search Criteria	Calls up the **In-View Search Criteria** dialog box. Use this box to set the criteria for the list of In-View passes.
Search > Cataloged Search Criteria	Calls up the **Catalog Search Criteria** dialog box. Use this box to set the criteria for the list of Cataloged passes (passes logged into the online catalog of archived data).
Help > Help Index	Calls up the Index for TeraCapCon Help.
Help > About	Identifies your version of TeraCapCon.

3

Generating a Pass List

This chapter explains how to display a pass list. You can display a list of **In-View** passes, **Scheduled** passes, **Auto-scheduled** passes, **Online** passes **Cataloged** passes, or any combination thereof.

Displaying a Pass List

The five **Pass Filter** toggle options on the upper portion of the TeraCapCon Main Window determine what pass types will be displayed in a pass list. The five **Pass Filter** options are:

- **In-View**—Lists past or future satellite passes visible at a specified receiving site during a specified time period. The set of passes listed will depend on criteria set from the **In-View Search Criteria** dialog box (see "Setting Criteria for the In-View Pass List" starting on page 4-1).

  It is possible to list passes in view at sites other than the local receiving site (see "Viewing Pass Coverage at a Remote Site" starting on page 5-8). To do so, alternate receiving sites must first be defined (see "Defining an Alternate Receiver Site" on page 5-9).

  In general, the default **In-View** passes will be passes that are in view at the local receiving site for the current day (the 24-hour period starting at 00:00:00 GMT).

- **Scheduled**—Lists passes scheduled for capture. The list of scheduled passes is generated by the TeraScan scheduling daemon (the autoscheduler) based on user-created autoschedule records. The user can modify the list by adding and deleting passes, or editing their parameters.

- **Auto-Sched**—Lists the passes that the autoscheduler will add to the **Scheduled** list the next time it runs.
- **Online**—Lists the most recently captured passes, which are temporarily stored on line. The number of online passes will depend on how the pass storage area is defined.
- **Cataloged**—Lists passes that have been captured, archived on tape, and cataloged. The particular set of passes listed depends on criteria set in the **Cataloged Search Criteria** dialog box (see "Setting Criteria for the Cataloged Pass List" starting on page 4-9).

To display a list of passes, select the **Pass Filter** toggle option that corresponds with the pass type you want listed. You can have multiple filters selected at the same time, in which case, the displayed list will be a combination of the types of passes you selected.

For example, turn on the **In-View** and **Scheduled** toggle options and you will see a list that includes both **In-View** and **Scheduled** passes, similar to that shown in Figure 3-1.

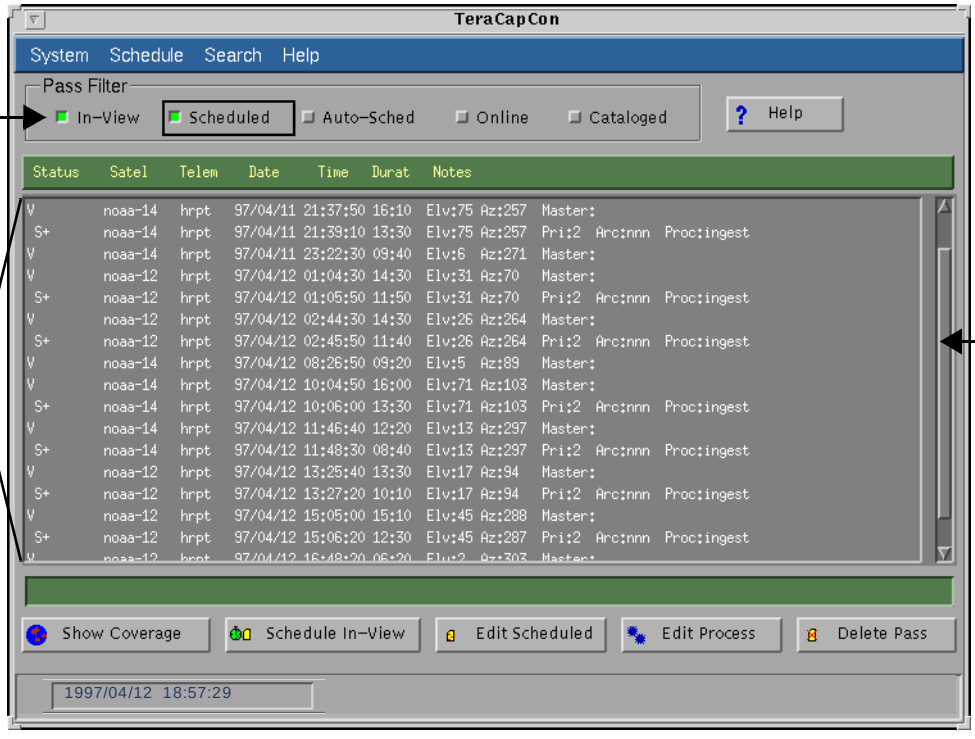
The Pass List Format

Each line of information in a pass list corresponds to one satellite pass. We will refer to an individual line as a *pass entry*. The format of the pass entries varies somewhat, depending on the type of pass described. The different formats are shown in Figures 3-2.

Each entry consists of several information fields. Some fields are common to all pass types, and others vary according to the pass type listed. There are six fields common to all pass types: **Status, Satel, Telem, Date, Time,** and **Durat.** The fields that differ among pass types are grouped under the **Notes** heading. The fields of the pass entries are explained starting on the next page.

Both the **In-View** and **Scheduled** pass filters are selected in this example. The box for a toggle button lights up black to indicate the button is on.

Each line describes a satellite pass. The type of pass listed is indicated in the status column: each **In-View** pass is indicated by a **V,** and each **Scheduled** pass is indicated by an **S.**



To see other passes in the list, place your cursor on the scroll bar, then press and hold down the left mouse button while you drag the scroll bar up or down the list.

Or click on the arrowheads above and below the scroll bar to move up or down through the list one line at a time.

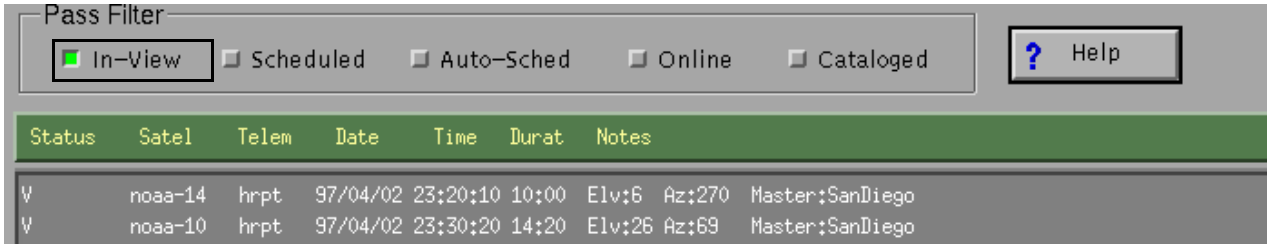
Figure 3-1: Main Window with Combination of In-View and Scheduled Passes Listed

The Status Field

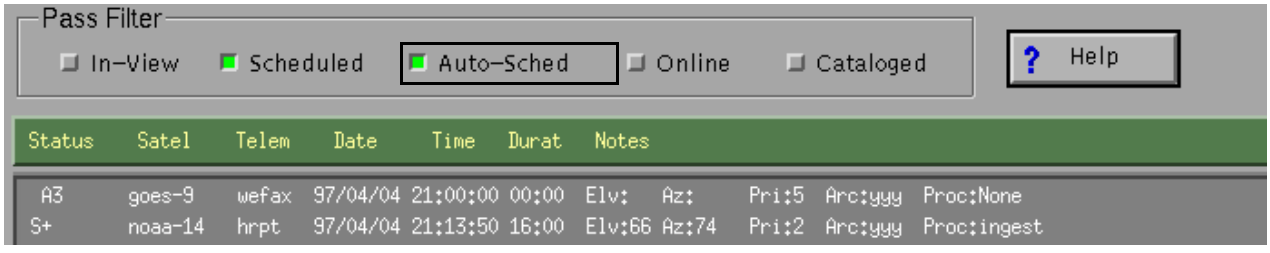
The **Status** field displays a letter code that indicates the pass type listed:

- **V** = **In-View** pass (V1 = in view at your site; V2, V3, . . ., Vn = in view at a remote site.
- **S** = **Scheduled** pass
- **An** = **Autoscheduled** pass; n is an auto-schedule record number (see "Fields of the Edit Autoschedule (Polar Orbiter) Dialog Box" in Chapter 7 for an explanation).
- **On** = **Online** pass; n represents online pass number. The number of online passes is dependant on system configuration.
- **C** = **Cataloged** pass

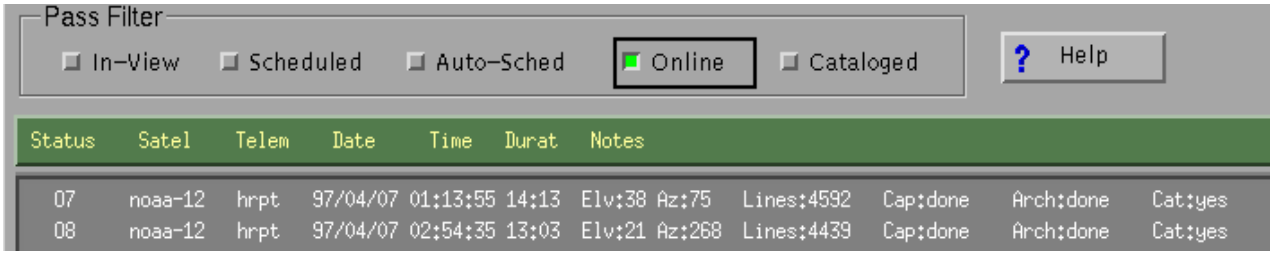
A. Format of In-View Passes



B. Format of Scheduled and Auto-Sched Passes



C. Format of Online Passes



D. Format of Cataloged Passes

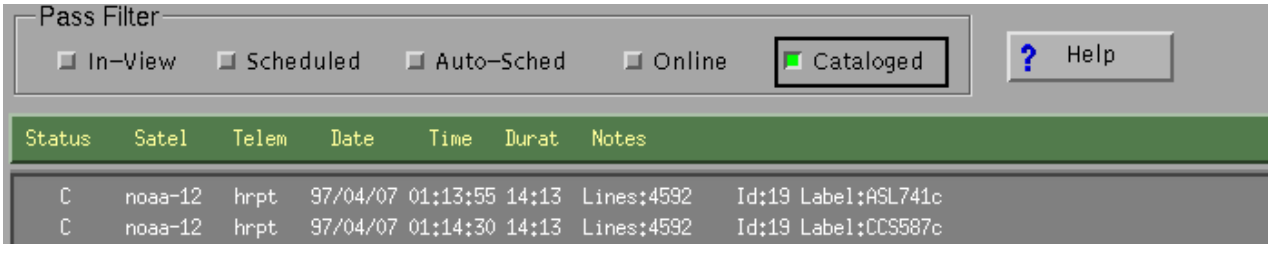


Figure 3-2: Pass List Formats

Conflict-Resolution Codes for Scheduled Passes

In systems configured to collect passes from different types of polar orbiters (NOAA, DMSP, and SeaWiFS satellites) passes from two satellites can sometimes overlap in time. When this occurs, only one of the passes will be captured and the other will be ignored. For this reason, every pass is assigned a priority ranging between 1 (highest priority) and 5 (lowest priority) at the time it is scheduled.

For **Scheduled** passes, the **Status** field includes codes to indicate which passes will be captured and which will be ignored when scheduling conflicts occur. These codes are shown in Table 3-1.

Table 3-2. Conflict-Resolution Codes for Scheduled Passes

S+	Indicates that the pass does not conflict with any other passes and it will be captured.
S+>.....	Indicates that the pass conflicts with another pass that starts at a later time; however, this pass will be captured since it has a higher priority or the same priority but a higher elevation than the other.
S+<.....	Indicates that the pass conflicts with another pass that starts at an earlier time; however, this pass will be captured since it has a higher priority or the same priority but a higher elevation than the other.
S+*	Indicates that although the pass conflicts with both an earlier and a later pass, this pass will be captured since it has a higher priority or the same priority but a higher elevation than the others.
S->	Indicates that the pass conflicts with another pass that starts at a later time. This pass will *not* be captured since it has a lower priority or the same priority but a lower elevation than the other.
S-<	Indicates that the pass conflicts with another pass that starts at an earlier time. This pass will *not* be captured since it has a lower priority or the same priority but a lower elevation than the other.
S-*	Indicates that the pass conflicts with both an earlier and a later pass. This pass will *not* be captured since it has a lower priority or the same priority but a lower elevation than at least one of the others.

When a conflict between passes occurs, the pass assigned the higher priority will be captured and the other pass will be ignored. If two conflicting passes have the same priority, the one that has the higher maximum elevation will be captured and the other will be ignored.

If you disagree with the way a conflict has been resolved, you can override the solution by changing the priorities assigned to the passes that overlap. You can also shorten the duration of one or both passes to keep them from overlapping so both will be captured (see "Resolving Scheduling Conflicts" on page 7-9).

The Satel, Telem, Date, Time, and Durat Fields

In addition to the **Status** field, the other five fields common to all pass types are:

Satel—Names the satellite from which data was captured or will be captured (e.g., noaa-10, f-11, goes-8, meteo-7).

Telem—Names the type of telemetry for the data transmitted (e.g., hrpt, gvar, ols).

Date—Reports the date of the pass (year/month/day).

Time—Reports the start time of the pass (hours:minutes:seconds) in GMT time.

Durat—Reports the duration of the pass (minutes:seconds).

Additional Fields for In-View Passes

In addition to the fields common to all pass entries, **In-View** pass entries include these fields (see Figure 3-2 A on page 3-4):

Elv—For polar-orbiting satellites, the maximum elevation that the satellite reaches, as seen from the tracking receiver, measured in angular degrees above the horizon.

Az—For polar-orbiting satellites, the satellite azimuth at maximum elevation, as seen from the tracking receiver, measured in angular degrees clockwise from true north.

Master—For polar-orbiting satellites, a TeraScan dataset that defines an area of the earth in terms of extents, map projection, and pixel resolution. If a master is associated with a scheduled pass, the pass has been selected for capture because it met minimum satellite elevation and/or minimum sun elevation criteria based on elevation measurements made relative to the center of the master. If no master is specified, the receiving site is the point on the ground from which satellite and sun elevation are measured.

Additional Fields for Scheduled and Auto-Sched Passes

In addition to the fields common to all pass entries, **Scheduled** and **Auto-Sched** pass entries include the following fields (see Figure 3-2 B on page 3-4):

Elv—For polar-orbiting satellites, maximum elevation above the horizon attained bythe satellite,as seen from the target site, measured in angular degrees.

Az—For polar-orbiting satellites, the satellite azimuth at maximum elevation, as seen from the target site, measured in angular degrees clockwise from true north.

Pri—For polar-orbiting satellites, the priority of a scheduled pass, ranging from 1 (highest) to 5 (lowest). Priorities are assigned in the autoschedule records. An antenna/receiver/framer can only capture data from one satellite at a time. Sometimes two scheduled passes will overlap in time. When this occurs, only one pass will be captured and the other will be ignored. When a conflict between passes occurs, the pass with the higher priority will be captured and the other pass will be ignored. If two conflicting passes have the same priority, the higher-elevation pass will be the one captured.

Arc—Three yes/no indicators of archiving and cataloging options. These are:

Archive the pass? (y/n)—**y** means the pass data will be archived on tape; **n** means the pass will *not* be archived.

A**r**chive device: Use default? (y/n)—**y** means the default tape device will be used for archiving the pass; **n** means that an alternative device will be used. Usually, no more than two tape devices are connected to a TeraScan acquisition system, so these two indicators suffice.

catalog the pass? (y/n)—**y** means that information about the pass, including its location on tape, will be logged into an online catalog so the pass data can be located in the future; **n** means the pass will not be cataloged. (Only archived passes can be cataloged.)

For example, if **Arc** = **nnn**, the pass will not be archived; the other two indicators are not applicable in this case. If **Arc** = **yyy**, the pass will be archived using the default device and will be logged into the online catalog. If **Arc** = **ynn**, the pass will be archived using an alternative device and will not be logged into the online catalog (perhaps you are collecting data to be processed at another workstation).

Proc—Name of a post-processing script to be applied to the pass data as it is received. Please see "Post Process" on page 6-7 for further explanation.

Additional Fields for Online Passes

In addition to the fields common to all pass entries, **Online** pass entries include the following fields (see Figure 3-2 C on page 3-4):

Lines—Number of lines in a captured pass. For **Online** passes, the value shown will be 0 while a pass capture is in progress.

Cap—Status of pass capture (**busy**—a capture is in progress; **done**—the pass has been captured; **failed**—no pass data was captured).

Arch—Status of the archiving process (**pending**—the pass is being captured and will be archived after capture; **busy**—the pass has been captured and archiving is in progress; **done**—the pass has been archived).

Cat—A yes/no indicator of whether or not an archived pass was or will be logged into the online catalog.

Additional Fields for Cataloged Passes

In addition to the fields common to all pass entries, **Cataloged** pass entries include the following fields (see Figure 3-2 D on page 3-4):

Lines—Number of lines in a captured pass.

Id—ID number assigned to each pass archived on tape and used as a locator ID for later retrieval of the pass data (which is done by means of TeraScan functions run from the command line).

Label—ID assigned to the tape on which the pass is archived and marked on a label attached to the tape.

Working with the Pass List

TeraCapCon operations, such as adding and deleting passes from the list of scheduled passes, are performed on passes selected from one of the different types of lists that can be displayed on the TeraCapCon Main Window. These operations are explained in other chapters of this manual. For example, Chapter 5 explains how to display a graphic representation of a pass, and Chapter 7 explains how to add a pass to the list of scheduled passes, delete a pass from the list, or edit scheduling parameters for a pass. Here we explain a few things you need to know about working with pass lists.

Selecting/Deselecting Passes from the Pass List

Select a pass from the pass list by clicking anywhere in the pass entry. The pass entry will become highlighted; it will also appear in the bar below the pass list. You can select multiple passes by clicking on additional pass entries. Clicking on an already selected pass will deselect the pass. When multiple passes are selected, the bar below the pass list shows the pass entry of the *last pass selected*. The significance of this is related to the editing of scheduled passes and is explained under "Editing Parameters of a Scheduled Pass" in Chapter 7.

The Refresh/Deselect-All Bar

Clicking on the bar at the top of the list has two effects: (1) It refreshes the list being displayed, updating it to reflect any newly scheduled passes. (2) It also deselects any selected passes and clears the last selected pass from the bar at the bottom of the pass list.

4

Setting Pass List Criteria

This chapter explains how to specify the criteria that determine which passes will be included in a displayed pass list. You can specify selection criteria for both **In-View** passes and **Cataloged** passes.

Setting Criteria for the In-View Pass List

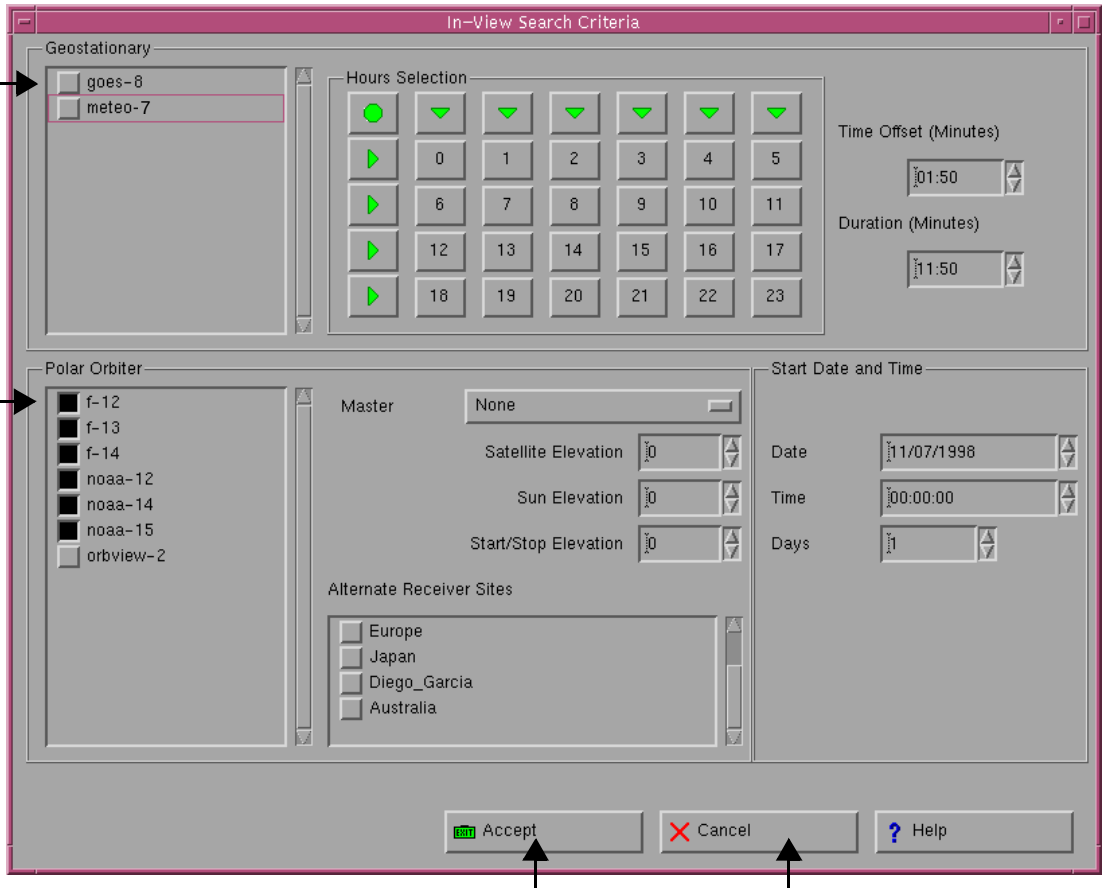
The default list of **In-View** passes will show satellite passes occurring at the local receiving site over a 24-hour period, starting at 00:00 GMT on today's date.

You can, however, specify a different time period or another receiving site or change other criteria that TeraCapCon uses to generate the list of **In-View** passes. You do this from the **In-View Search Criteria** dialog box.

To call up the **In-View Search Criteria** dialog box, select **In-View Search Criteria** from the **Search** menu of the TeraCapCon Main Window. The **In-View Search Criteria** dialog box will open on the screen (Figure 4-1).

Figure 4-1: The In-View Search Criteria Dialog Box

Use the controls in the upper half of this dialog box to specify search criteria for geostationary satellites.



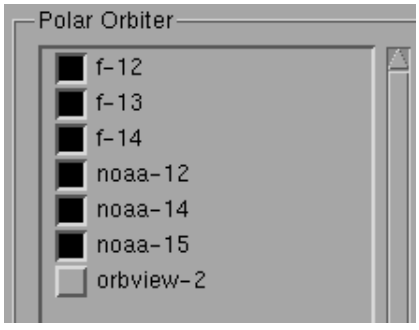
Use the controls in the lower half of this dialog box to specify search criteria for polar-orbiting satellites.

Click on **Accept** to accept new settings and close the dialog box.

Click on **Cancel** to exit the dialog box without saving the new settings.

Selecting In-View Passes of Polar-Orbiting Satellites

Selecting the Satellites—The Polar-Orbiter Toggle Options



Use the **Polar-Orbiter** toggle options on the lower half of the **In-View Search Criteria** dialog box to select the polar-orbiting satellites whose passes you want included in the **In-View** pass list.

Note — The satellites that show up as options on this list are those that are defined in TeraScan's $PASSDIR/satel directory. For each satellite, there is a corresponding subdirectory named for the satellite (noaa-14, for example) that contains files relevant to that satellite. One of these files is called *Define*. The Define file specifies the state of the satellite as either "active," "inactive," or "ignore."

Both "active" and "inactive" satellites appear on the lists of satellites available for selection from the **In-View Search Criteria** dialog box. The satellites selected by default are ones that have been set as "active." A satellite with an "ignore" state does not appear on the list.

You can customize the list of satellites by editing the satellite Define files. For example, to keep a satellite from showing up on the list, you would change the satellite's state to "ignore."

Selecting the Passes

Master

A master is a TeraScan dataset that defines a geographic area of the earth in terms of extents, map projection, and pixel resolution.

Note — Options for the **Master** field include all the master files of TeraScan's $PASSDIR/masters directory.

You can create new masters by using TeraScan's TeraMaster application.

If you select a master in the **Master** field, the center of the area defined by the master becomes the point of reference from which elevation is measured for the **Satellite Elevation** and **Sun Elevation** search criteria. If you do not specify a master (by selecting **None)**, your receiving site is considered the point of reference for measuring these criteria. The default is **None**.

Satellite Elevation

Use the **Satellite Elevation** field to specify the minimum elevation that the satellite must reach at its highest point during a pass in order for the pass to be included in the **In-View** pass list. A given satellite pass will be included in the list only if the satellite's highest elevation above the horizon meets or exceeds the value entered. Otherwise the pass will be ignored. Elevation is measured in angular degrees.

If you have specified a master in the **Master** field, the center of the area defined by the master becomes the point of reference from which satellite elevation is measured. Otherwise, your receiving site is the point from which satellite elevation is measured. The allowable range of values for this field is **0** to **90**. The default is **0**.

You can enter a value by typing it in, or you can click on the up/down arrows to change the value in increments of 1 degree.

Sun Elevation

Use the **Sun Elevation** field to specify the minimum elevation that the sun must reach at its highest point during a satellite pass in order for the pass to be included in the **In-View** pass list. A given satellite pass will be included in the list only if the sun's highest elevation above the horizon meets or exceeds the value entered. Otherwise the pass will be ignored. Elevation is measured in angular degrees.

If you have specified a master in the **Master** field, the center of the area defined by the master becomes the point of reference from which sun elevation is measured. Otherwise, your receiving site is the point from which sun elevation is measured.

The allowable range of values for this field is **0** to **90**. The default is **0**, which means that all daytime and nighttime passes will be considered. To specify daytime passes only, enter a value of **1**. (It is not possible to specify nighttime passes only.)

You can enter a value by typing it in, or you can click on the up/down arrows to change the value in increments of 1 degree.

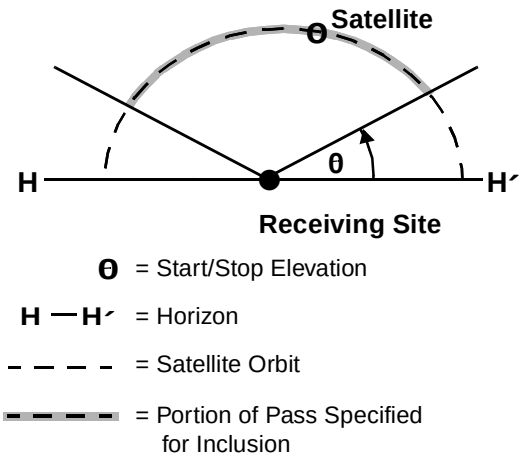
Start/Stop Elevation

Use the **Start/Stop Elevation** field to specify the elevation of the satellite, measured in angular degrees above the horizon of the antenna, below which data being transmitted from the satellite will be ignored. (Figure 4-2). Only the part of the pass above the specified elevation will be reported in the **Duration** field of passes in the **In-View** pass list.

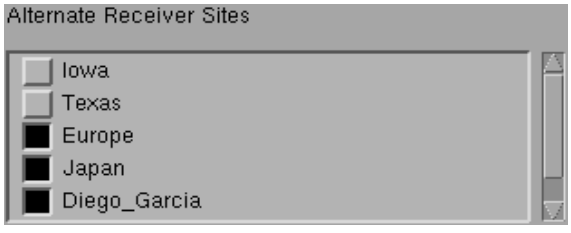
The allowable range of values for this field is **0** to **90**. The default is **0**. A **Start/Stop Elevation** greater than **0** will shorten the apparent pass duration compared to the time the satellite is actually above the horizon.

You can enter a value by typing it in, or you can click on the up/down arrows to increase or decrease the value in increments of 1 degree.

Figure 4-2: Start/Stop Elevation

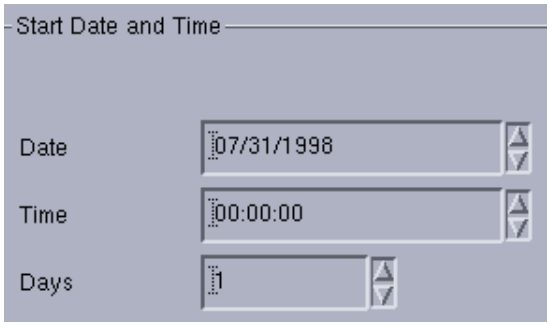


Alternate Receiver Sites



Select the remote site(s) for which you want to list In-View passes. If the site you want is not available as an option, you can use the **Site List Editor** to add the site to the list (see "Defining an Alternate Receiver Site" in Chapter 5).

Specifying a Time Window



Use the **Date**, **Time**, and **Days** fields to specify the window of time for which polar-orbiter passes are to be included in the **In-View** pass list. Specify the starting day in the **Date** field, the starting time (hh:mm:00 GMT) in the **Time** field, and the length of time (number of days) in the **Days** field.

The default **Date** is the current day's date. You can enter a date by typing it in, or you can click on the up/down arrows to increase or decrease the date in increments of one day.

The default **Time** is **00:00:00** GMT. You can enter the time by typing it in. You can also click on the up/down arrows to increase or decrease the time by increments of 1 minute.

Choices for the **Days** field are: **1, 2, . . ., 10**. The default is **1**. Click on the up/down arrows to increase or decrease the number of days.

Selecting Scans of In-View Geostationary Satellites

Geostationary satellites generally scan the Earth and transmit images according to a fixed schedule. For example, the dissemination schedule of the Meteosat includes a full-disc IR/WV scan once every hour at 2 minutes past the hour (at 00:02, 01:02:, . . ., 23:02 GMT).

To select scans for the **In-View** pass list, use the controls on the upper half of the **In-View Search Criteria** dialog box. A scan must be on the **In-View** pass list before it can be scheduled for capture.

Selecting the Satellites—The Geostationary Toggle Options

Use the **Geostationary** toggle options on the upper half of the **In-View Search Criteria** dialog box to select the geostationary satellite whose scans you want included in an **In-View** pass list.

(Please see **Note** on page 4-3 to find out how to customize the list of Geostationary satellites.)

Selecting the Passes (Scans)

The **Hours Selection** controls, together with the **Time Offset** and **Duration** fields, make it easy to select a specific type of scan from the fixed schedule of a geostationary satellite.

The **Hours Selection** controls are all toggle buttons. Use them as follows to select the hours of occurrence of the scans you want to schedule:

- Click on a numbered button to select that hour; click again to deselect the hour. The buttons of selected hours will light up green.
- Select a whole column of hours by clicking on the arrow button at the top of the column.
- Select a whole row of hours by clicking on the arrow button at the front of the row.
- Use the circle button in the upper left-hand corner of these controls to toggle all the hours on and off.

Select scans for the **In-View** pass list as follows:

1. Use the **Hours Selection** controls to select the hour(s) (out of a 24-hour schedule, GMT) during which the scans will occur.
2. Use the **Time Offset** field to specify the start time of the scans measured in minutes from the start of the hour. You can enter the minutes by typing them in, or you can click on the up/down arrows to increase or decrease the minutes of the **Time Offset** field. In order to enter seconds, you must type them in.

3. Use the **Duration** field to specify the duration of the pass(es) in minutes and seconds. You can enter minutes by typing them in, or you can click on the up/down arrows to increase or decrease the minutes of the **Duration** field. In order to enter seconds, you must type them in.

Figure 4-3 shows how you would set up the **Hours Selection** controls and the **Time Offset** and **Duration** fields in order to schedule all AIW scans (full-disc IR and WV) from Meteosat.

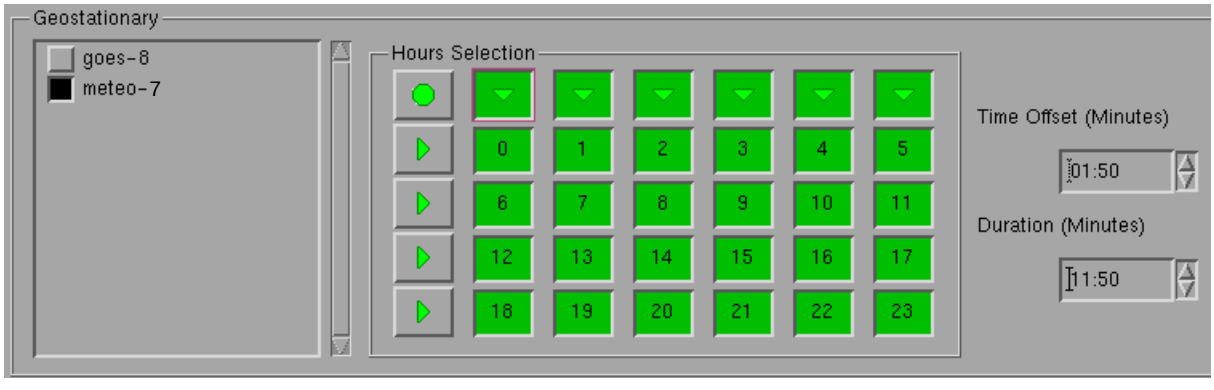
Saving the Settings of the In-View Search Criteria Dialog Box

In order to save the settings of the **In-View Search Criteria** dialog box, click on the **Accept** button at the bottom of the dialog box. The **In-View Search Criteria** dialog box will close.

If an **In-View** pass list is being displayed in the TeraCapCon Main Window, the passes you specified will appear on it; each pass will be indicated by a **V** in the **Status** field of the list.

If no pass list is being displayed or if there are no **In-View** passes on a list being displayed, turn on the **In-View** toggle option of the **Pass Filters** at the top of the window. You should then see the **In-View** scans you specified from the **In-View Search Criteria** dialog box.

Figure 4-3: Selection of all AIW Scans from Meteosat.



Setting Criteria for the Cataloged Pass List

At the time a pass is captured and archived to tape, an entry for the pass can be automatically logged into an online catalog so that the pass data can be located at a later time. Whether or not an archived pass is cataloged is determined by the **Catalog Pass** scheduling option (see "Catalog Pass" on page 6-7).

You can then search the online pass catalog to find passes stored on tape. You do this by by generating a **Cataloged** pass list from the TeraCapCon Main Window. Passes will be listed according to criteria set on the **Catalog Search Criteria** dialog box. By default, the list will include all passes from all satellites for a two-day period starting at 00:00:00 GMT on the previous day.

Note — The online pass catalog is the TeraScan file called $PASSDIR/passcat.

You can change the criteria that TeraCapCon uses to generate the **Cataloged** pass list. By increasing the number of criteria, you can make the **Cataloged** pass list more specific. These operations are done from the **Catalog Search Criteria** dialog box.

To call up the **Catalog Search Criteria** dialog box, select **Cataloged Search Criteria** from the **Search** menu of the TeraCapCon Main Window. The **Catalog Search Criteria** dialog box will open on the screen, as shown in Figure 4-4 on the following page.

Search Criteria

Don't make your search criteria too permissive or too complex— It is possible to specify very large lists requiring considerable time to generate. For example, if you use no search criteria at all, you are asking for all the passes in the online pass catalog. This could be a very large order.

It is also possible to specify a set of criteria that requires considerable calculation time. For example, if you ask for a specific Satellite Elevation for a large number of satellite passes, TeraCapCon must make a calculated comparison for every pass specified.

It would be best to narrow down the catalog search by asking for particular satellites or by setting a reasonable date range.

There are five different **Search Criteria** that you can use in various combinations to specify the passes to be included in a list of **Cataloged** passes. These are: **Telemetry**, **Satellites**, **Date Range**, **Coverage**, and **Tape Label**. These criteria are described here.

Telemetry

Turn on the **Telemetry** toggle option to search for passes of a specific telemetry. Only cataloged passes whose telemetry matches that named in this field will be included in a **Cataloged** pass list.

Click on the menu handle to see the list of available **Telemetry** options. Click on an option to select it from the menu. If you do not use **Telemetry** as a search criterion, passes of any telemetry referenced in the online catalog can be included in your **Cataloged** pass list.

Use this dialog box to specify the criteria TeraCapCon is to use in searching the online catalog for passes to be included in a **Cataloged** pass list. The more criteria you set, the more specific the **Cataloged** pass list will be.

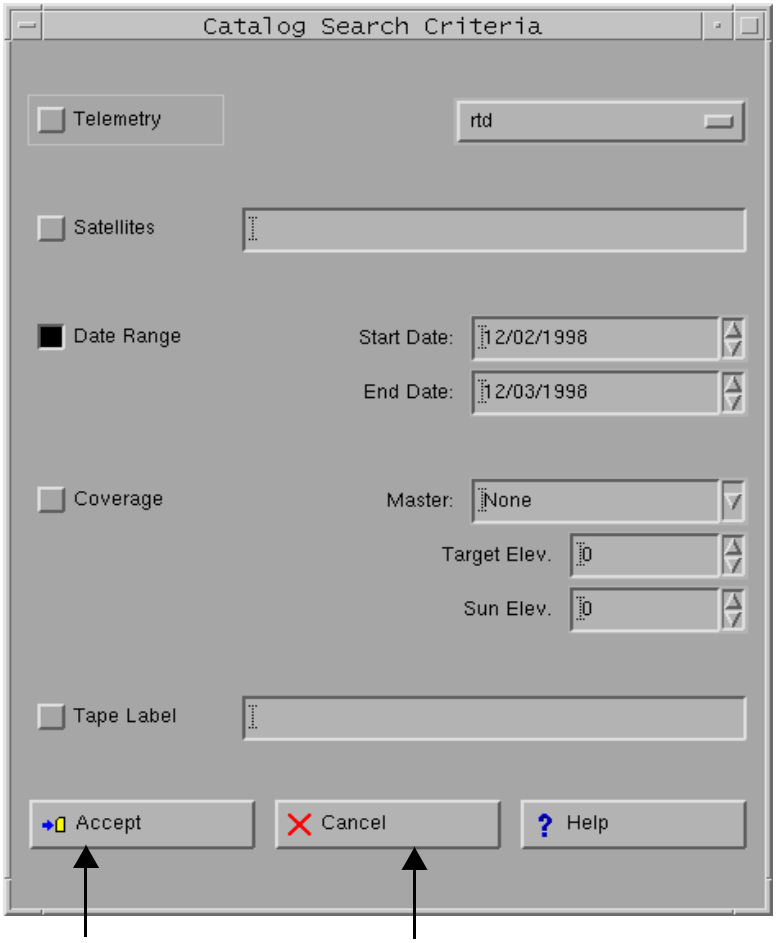
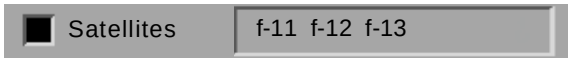


Figure 4-4: The Catalog Search Criteria Dialog Box

Satellites



Turn on the **Satellites** toggle option to search for passes from specific satellites. The **Satellites** text field will be activated. Only cataloged passes from satellites named in this field will be included in a **Cataloged** pass list. Type the names of the satellites into the field (e.g., noaa-12, f-12, goes-10, meteo-7) . Use single spaces to separate names.

If you do not use **Satellites** as a search criterion, passes from any satellites referenced in the online pass catalog can be included in your **Cataloged** pass list.

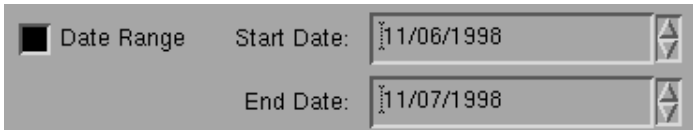
Acceptable date formats — One of several formats can be used for entries in the **Start Date** or **End Date** fields. TeraCapCon will automatically convert the date to a digital month-day-year format. For example, the following entries will be converted to 2-13-97:

Feb 13 1997
13 Feb 97
2 13 97

Items can be separated by spaces, hyphens, slashes, or commas.

When using a numerical value for month, the order must be day, month, year.

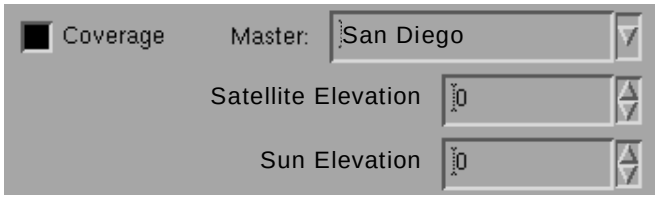
Date Range



Turn on the **Date Range** toggle option to search for passes that occurred within a specific time window. The **Start Date** and **End Date** fields will be activated. Only cataloged passes that occurred on or between the dates shown in these fields will be included in a **Cataloged** pass list. You can enter dates by typing them into the field, or you can use the arrows to increment the dates up or down one day at a time.

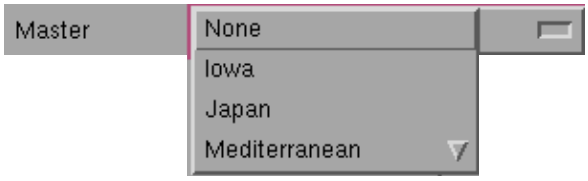
If you do not use **Date Range** as a search criterion, passes from any dates referenced in the online pass catalog can be included in your **Cataloged** pass list.

Coverage



Turn on the **Coverage** toggle option to search for passes that meet specific coverage criteria. The **Master, Satellite Elevation,** and **Sun Elevation** fields will be activated. Coverage will then be determined by the entries made in those fields. If you do not use **Coverage** as a search criterion, cataloged passes of any coverage can be included in your **Cataloged** pass list.

Master



A master is a TeraScan dataset that defines a geographic area of the earth in terms of extent, map projection, and pixel resolution.

If you specify a master in the **Master** field, the center of the area defined by the master becomes the point of reference from which elevation is measured for the **Satellite Elevation** and **Sun Elevation** search criteria. If you do not specify a master (by selecting **None)**, your receiving site is the point of reference for measuring these criteria. The default is **None**.

Note — Options for the **Master** field include all the master files of TeraScan's $PASSDIR/masters directory.

You can create new masters by using TeraScan 3.0's TeraMaster application.

Satellite Elevation

Use the **Satellite Elevation** field to specify the minimum elevation that the satellite must reach at its highest point during a pass in order for the pass to be included in the **Cataloged** pass list. A given satellite pass will be included in the list only if the satellite's highest elevation above the horizon meets or exceeds the value entered. Otherwise the pass will be ignored. Elevation is measured in angular degrees.

If you have specified a master in the **Master** field, the center of the areadefined by the master becomes the point of reference from which satellite elevation is measured. Otherwise, your receiving site is the point from which satellite elevation is measured. The allowable range of values for this field is **0** to **90**. The default is **0**.

You can enter a value by typing it in, or you can click on the up/down arrows to increase or decrease the value in increments of 1 degree.

Sun Elevation

Use the **Sun Elevation** field to specify the minimum elevation that the sun must reach at its highest point during a satellite pass in order for the pass to be included in the **Cataloged** pass list. A given satellite pass will be included in the list only if the sun's highest elevation above the horizon meets or exceeds the value entered. Otherwise the pass will be ignored. Elevation is measured in angular degrees.

If you have specified a master in the **Master** field, the center of the area defined by the master becomes the point of reference from which sun elevation is measured. Otherwise, your receiving site is the point from which sun elevation is measured.

The allowable range of values for this field is **0** to **90**. The default is **0**, which means that all daytime and nighttime passes will be considered. To indicate that you want daytime passes only, enter a value of **1**. (It is not possible to specify nighttime passes only.)

You can enter a value by typing it in, or you can click on the up/down arrows to increase or decrease the value in increments of 1 degree.

Tape Label

Turn on the **Tape Label** toggle option to search for passes located on specific tapes. Only cataloged passes stored on the tape(s) specified in the **Tape Label** text field will be included in the **Cataloged** pass list. Type in the alphanumeric identifier used to label the tape or tapes on which the passes you want are archived. You can use wildcard characters to search multiple tape labels (? = any character; * = any string of characters). Use single spaces to separate labels.

If you do not use **Tape Label** as a search criterion, passes on any tapes referenced in the online catalog can be included in your **Cataloged** pass list.

5

Viewing Pass Coverage

TeraCapCon can display, for any given polar-orbiter pass, a graphic representation of *pass coverage*, the area of the Earth viewed by the satellite during the time the satellite is in range of and transmitting data to the site.

By looking at the pass coverage, a user can easily make determinations about the quality of data the pass provides to their receiving site.

This chapter explains how to use the **Show Coverage** dialog box to display pass coverage. **In-View** passes are used as examples; however, it is possible to display pass coverage for any pass of a polar-orbiting satellite.

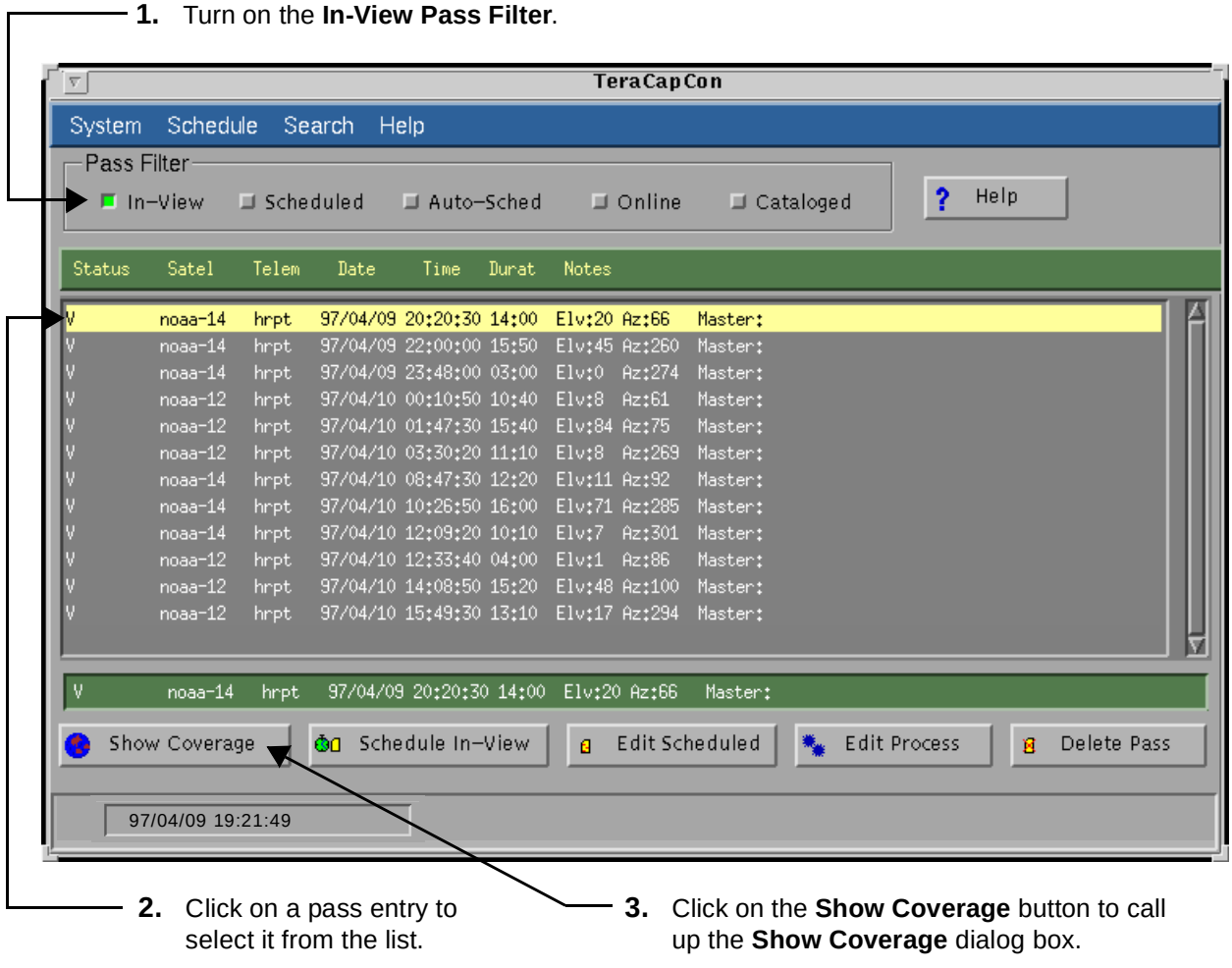
Displaying Coverage for a Pass

To display coverage for a satellite pass visible from your receiving site:

1. Generate a pass list that includes the pass you want to view (Figure 5-1). For this example, we have generated an **In-View** pass list.
2. From the displayed pass list, select the pass entry that corresponds to the pass you want to view.
3. Click on the **Show Coverage** button at the bottom of the TeraCapCon Main Window.

   The **Show Coverage** dialog box will appear on your screen (Figure 5-2).

Figure 5-1: In-View Pass List with a NOAA-14 Pass Selected

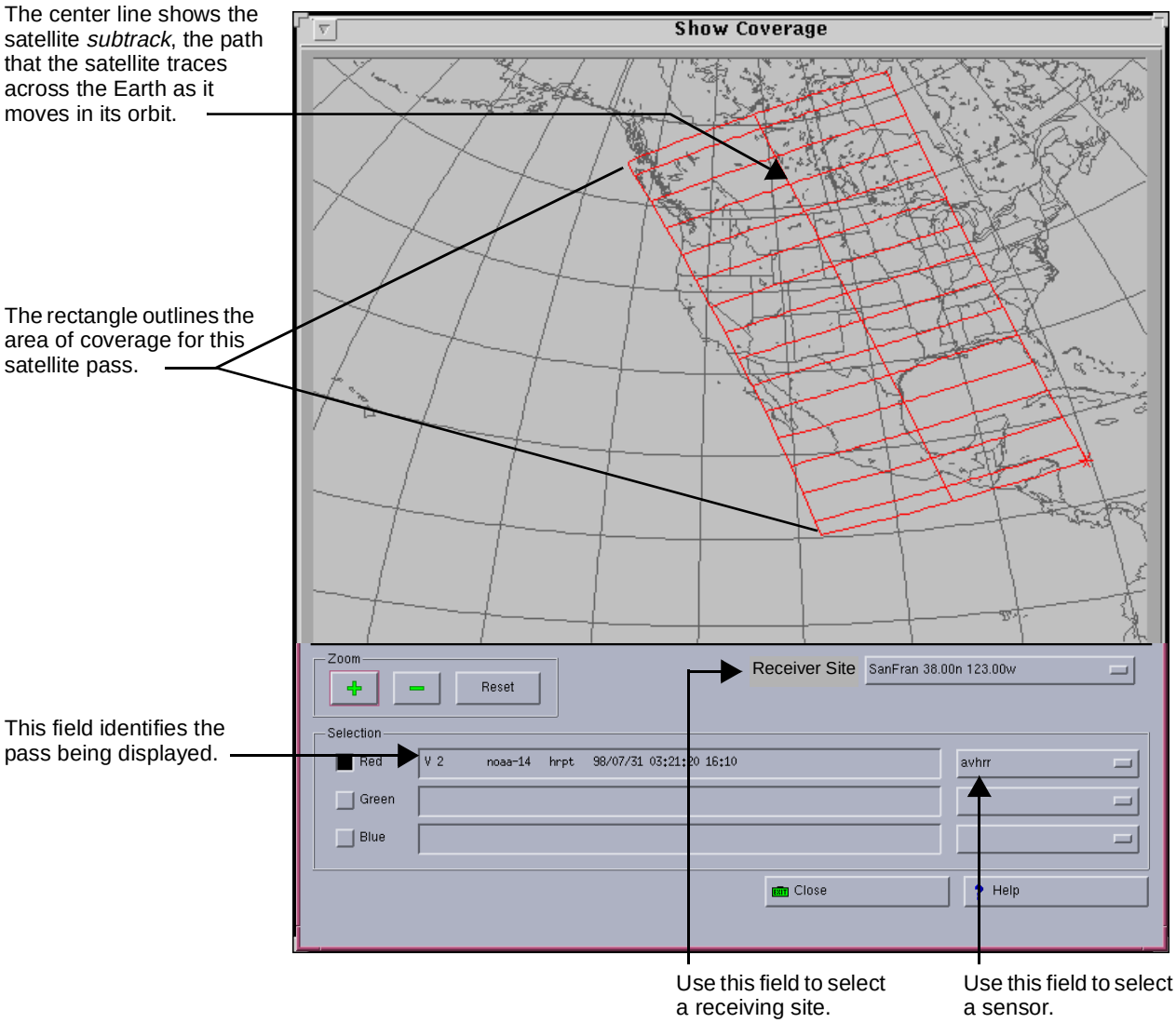


The Show Coverage Dialog Box

The major portion of the **Show Coverage** dialog box consists of a map of the geographical area surrounding your receiver site. Latitude/longitude lines overlay the map at 10-degree intervals. Our example shows the North American continent and the Pacific Ocean to the west of it—the region surrounding a receiver site in San Diego, California.

Warning—Do not maximize or minimize the **Show Coverage** dialog box. It will cause TeraCapCon to crash.

Figure 5-2: Coverage Displayed for a NOAA-14 Pass



Pass Coverage Outline

Shown on the map, outlined in red, will be the area of coverage for the satellite pass you selected from the pass list.

The center line running lengthwise through the pass coverage outline shows the path the satellite traces across the Earth as it travels along its orbit (this is known as the satellite *subtrack*). The lines running parallel on either side of the center line show the lateral extents of the area covered by the satellite's sensor (in this case, the Advanced Very High Resolution Radiometer (AVHRR)).

Note—The geographical region displayed on the **Show Coverage** dialog box is defined by a file called Coast in TeraScan's $PASSDIR directory.

The latitude/longitude grid displayed on the **Show Coverage** dialog box is defined by a file called Grid in the $PASSDIR directory.

These files are generated automatically when the TeraScan function "newsite" is run during the initial system setup.

This particular sensor scans from right to left, so that during the north-bound leg of this satellite's orbit, the imager will be scanning east to west and on the south-bound leg, the imager will be scanning west to east. The lines running perpendicular to the subtrack mark one-minute intervals.

You can tell by the swath of coverage whether a satellite is on the northward or southward leg of its orbit. As the satellite moves northward, there is an easterly component to the direction of travel. As the satellite moves southward, there is a westerly component to the direction of travel. Thus, in Figure 5-2, the satellite pass displayed is that of a satellite traveling north

Selection Fields

The **Selection** fields at the bottom of the **Show Coverage** dialog box identify the passes for which coverage is being displayed. You can toggle the coverage outline on and off by clicking on the **Red, Green,** or **Blue** toggle button to the left of the fields.

You can display coverage for up to three passes simultaneously on the **Show Coverage** map (see "Using Drag-and-Drop to Add Another Pass to the Show Coverage Dialog Box" starting on page 5-6).

Sensor Options

To the right of each pass coverage **Selection** field is a field that names the sensor source of the data for which coverage is being displayed. Sensor options available are satellite-dependent. Click on the menu handle to see available sensor options. Click on an option to select it. The coverage outline being displayed will change to reflect the new sensor.

For the NOAA satellites, the sensor options are **avhrr** (Advanced Very High Resolution Radiometer), **hirs** (High-Resolution Infrared Sounder), and **amsua** and **amsub** (the two microwave sensors on NOAA-15). The default sensor is **avhrr**.

For the DMSP satellites, sensor options are: **ols** (the Operational Line Scanner), **ssmi** (Special Sensor Microwave Imager), **ssmt1** (Special Sensor Microwave Temperature Sounder), and **ssmt2** (Special Sensor Microwave Water Vapor Sounder). The default sensor is **ols**.

Receiver Site Menu

The **Receiver Site** menu lists the TeraScan receiver sites that have been defined by the user. (See "Editing Receiver Sites" starting on page 5-9 to find out how to define a receiver site.) You can display satellite passes from any of these sites. Click on the menu handle to see a list of available sites. Click on a site to select it. The map in the display area centers on that site.

Using Drag-and-Drop to Add Another Pass to the Show Coverage Dialog Box

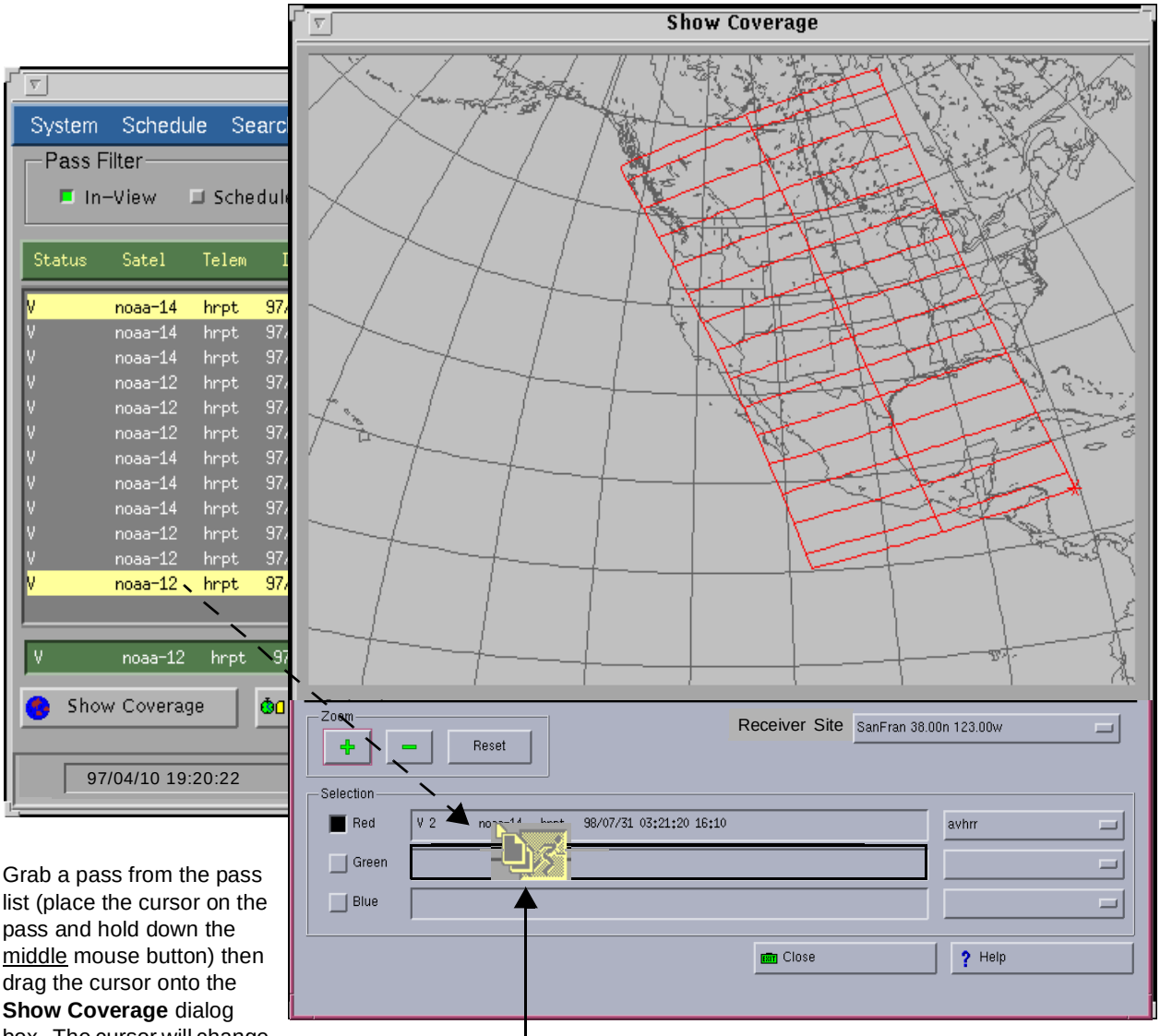
Up to three different passes can be displayed simultaneously on the **Show Coverage** dialog box. To display a second pass along with the first, use the drag-and-drop procedure described in the following steps:

1. Keep the **Show Coverage** dialog box open while you select another pass from the list on the **TeraCapCon** Main Window. You may have to reposition the **Show Coverage** dialog box somewhat to see the pass list on the Main Window.
2. Select the second pass from the pass list by clicking on the pass entry to highlight it.
3. Using the middle mouse button, grab the selected pass from the pass list (press and hold down the button), then drag the cursor onto the **Show Coverage** dialog box. Your cursor will change into a picture of a running man.
4. Position the running man over the blank field associated with the **Green** toggle option, as shown in Figure 5-3 on page 5-7.
5. Release the mouse button when the field for the **Green** toggle option appears outlined in black.

   The second satellite pass will appear on the map, outlined in green, as shown in Figure 5-3 on page 5-7. The on/off indicator box of the **Green** toggle option will turn black, and the **Green** toggle option field will identify the pass.
6. To display coverage for a third pass, repeat steps 2 through 5. This time, however, position the running man over the blank field associated with the blue toggle option and release.

   The **Blue** field will be updated with the pass when you release the mouse button. The third satellite pass will appear on the map, outlined in blue.

Figure 5-3: Dragging a Pass From the Pass List to the Show Coverage Dialog Box



Grab a pass from the pass list (place the cursor on the pass and hold down the middle mouse button) then drag the cursor onto the **Show Coverage** dialog box. The cursor will change into a picture of a running man. Position the running man over the blank field associated with the **Green** toggle option as shown. Release the mouse button when the field of the **Green** toggle option appears outlined in black.

Replacing One Pass Coverage Outline With Another

You can replace one pass coverage outline with another on the **Show Coverage** dialog box by using the drag-and drop method discussed on page 5-6.

Turning Coverage Off and On

You can turn the **Red**, **Green**, and **Blue** toggle options on and off by clicking on them. When coverage is turned on, the toggle option appears to be pushed in and is black. When coverage is turned off, the toggle option is gray. The coverage outline appears on the map when its corresponding toggle option is on, and disappears when it is off.

Closing the Show Coverage Dialog Box

To close the **Show Coverage** dialog box, click on the **Close** button at the bottom of the dialog box.

Viewing Pass Coverage at a Remote Site

You can display satellite pass coverage for locations other than your receiver site. In order to see passes at a remote site:

1. Select the site as an **Alternative Receiver Site** on the **In-View Search Criteria** dialog box (see "Alternate Receiver Sites" on page 4-5). This causes passes at that site to be included in the **In-View** pass list.
2. List **In-View** passes by turning on the **In-View Pass Filter** toggle of the TeraCapCon Main Window. Passes at your current site will be labeled V1 in the list. Passes from remote sites will be numbered consecutively (V2, V3, . . .V4) according to their order in the **Alternate Receiver Sites** list of the **In-View Search Criteria** dialog box.
3. Display the map for the remote site in the **Show Coverage** dialog box by selecting the site from the **Receiver Site** options drawer located below the display area.
4. Drag-and-drop a listed pass onto the **Show Coverage** dialog box (see "Using Drag-and-Drop to Add Another Pass to the Show Coverage Dialog Box" starting on page 5-6).

   Coverage for the pass will be displayed in the **Show Coverage** display area.

Editing Receiver Sites

If you want to view passes for a site that is not on the list of **Alternate Receiver Sites** on the **In-View Search Criteria** dialog box, you can use the **Site List Editor** to add the site to the list (see Figure 5-4). To call up the **Site List Editor,** choose **Edit Receiver Sites** from the **System** menu of the TeraCapCon Main Window.

Defining an Alternate Receiver Site

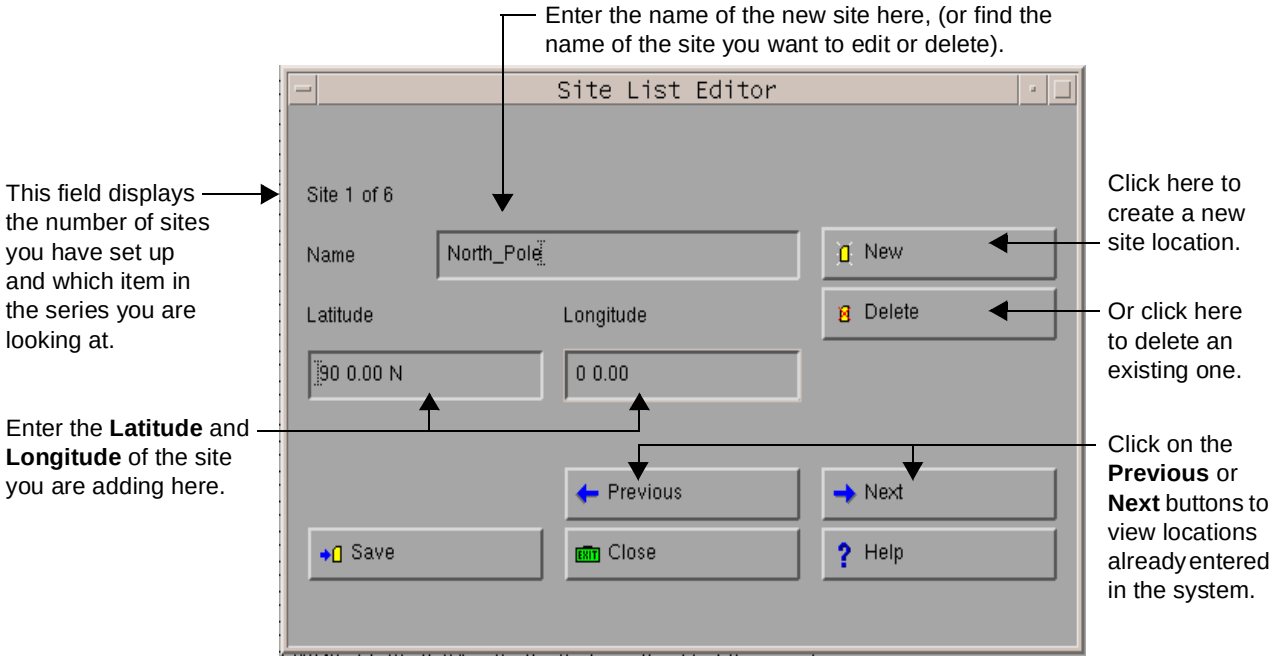
TeraScan supports up to 100 alternate receiver sites. The current site number and the total number of sites on the system are displayed in the upper left corner of the **Site List Editor** (e.g., **1 of 15**). To define a new site:

1. Click on the **New** button on the **Site List Editor** dialog box.

   No_Name displays in the **Name** field.
2. Enter the name of the new receiver site in the **Name** text field.
3. Enter the latitude and longitude of the new site.
4. Click on **Save.**

   The site you defined will now be available as an option in both the **Show Coverage** dialog box and the **In-View Search Criteria** dialog box.

Figure 5-4: Site List Editor



Editing an Existing Site

1. To see what sites have already been defined, use the **Previous** and **Next** buttons to cycle through the entries.
2. When the site you want to edit appears in the **Name** field, you can enter a different name or different latitude/longitude coordinates in the respective fields.
3. Click on **Save** when your edits are complete.

Deleting an Existing Site

1. To delete an existing site, use the **Previous** and **Next** buttons to cycle through the entries. When the site you want to delete appears in the **Name** field, click on **Delete**.
2. A dialog box will appear, requesting confirmation that you want to delete the site.
3. Click on **Yes** to delete the site.
4. When finished, click on **Close** to exit the **Site List Editor** and return to the TeraCapCon Main Window.

6

Autoscheduling Passes

The TeraScan system can be programmed to automatically capture, archive, and process data from satellites. For the user's part, this is simply a matter of creating one or more *autoschedule records.*

An autoschedule record is a set of instructions that tells TeraScan which satellites to capture data from and the criteria to use in selecting passes for capture from a given satellite. The instructions also say whether or not captured data is to be archived, and whether or not a post-processing script is to be run on the data.

Once the autoschedule records are in place, a TeraScan scheduler daemon called *tsched* manages automatic data capture, following the instructions of the autoschedule records.

1. The scheduler daemon maintains a list of scheduled passes based on the autoschedule records defined by the user. (This is the list of **Scheduled** passes displayed in TeraCapCon's main window.)

2. The list of scheduled pases is updated each time the scheduler daemon processes an autoschedule record. Generally all autoschedule records are processed once a day just before 0:0 GMT. (Processing of a record can occur at another time, however, and is determined by the start time entered for the record.)

3. The scheduler daemon keeps checking the list of scheduled passes for any passes nearing start time. When an upcoming pass is detected to be within a few minutes of start time, the scheduler daemon sets into motion all the machinery and processes necessary to capture the pass.

This chapter explains how to use TeraCapCon to create autoschedule records. A system may require only one record or multiple records. It all depends on the configuration and intended purpose of the system.

Autoscheduling Passes of Polar Orbiters

The **Edit Autoschedule (Polar Orbiter)** dialog box (Figure 6-1) is where you create autoschedule records for polar-orbiting satellites. To call up this dialog box, select **Edit Autoschedule (Polar Orbitor)** from the **Schedule** menu of the TeraCapCon Main Window.

If there are no existing records, the words **New Record** will appear in the upper left corner of the dialog box. This means the dialog box is ready to be used as a template for creating new autoscheduling records.

If records already exist, they can be edited from this dialog box. Each existing record will be numbered, and the number will be shown in the upper left corner of the dialog box. You can click on the **Previous** and **Next** buttons at the bottom of the dialog box to cycle through the records.

Note —Autoschedule records are stored in $PASSDIR/autosched.

Creating a New Autoschedule Record

There are four basic steps to creating a new autoschedule record from the **Edit Autoschedule** dialog box.

1. To start a new record, click on the **New** button of the **Edit Autoschedule** dialog box (Figure 6-1).

   The words **New Record** will appear in the upper left corner of the dialog box, indicating that the **Edit Autoschedule** dialog box is now a template ready to be used for creating a new record.

2. From the **Telemetry** menu, select the telemetry for the satellites you are going to schedule.

   You must select the telemetry before you change any other settings of the **Edit Autoschedule** dialog box. Changing the entry in the **Telemetry** field after you have made changes to other fields will reset those fields to their defaults.

   The telemetry you select will automatically determine the entry in the **Telemetry Chain** field.

3. Set other scheduling options in the **Edit Autoschedule** dialog box. The fields are described under "Fields of the Edit Autoschedule (Polar Orbiter) Dialog Box," starting on page 6-5.

4. To save the record, click on the **Save** button at the bottom of the dialog box. Any **In-View** passes that conform to the scheduling options you set on that record will be added to TeraCapCon's list of **Autoscheduled** passes.

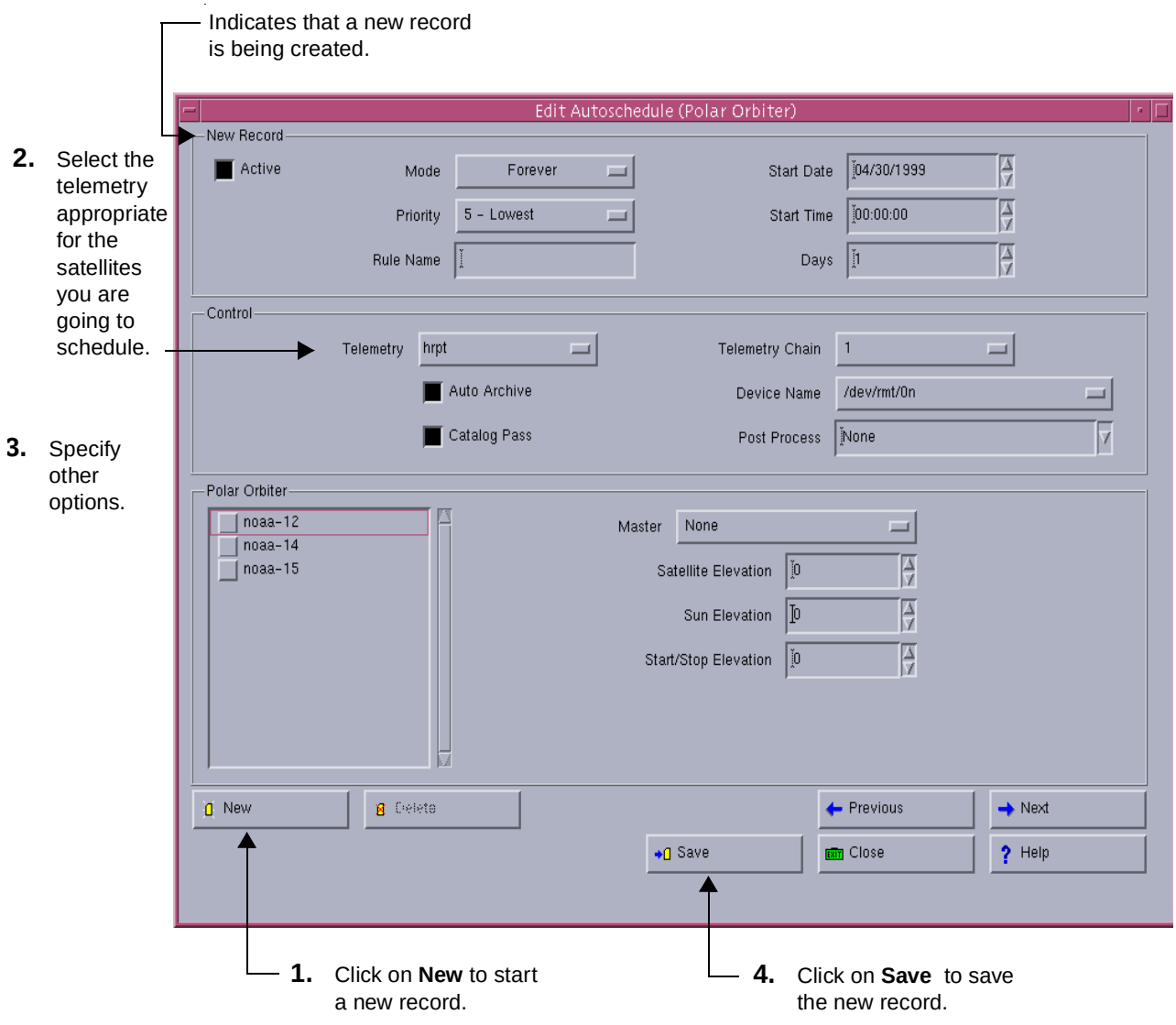


Figure 6-1: Creating a New Autoscheduling Record for a Polar-Orbiting Satellite

To display **Autoscheduled** passes, turn on the **Auto-Sched Pass Filter** at the top of the TeraCapCon Main Window.

The passes you just scheduled should appear in the list of passes, showing an **A** in the **Status** field. If **In-View** passes are also being displayed, the entry for an **Autoscheduled** pass will appear just below the entry for the corresponding **In-View** pass.

The passes in the **Auto-Sched** list will be added to the list of **Scheduled** passes the next time the autoscheduler processes this record. The particular time at which the record is processed is determined by the entry in the record's **Start Time** field. Usually records are set up to be processed at 00:00:00 GMT.

Editing an Existing Record

The steps involved in editing an existing autoschedule record are the same as those just described for creating a new record, except that you select an existing record to work with instead of starting a new record. Click on the **Next** or **Previous** buttons on the **Edit Autoschedule** dialog box to cycle through the existing records until you find the one you want to edit. Edit the record, then save it by clicking on the **Save** button of the **Edit Autoschedule** dialog box.

Activating/Inactivating Records

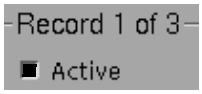
Records can be activated and inactivated by using the **Active** toggle option located in the upper left corner of the **Edit Autoschedule** dialog box. See the description of the **Active** toggle option on the following page.

Deleting a Record

To delete an existing autoschedule record, click on the **Next** or **Previous** buttons of the **Edit Autoschedule** dialog box until you find the record you want to delete, then click on the **Delete** button at the bottom of the dialog box. The record will be removed from TeraCapCon's store of autoscheduling records and will no longer be available to the autoscheduler.

Fields of the Edit Autoschedule (Polar Orbiter) Dialog Box

Active



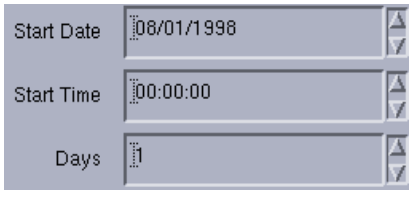
Autoschedule records can be activated and inactivated by turning the **Active** toggle on and off. An active record will be processed by the autoscheduler when it runs; an inactive record will not. A new record is active by default.

Mode

The **Mode** field has two options: **Forever** and **Once**. **Forever** specifies that an autoschedule record is to be kept and used repeatedly. **Once** specifies that the record is to be used only once and then deleted from the store of autoschedule records. The default is **Forever**.

See "Start Date, Start Time, Days" which follows for further explanation.

Start Date, Start Time, Days



The **Start Date, Start Time, and Days** fields together determine the time period for which passes are to be scheduled. The time period starts on the date entered in the **Start Date** field and at the time (GMT) entered in the **Start Time** field and extends over the number of days entered in the **Days** field. For a **New** record, the default **Start Date** is the current day's date, the default **Start Time** is **00:00:00** (GMT), and the **Days** field defaults to **1**.

In **Forever** mode, the autoscheduler will schedule passes occurring during the period of time specified by the entries in the **Start Date, Start Time,** and **Days** fields. Each time the record is processed, the **Start Date** will be automatically incremented by one day. The record will then be processed again at the same time the next day for the same number of days, and so on and so forth.

In **Once** mode,the autoscheduler will process the record one time only, scheduling passes for the period of time specified by the entries in the **Start Date, Start Time,** and **Days** fields.

You can type entries into the **Start Date** and **Start Time** fields, or you can click on the up/down arrows to increase or decrease the values in the fields.

Click on the up/down arrows of the **Days** field to increase or decrease the number of days.

Priority

Use the **Priority** field to assign a priority (ranging from **1-Highest** to **5-Lowest)** to the passes you are scheduling. Sometimes scheduled passes can overlap in time. When this occurs, the pass assigned the higher priority will be captured and the other will be ignored, all else being equal. This field defaults to **5 - Lowest**.

Please refer to the discussion under "Conflict-Resolution Codes for Scheduled Passes," starting on page 3-5, for further information.

Rule Name

Use the **Rule Name** field to assign a name to an autoschedule record for easy identification of the record. An entry in this field is optional. To enter a rule name, type it into the field.

Telemetry

In the **Telemetry** field, select the telemetry you want to capture.

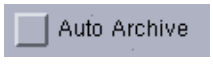
The telemetries available for selection will depend on the configuration of your system, which is reflected in your $PASSDIR/system.config file. For most systems, there is only one telemetry available. You will not be allowed to schedule a pass from a satellite whose telemetry your system is not configured to receive even though you may be able to list **In-View** passes from the satellite.

For most systems, the telemetry selected will automatically determine the entry in the **Telemetry Chain** field. This is because most systems are configured with one telemetry chain per telemetry.

Telemetry Chain

A telemetry chain specifies the hardware configuration used to acquire the telemetry. For most systems, the telemetry chain will automatically be determined by the **Telemetry** selected since most systems are configured for only one telemetry chain per telemetry.

Auto Archive



Turn on the **Auto Archive** toggle option to specify that the pass data being captured is to be automatically archived on tape. Turn **Auto Archive** off if you do not want the data archived.

Device Name

If you have elected to autoarchive the passes being scheduled for capture, you must select the **Device Name** that identifies the tape drive to which passes are to be written.

Click on the menu handle to see the list of **Device Name** options available. Click on an option to select it from the menu.

Note — Device names are defined in TeraScan's $PASSDIR/devtable file. Devices available as options for the **Device Name** field are determined by the setup of your $PASSDIR/system.config file.

Catalog Pass

If you have elected to autoarchive the passes being scheduled for capture, you need to specify whether or not the passes are to be logged into the online pass catalog, a database of passes archived on tape.

Turn on the **Catalog Pass** toggle option if you want to catalog the passes. Otherwise, the passes will be autoarchived but no record of this will be added to the pass catalog.

You can use TeraCapCon's **Cataloged Pass Filter** to list passes in the pass catalog in order to locate a particular pass or set of passes at a later time.

Post Process

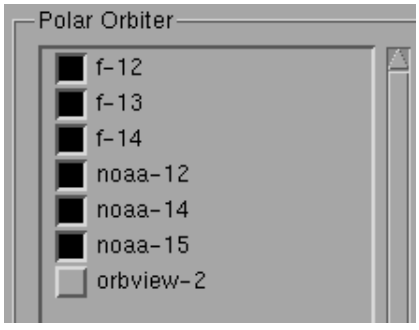
In the **Post Process** field, you can specify a post-processing script to be applied to the raw pass data. The script can link together any number of TeraScan functions and other UNIX commands to be automatically applied to the data.

Click on the pull-down arrow to see the menu of available **Post Process** options, then click on an option to select it. You can also enter an option from the menu by typing it into the field. Select **None** if you do not want to run a post-processing script.

Note — Options for the **Post Process** field include all the processing scripts in TeraScan's $PASSDIR/postprocs directory. You could specify a processing script located elsewhere by entering the full pathname of the script.

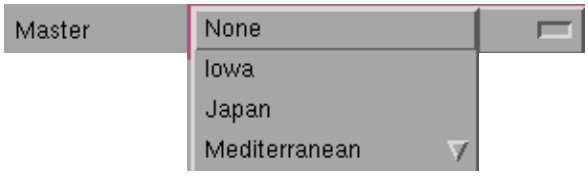
pgs_ingest is one post-processing script that can be linked to capture. It routes data into TeraPGS where it is automatically processed and delivered according to user-defined product definitions.

Polar-Orbiter Toggle Options



Use the **Polar-Orbiter** toggle options to select the polar-orbiting satellites whose passes you want to schedule.

Master



A master is a TeraScan dataset that defines a geographic area of the earth in terms of extents, map projection, and pixel resolution.

Note — Options for the **Master** field include all the master files of TeraScan's $PASSDIR/masters directory.

You can create new masters by using TeraScan's TeraMaster application.

If you specify a master in the **Master** field, the center of the area defined by the master becomes the point of reference from which elevation is measured for the **Satellite Elevation** and **Sun Elevation** selection criteria. If you do not specify a master (by selecting **None)**, your receiving site is considered the point of reference for measuring these criteria. The default is **None**.

Satellite Elevation

Use the **Satellite Elevation** field to specify the minimum elevation a satellite must reach at its highest point during a pass in order for the pass to be scheduled. A satellite pass will be scheduled only if the satellite's highest elevation above the horizon meets or exceeds the value entered. Otherwise the pass will be ignored. Elevation is measured in angular degrees.

If you have specified a master in the **Master** field, the center of the area defined by the master becomes the point of reference from which satellite elevation is measured. Otherwise, your receiving site is the point from which satellite elevation is measured. The allowable range of values for this field is **0** to **90**. The default is **0**.

You can enter a value by typing it in, or you can click on the up/down arrows to increase or decrease the value in increments of 1 degree.

Sun Elevation

Use the **Sun Elevation** field to specify the minimum elevation the sun must reach at its highest point during a satellite pass in order for the pass to be selected for scheduling. A satellite pass will be scheduled only if the sun's highest elevation above the horizon meets or exceeds the value entered. Otherwise the pass will be ignored. Elevation is measured in angular degrees.

If you have specified a master in the **Master** field, the center of the area defined by the master becomes the point of reference from which sun elevation is measured. Otherwise, your receiving site is the point from which sun elevation is measured.

The allowable range of values for this field is **0** to **90**. The default is **0**, which means that all daytime and nighttime passes will be considered. To indicate that you want daytime passes only, enter a value of **1**. (It is not possible to specify nighttime passes only.)

You can enter a value by typing it in, or you can click on the up/down arrows to increase or decrease the value in increments of 1 degree.

Start/Stop Elevation

Use the **Start/Stop Elevation** field to specify the elevation of the satellite, measured in angular degrees above the horizon of the antenna, below which data being transmitted from the satellite will be ignored (see Figure 4-2). Only the part of a pass above the specified elevation will be captured.

The allowable range of values for this field is **0** to **90**. The default is **0**.
A **Start/Stop Elevation** greater than **0** will shorten the apparent pass duration compared to the time the satellite is actually above the horizon.

You can enter a value by typing it in, or you can click on the up/down arrows to increase or decrease the value in increments of 1 degree.

Buttons of the Edit Autoschedule (Polar Orbiter) Dialog Box

Click on the **New** button to start creating a new autoschedule record.

Click on the **Delete** button to remove the record currently being displayed in the **Edit Autoschedule** dialog box.

Click on the **Save** button to save a newly created record or to save changes made to an existing record.

Click on the **Previous** button to call up a previous record in the sequence of available records.

Click on the **Next** button to call up the next record in the sequence of available records.

Click on the **Help** button to call up help for the **Edit Autoschedule** dialog box.

Click on the **Close** button to quit the **Edit Autoschedule** dialog box and return to the **TeraCapCon** Main Window.

Autoscheduling Passes of Geostationary Satellites

The **Edit Autoschedule (Geostationary)** dialog box (Figure 6-2) is where you create autoschedule records for geostationary satellites. To call up this dialog box, select **Edit Autoschedule (Geostationary)** from the **Schedule** menu of the TeraCapCon Main Window.

If there are no existing records, the words **New Record** will appear in the upper left corner of the dialog box. This means the dialog box is ready to be used as a template for creating new autoschedule records.

If records already exist, they can be edited from this dialog box. Each existing record will be numbered, and the number will be shown in the upper left corner of the dialog box. You can click on the **Previous** and **Next** buttons at the bottom of the dialog box to cycle through existing records. The record number in the upper left corner of the dialog box will change as you do so.

Creating a New Autoschedule Record

There are four basic steps to creating a new autoschedule record from the **Edit Autoschedule** dialog box.

1. To start a new record, click on the **New** button of the **Edit Autoschedule** dialog box (Figure 6-2).

   The words **New Record** will appear in the upper left corner of the dialog box, indicating that the **Edit Autoschedule** dialog box is now a template ready to be used for creating a new record.

2. From the **Telemetry** menu, select the telemetry for the satellites you are going to schedule.

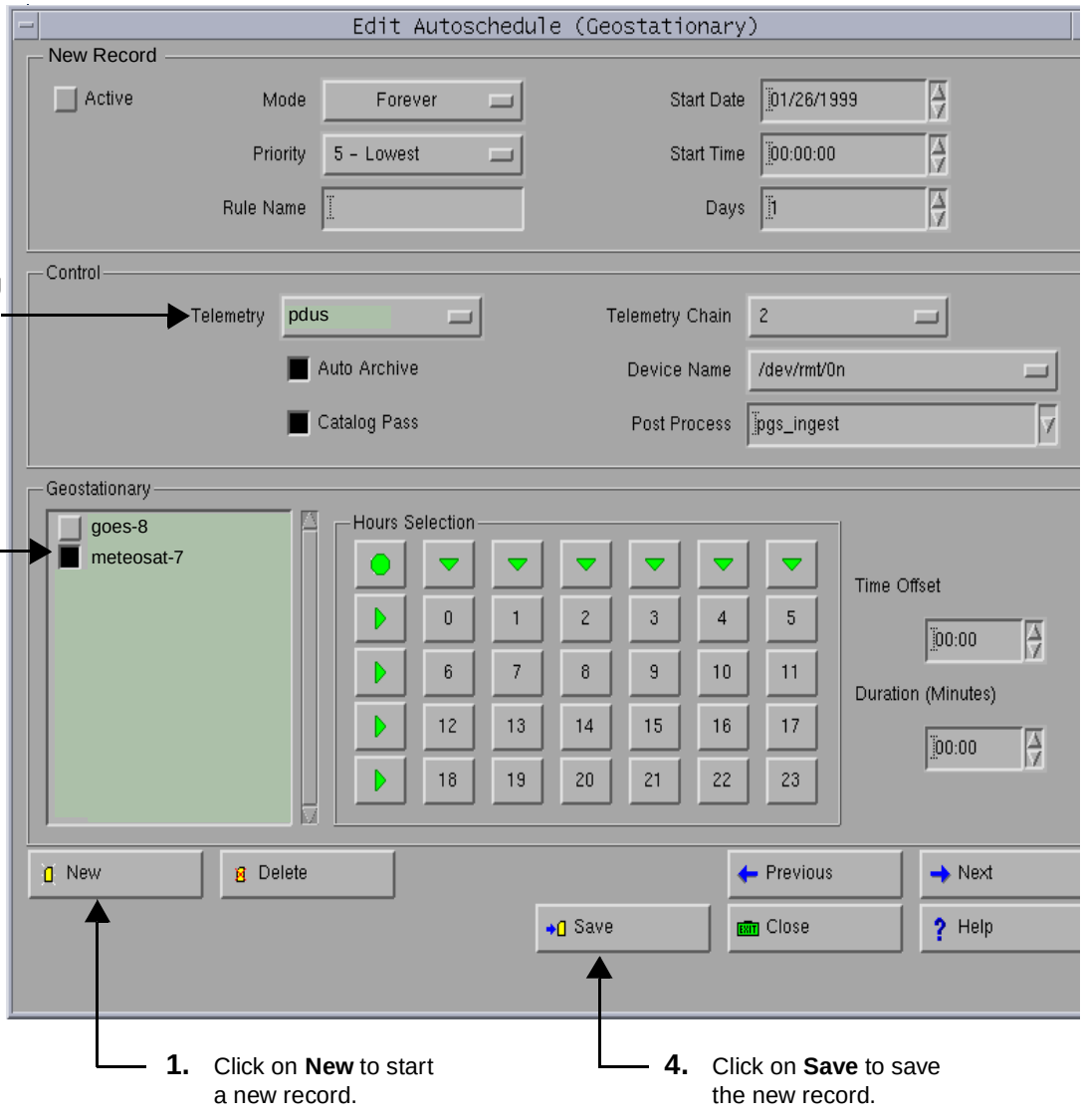
   You must select the telemetry before you change any other settings of the **Edit Autoschedule** dialog box. Changing the entry in the **Telemetry** field after you have made changes to other fields will reset those fields to their defaults.

   The telemetry you select will automatically determine the entry in the Telemetry Cahin field

3. Set other scheduling options in the dialog box.

   The **Edit Autoschedule** fields are described under "Fields of the Edit Autoschedule (Geostationary) Dialog Box," starting on page 6-14.

4. To save the record, click on the **Save** button at the bottom of the dialog box. Any **In-View** scans that conform to the scheduling options you set on that record will be added to the list of **Autosched** passes.



2. Select the telemetry appropriate for the satellites you are going to schedule.

3. Select the satellites you want to schedule as well as other scheduling options.

1. Click on **New** to start a new record.

4. Click on **Save** to save the new record.

Figure 6-2: Creating a New Autoscheduling Record for a Geostationary Satellite

To display **Autoscheduled** passes, turn on the **Auto-Sched Pass Filter** at the top of the TeraCapCon Main Window.

The passes you just scheduled should appear in the list of passes, showing an **A** in the **Status** field. If **In-View** passes are also being displayed, the entry for an **Autoscheduled** pass will appear just below the entry for the corresponding **In-View** pass.

The passes in the **Auto-Sched** list will be added to the list of **Scheduled** passes the next time the autoscheduler processes this record. The particular time at which the record is processed is determined by the entry in the record's **Start Time** field. Usually records are set up to be processed at 00:00:00 GMT.

Editing an Existing Record

The steps involved in editing an existing autoschedule record are the same as those just described for creating a new record, except that you select an existing record to work with instead of starting a new record.

Click on the **Next** or **Previous** buttons of the **Edit Autoschedule** dialog box to cycle through existing records until you find the one you want to edit. Make any changes you want to the record, then save the record by clicking on the **Save** button of the **Edit Autoschedule** dialog box.

Activating/Inactivating Records

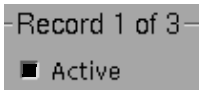
Records can be activated and inactivated by by using the **Active** toggle option located in the upper left corner of the **Edit Autoschedule** dialog box. (See the description of the **Active** toggle option on the following page.)

Deleting a Record

To delete an existing autoschedule record, click on the **Next** or **Previous** buttons of the **Edit Autoschedule** dialog box until you find the record you want to delete, then click on the **Delete** button at the bottom of the dialog box. The record will be removed from TeraCapCon's store of autoscheduling records and will no longer be available to the autoscheduler.

Fields of the Edit Autoschedule (Geostationary) Dialog Box

Active



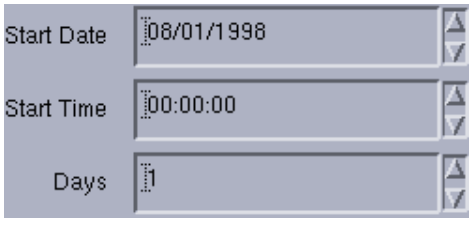
Autoschedule records can be activated and inactivated by turning the **Active** toggle on and off. An active record will be processed by the autoscheduler when it runs; an inactive record will not. A new record is active by default.

Mode

The **Mode** field has two options: **Forever** and **Once**. **Forever** specifies that an autoschedule record is to be kept and used repeatedly. **Once** specifies that the record is to be used only once and then deleted from the store of autoschedule records. The default is **Forever**.

See "Start Date, Start Time, Days" which follows for further explanation.

Start Date, Start Time, Days



The **Start Date, Start Time, and Days** fields together determine the time period for which passes are to be scheduled. The time period starts on the date entered in the **Start Date** field and at the time (GMT) entered in the **Start Time** field and extends over the number of days entered in the **Days** field. For a **New** record, the default **Start Date** is the current day's date, the default **Start Time** is **00:00:00** (GMT), and default **Days** is **1**.

In **Forever** mode, the autoscheduler will schedule passes occurring during the period of time specified by the entries in the **Start Date, Start Time,** and **Days** fields. Each time the record is processed, the **Start Date** will be automatically incremented by one day. The record will then be processed again at the same time the next day for the same number of days, and so on and so forth.

In **Once** mode, the autoscheduler will process the record one time only, scheduling passes for the period of time specified by the entries in the **Start Date, Start Time,** and **Days** fields.

You can type entries into the **Start Date** and **Start Time** fields, or you can click on the up/down arrows to increase or decrease the values in the fields.

Click on the up/down arrows of the **Days** field to increase or decrease the number of days.

Priority

Use the **Priority** field to assign a priority (ranging from **1-Highest** to **5-Lowest)** to the record you are scheduling. Sometimes scheduled passes can overlap in time. When this occurs, the pass assigned the higher priority will be captured and the other will be ignored, all else being equal. This field defaults to **5 - Lowest**.

Please refer to the discussion under "Conflict-Resolution Codes for Scheduled Passes," starting on page 3-5, for further information.

Rule Name

Use the **Rule Name** field to assign a name to an autoschedule record for easy identification of the record. An entry in this field is optional. To enter a rule name, type it into the field.

Telemetry

In the **Telemetry** field, select the telemetry you want to capture.

The telemetries available for selection will depend on the configuration of your system, which is reflected in your $PASSDIR/system.config file. You will not be allowed to schedule a pass (scan) from a satellite whose telemetry your system is not configured to receive even though you can list **In-View** passes from the satellite.

The telemetry you select will automatically determine the entry in the **Telemetry Chain** field.

Telemetry Chain

A telemetry chain specifies the hardware configuration used to acquire the telemetry. For most systems, the telemetry chain will automatically be determined by the **Telemetry** selected since most systems are configured for only one telemetry chain per telemetry.

Auto Archive

Turn on the **Auto Archive** toggle option to specify that the pass data being captured is to be automatically archived on tape. Turn off the **Auto Archive** toggle option if you do not want the data archived.

Device Name

If you have chosen to autoarchive the passes being scheduled for capture, you must specify in the **Device Name** field the name of the tape drive that holds the tape to which passes are to be archived.

Click on the menu handle to see the list of **Device Name** options. Click on an option to select it from the menu.

Note — Device names are defined in TeraScan's $PASSDIR/devtable file. Devices available as options for the **Device Name** field are determined by the setup of your $PASSDIR/system.config file.

Catalog Pass

If you have chosen to autoarchive the passes being scheduled for capture, you need to choose whether or not the passes are to be logged into the online pass catalog, a database of passes archived on tape.

Turn on the **Catalog Pass** toggle option if you want to catalog the passes. Otherwise, the passes will be autoarchived but no record of this will be added to the pass catalog.

You can use TeraCapCon's **Cataloged Pass Filter** to list passes in the pass catalog in order to locate a particular pass or set of passes at a later time.

Post Process

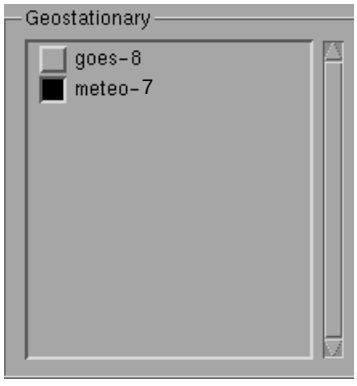
In the **Post Process** field, you can specify a post-processing script to be applied to the raw pass data. The script can link together any number of TeraScan functions and other UNIX commands to be automatically applied to the data.

pgs_ingest is one post-process that can be linked to capture. It routes data into TeraPGS where it is processed according to user-defined product definitions.

Click on the pull-down arrow to see the menu of available **Post Process** options, then click on an option to select it. You can also enter an option from the menu by typing it into the field. Enter **None** if you do not want to run a post-processing script.

Note — Options for the **Post Process** field include all the processing scripts in TeraScan's $PASSDIR/postprocs directory. You could specify a processing script located elsewhere by entering the full pathname of the script.

Geostationary Toggle Options



Use the **Geostationary** toggle options to select the geostationary satellite whose scans you want to schedule. A land-based system will have only one satellite available.

The Scan Selection Controls

The **Hours Selection** controls, together with the **Time Offset** and **Duration** fields, make it easy to select a specific type of scan from the fixed schedule of a geostationary satellite.

1. Use the **Hours Selection** controls to select the hour(s) out of a 24-hour schedule (GMT) during which the scans occur.
2. Use the **Time Offset** field to specify the start time of the scan measured in minutes from the start of the hour. You can enter the minutes by typing them in, or you can click on the up/down arrows to increase or decrease the minutes of the **Time Offset** field. In order to enter seconds, you must type them in.
3. Use the **Duration** field to specify the duration of the scans in minutes and seconds. You can enter the minutes by typing them in, or you can click on the up/down arrows to increase or decrease the minutes of the **Duration** field. In order to enter seconds, you must type them in.

Figure 6-3 shows how you would set up the **Hours Selection** controls and the **Time Offset** and **Duration** fields in order to schedule all AIW scans (full-disc IR and WV) from Meteosat.

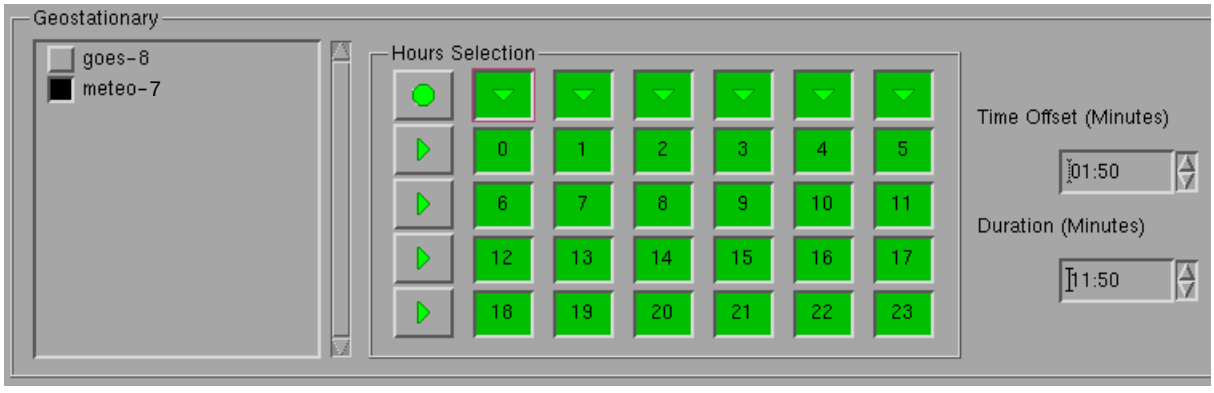
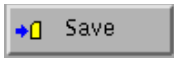


Figure 6-3: Selection of all AIW Scans from Meteosat

Buttons of the Edit Autoschedule (Geostationary) Dialog Box

Click on the **New** button to start creating a new autoschedule record.

Click on the **Delete** button to remove the record currently being displayed in the **Edit Autoschedule** dialog box.

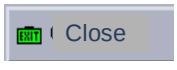


Click on the **Save** button to save a newly created record or to save changes made to an existing record.

Click on the **Previous** button to call up a previous record in the sequence of available records.

Click on the **Next** button to call up the next record in the sequence of available records.

Click on the **Help** button to call up help for this dialog box.



Click on the **Close** button to quit the **Edit Autoschedule** dialog box and return to the **TeraCapCon** Main Window.

Scheduling Capture of Wefax Images

You can schedule the reception of Wefax images. To do this, call up the **Edit Wefax Schedule** dialog box by selecting **Edit Wefax Schedules** from the **Schedule** menu.

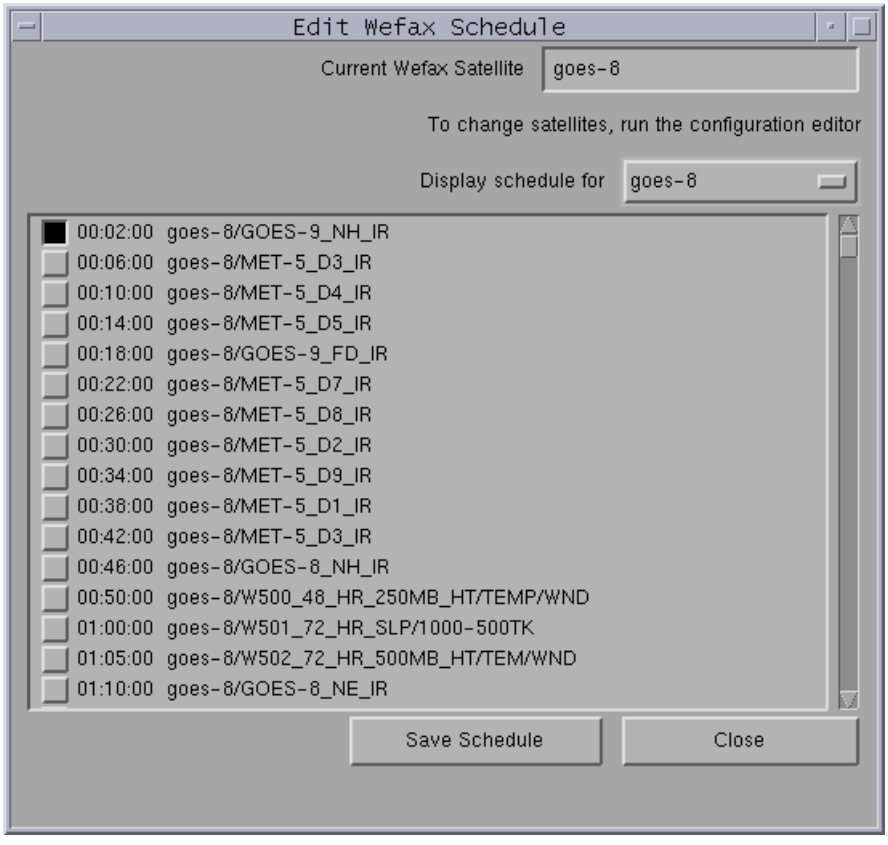
To schedule Wefax images:

1. Select your in-view geostationary satellite from the **Display Schedule for** options drawer. This must be the satellite named in the **Current Wefax Satellite** field at the top of the dialog box.

   The schedule of images available from your current in-view satellite will be displayed.

2. Select the images you want to receive by turning on the appropriate toggle options.
3. Click on the **Save Schedule** button to save the schedule.

Figure 6-4: Scheduling Reception of Wefax Images



7

Editing the List of Scheduled Passes

TeraScan generates a list of scheduled passes based on user-defined autoscheduling records. Chapter 6 explains how to set up autoscheduling records. The list of scheduled passes is updated each time TeraScan processes an autoscheduling record. Each record is generally processed once a day, with the time of processing for a given record being determined by the start time entered for the record.

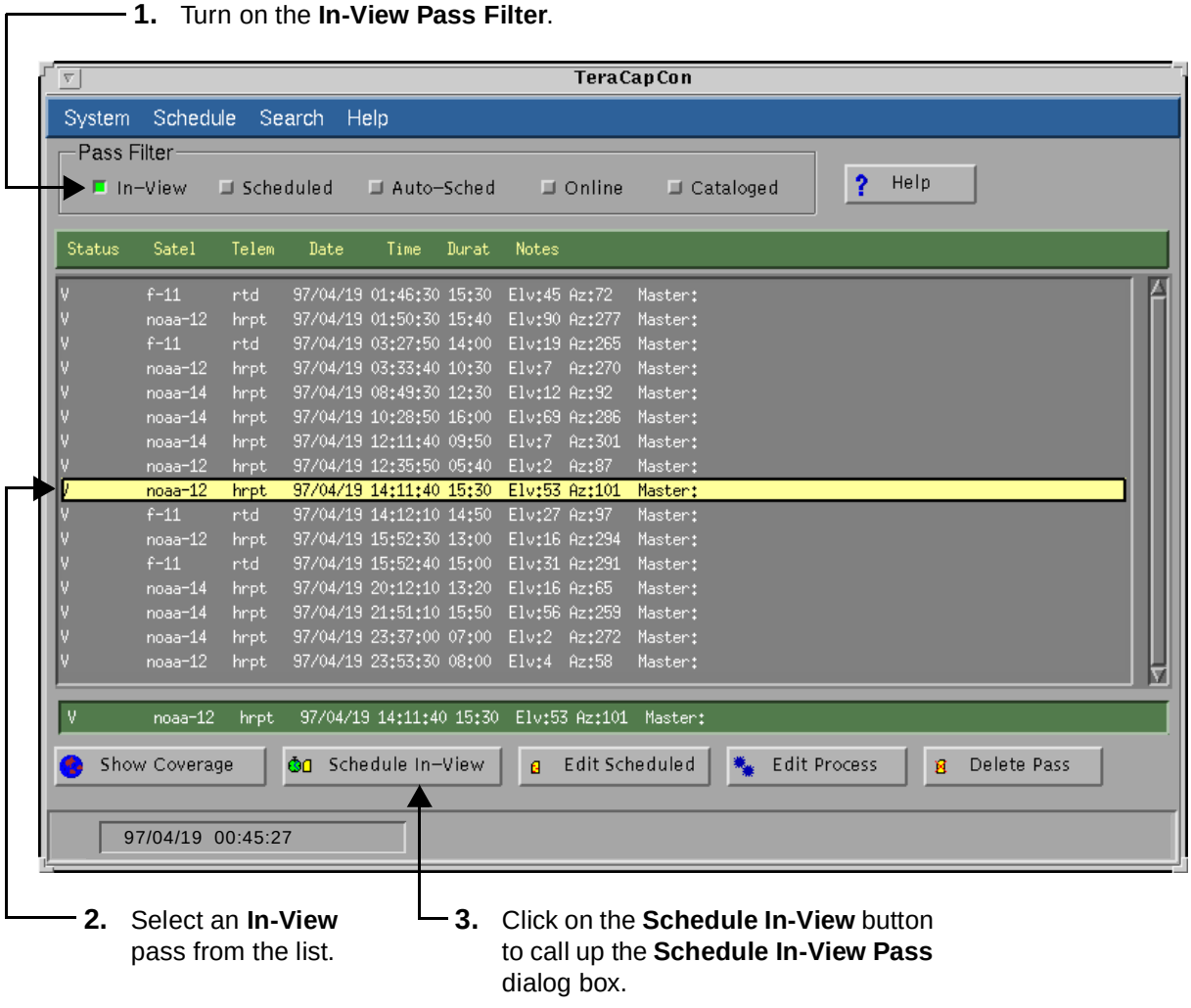
The user is free to edit the list of scheduled passes if a change from the usual schedule is required. A pass can be added to the schedule or deleted from the schedule, or a pass record can be edited to change certain parameters such as priority or post-capture processing. This chapter explains how to use TeraCapCon to edit the list of scheduled passes.

Adding a Pass to the Capture Schedule

To add a pass to the capture schedule:

1. Generate an **In-View** pass list by turning on the **In-View Pass Filter** at the top of the TeraCapCon Main Window. (See "Setting Criteria for the In-View Pass List" in Chapter 4 to find out how to specify which passes will be included in the **In-View** pass list.)
2. From the displayed list, select the pass you want to schedule. You can schedule multiple passes simultaneously if you intend to apply the same scheduling parameters to all of them.

Figure 7-1: Scheduling the Capture of an In-View Pass

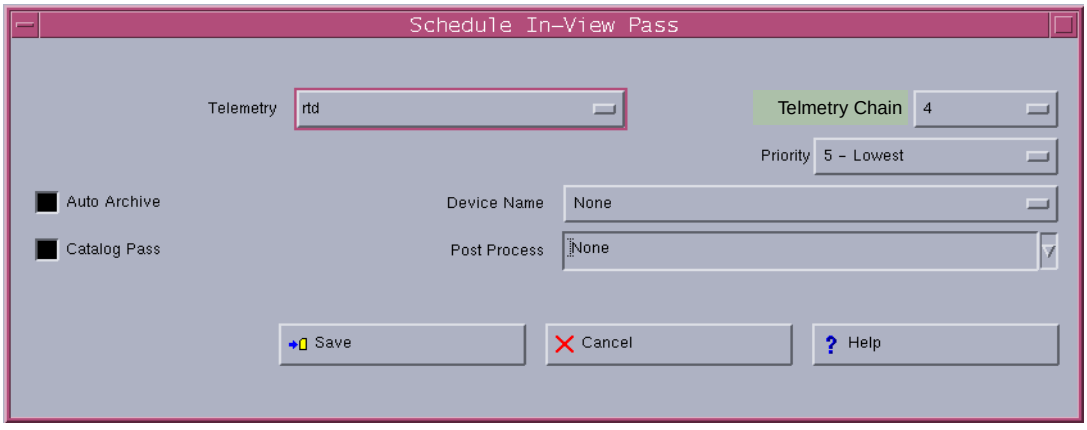


3. Call up the **Schedule In-View Pass** dialog box (Figure 7-2) by clicking on the **Schedule In-View** button at the bottom of the TeraCapCon Main Window.
4. Select scheduling options for the pass from the **Schedule In-View Pass** dialog box. (See "Using the Schedule In-View Pass Dialog Box" starting on page 7-5.
5. Click on the **Save** button to save the settings on the **Schedule In-View Pass** dialog box.

   The **Schedule In-View Pass** dialog box will close and you will be returned to the TeraCapCon Main Window. The pass you selected in Step 2 will be added to TeraCapCon's list of **Scheduled** passes.
6. To display **Scheduled** passes, turn on the **Scheduled Pass Filter** at the top of the TeraCapCon Main Window (Figure 7-3).

   The pass you just scheduled should appear in the displayed list of passes, showing an **S+** in the **Status** field. The pass will appear just below the entry for the **In-View** pass you selected for scheduling.
7. You can continue scheduling other **In-View** passes, if you want, using the steps just described.

Figure 7-2: The Schedule In-View Pass Dialog Box



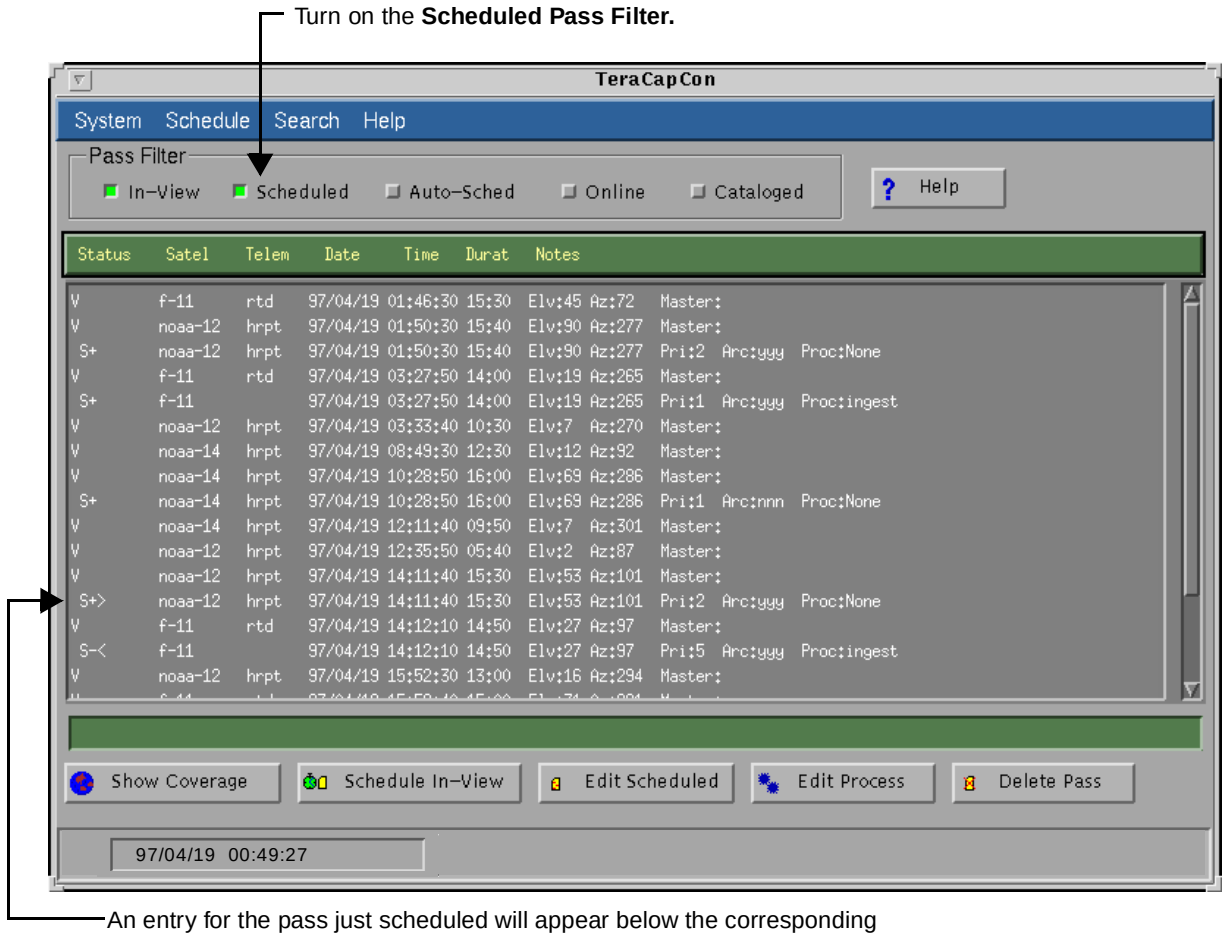


Figure 7-3: Displaying the Newly Scheduled Pass in the Pass List

Using the Schedule In-View Pass Dialog Box

This section explains the fields on the **Schedule In-View Pass** dialog box.

Telemetry

In the **Telemetry** field, specify the telemetry you want to capture.

The telemetries available for selection will depend on the configuration of your system, which is reflected in your $PASSDIR/system.config file. You will not be allowed to schedule a pass from a satellite whose telemetry your system is not configured to receive even though you can list **In-View** passes from the satellite.

Telemetry Chain

A telemetry chain specifies the hardware configuration used to acquire the telemetry. The telemetry chains available for selection will depend on the configuration of your system, which is reflected in your $PASSDIR/system.config file. Most systems will be configured with only one telemetry chain per telemetry

Priority

Use the **Priority** field to assign a priority (ranging from **1-Highest** to **5-Lowest)** to the pass you are scheduling. Sometimes scheduled passes can overlap in time. When this occurs, the pass assigned the higher priority will be captured and the other will be ignored, all else being equal. This field defaults to **5 - Lowest**.

Please refer to the discussion under "Conflict-Resolution Codes for Scheduled Passes" starting on page 3-5, for further information.

Auto Archive

Turn on the **Auto Archive** toggle option to specify that the pass data being captured is to be automatically archived on tape. The **Device Name** field will be activated. Turn the **Auto Archive** toggle option off if you do not want the data archived.

Device Name

If you have chosen to autoarchive the passes being scheduled for capture, you must specify in the **Device Name** field the name of the tape drive to which passes are to be written.

Click on the menu handle to see the list of **Device Name** options available. Click on an option to select it from the menu.

Note — Device names are defined in TeraScan's $PASSDIR/devtable file. Devices available as options for the **Device Name** field are determined by the setup of your $PASSDIR/system.config file.

Catalog Pass

If you have chosen to autoarchive the passes being scheduled for capture, you need to choose whether or not the passes are to be logged into the online pass catalog, a database of passes archived on tape.

Turn on the **Catalog Pass** toggle option if you want to catalog the passes. Otherwise, the passes will be autoarchived but no record of this will be added to the pass catalog.

You can use TeraCapCon's **Cataloged Pass Filter** to list passes in the pass catalog in order to locate a particular pass or set of passes at a later time.

Post Process

In the **Post Process** field, you can specify a post-processing script to be applied to the raw pass data. The script can link together any number of TeraScan functions and other UNIX commands to be automatically applied to the data, thus saving you from having to run the functions individually.

pgs_ingest is one post-process that can be linked to capture. It routes data into TeraPGS where it is processed according to user-defined product definitions.

Note — Options for the **Post Process** field include all the processing scripts in TeraScan's $PASSDIR/postprocs directory. You could specify a processing script located elsewhere by entering the full pathname of the script.

Click on the pull-down arrow to see the menu of available **Post Process** options, then click on an option to select it. You can also enter an option from the menu by typing it into the field. Enter **None** if you do not want to run a post-processing script.

Editing Parameters of a Scheduled Pass

You can change certain capture parameters for a scheduled pass, including pass start time and end time. Some of the parameters must be changed from the **Edit Scheduled Pass** dialog box and others are changed from the **Edit Process** dialog box.

Using the Edit Scheduled Pass Dialog Box

From the **Edit Scheduled Pass** dialog box, you can edit these parameters of a scheduled pass: **Telemetry, Telemetry Chain, Start Time, End Time,** and **Priority.** To change one or more of these parameters for a scheduled pass:

1. Select the scheduled pass you want to edit from the pass list displayed on the TeraCapCon Main Window. (The **Scheduled Pass Filter** toggle must be turned on in order for you to have **Scheduled** passes in the list.) The pass entry you select will become highlighted and will appear in the bar below the pass list.
2. Click on the **Edit Scheduled** button located at the bottom of the TeraCapCon Main Window. The **Edit Scheduled Pass** dialog box will appear on the screen as shown in Figure 7-4 on the following page.
3. Make the appropriate entries in the fields of the **Edit Scheduled Pass** dialog box, as explained under "Fields of the Edit Scheduled Pass Dialog Box" on the following page.
4. Click on the **Save** button at the bottom of the **Edit Scheduled Pass** dialog box to accept the changes you have made. The **Edit Scheduled Pass** dialog box will close and you will be returned to the TeraCapCon Main Window. (To close the **Edit Scheduled Pass** dialog box without accepting changes made, click on the **Cancel** button at the bottom of the dialog box.)

The changes made on the **Edit Scheduled Pass** dialog box will be reflected on the displayed pass list. You can now select another pass from the list for editing if you want.

Note — Only one pass can be edited at a time. The changes you make on the **Edit Scheduled Pass** dialog box will apply only to the pass entry that appears in the bar below the pass list. When multiple passes have been selected, this bar identifies the most recently selected pass, even if the pass has been deselected and is no longer highlighted in the pass list. This can be a bit misleading because previously selected passes may still be highlighted in the pass list.

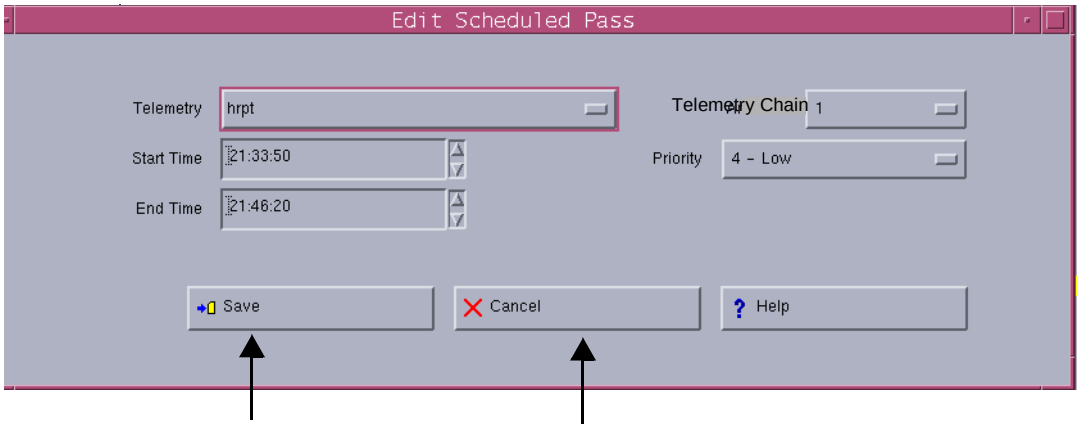
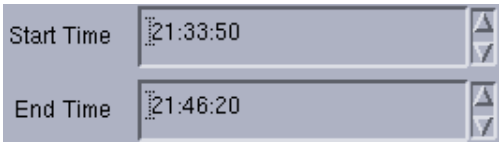


Figure 7-4: The Edit Scheduled Pass Dialog Box

Fields of the Edit Scheduled Pass Dialog Box

The **Telemetry, Telemetry Chain,** and **Priority** fields of the **Edit Scheduled Pass** dialog box have already been explained in conjunction with the **Schedule In-View Pass** dialog box. Please refer back to "Using the Schedule In-View Pass Dialog Box" starting on page 7-5 for explanation of those fields.

Start Time and End Time



Use the **Start Time** field to change the start time of a scheduled pass. Use the **End Time** field to change the end time of a scheduled pass. By adjusting scheduled pass times in this manner, you can shorten passes to resolve scheduling conflicts between passes that would otherwise overlap, thereby allowing both passes to be captured.

You can enter the time by typing it into the field, or you can click on the up/down arrows to increase or decrease the time in increments of 10 seconds.

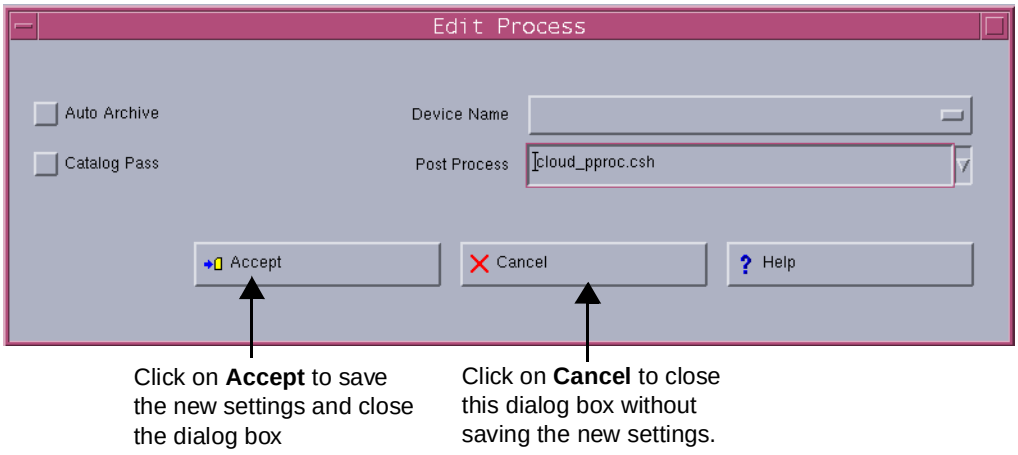


Figure 7-5: The Edit Process Dialog Box

Resolving Scheduling Conflicts

You can use the **Edit Scheduled Pass** dialog box to resolve a scheduling conflict between two overlapping passes. There are two options available for changing the outcome of a conflict:

(1) You could change the **Priority** of the passes so that the pass you prefer has a higher priority relative to the less-prefereable pass it conflicts with.

(2) You could shorten the duration of one or both passes so they no longer overlap: Either enter an earlier **End Time** for the pass that starts first, thus cutting off the last lines of the pass, or enter a later **Start Time** for the pass that starts second, thus cutting off the first lines of the pass, or change both the **End Time** of the first pass and the **Start Time** of the second pass to keep the passes from overlapping.

Using the Edit Process Dialog Box

From the **Edit Process** dialog box, you can edit the following parameters of a scheduled pass: **Auto Archive** on/off, **Device Name**, **Catalog Pass** on/off, and **Post Process**. To change one or more of these parameters for a scheduled pass:

1. Select the scheduled pass you want to edit from the pass list displayed on the TeraCapCon Main Window. (The **Scheduled Pass Filter** must be turned on in order for you to have **Scheduled** passes in the list.) The pass entry you select will become highlighted. You can edit multiple passes simultaneously.

2. Click on the **Edit Process** button on the bottom of the TeraCapCon Main Window. The **Edit Process** dialog box will appear on the screen as shown in Figure 7-5
3. Make the appropriate entries on the **Edit Scheduled Pass** dialog box, as explained under "Fields of the Edit Process Dialog Box" starting on page 7-10.
4. Click on the **Save** button at the bottom of the **Edit Process** dialog box to accept the changes you have made. The **Edit Process** dialog box will close and you will be returned to the TeraCapCon Main Window. (To cancel changes made and close the **Edit Process** dialog box, click on the **Cancel** button at the bottom of the dialog box.)

The changes made on the **Edit Process** dialog box will be reflected on the pass list, and you can select another pass from the list for editing if you want.

Fields of the Edit Process Dialog Box

The fields of the **Edit Process** dialog box have already been explained in conjunction with the **Schedule In-View Pass** dialog box. Please refer back to "Using the Schedule In-View Pass Dialog Box" starting on page 7-5 for explanation of those fields.

Deleting a Pass from the Capture Schedule

To delete passes from the pass capture schedule, select the pass or passes from the **Scheduled** list on the TeraCapCon Main Window, then click on the **Delete Pass** button at the bottom of the Window. You can select multiple passes and delete them all simultaneously.

All selected passes will be deleted from the capture schedule. To verify this, check the passes with a status of **S** in the displayed pass list. The **S** passes you had selected for deletion should no longer appear in the list.

Generating a New Capture Schedule

If you edit an autoschedule record, for example, to remove or add a satellite, you might want to update the existing pass capture schedule to reflect the changes made in the autoschedule record. Otherwise the capture schedule will not reflect the changed autoschedule record until the next time the record is processed by the scheduler daemon **tsched**.

To regenerate the pass capture schedule for your system, simply click on the **Synchronize Autoschedules** option available from theTeraCapCon **Schedule** menu. All the currently active autoschedule records will be immediately processed and the capture schedule (the list of **Scheduled** passes) will be updated accordingly.

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