Managing

Remote Access Concentrators Using Annex Manager

Use this manual to manage the hardware platforms RA2000, RA4000, RA6100, RA6300, Bay Networks 5391, Bay Networks 5393, and Bay Networks Model 5399 and Model 8000 Remote Access Concentrator Module

Marketing Release 5.1

Bay Networks

Bay Networks

Bay Networks, Inc. Software License Agreement

NOTICE: Please carefully read this license agreement before copying or using the accompanying software or installing the hardware unit with pre-enabled software (each of which is referred to as "Software" in this Agreement). BY COPYING OR USING THE SOFTWARE, YOU ACCEPT ALL OF THE TERMS AND CONDITIONS OF THIS LICENSE AGREEMENT. THE TERMS EXPRESSED IN THIS AGREEMENT ARE THE ONLY TERMS UNDER WHICH BAY NETWORKS WILL PERMIT YOU TO USE THE SOFTWARE. If you do not accept these terms and conditions, return the product, unused and in the original shipping container, within 30 days of purchase to obtain a credit for the full purchase price

1. License Grant. Bay Networks, Inc. ("Bay Networks") grants the end user of the Software ("Licensee") a personal, nonexclusive, nontransferable license: a) to use the Software either on a single computer or, if applicable, on a single authorized device identified by host ID, for which it was originally acquired; b) to copy the Software solely for backup purposes in support of authorized use of the Software; and c) to use and copy the associated user manual solely in support of authorized use of the Software by Licensee. This license applies to the Software only and does not extend to Bay Networks Agent software or other Bay Networks software products. Bay Networks Agent software or other Bay Networks software products are licensed for use under the terms of the applicable Bay Networks, Inc. Software License Agreement that accompanies such software and upon payment by the end user of the applicable license fees for such software.

2. Restrictions on use; reservation of rights. The Software and user manuals are protected under copyright laws. Bay Networks and/or its licensors retain all title and ownership in both the Software and user manuals, including any revisions made by Bay Networks or its licensors. The copyright notice must be reproduced and included with any copy of any portion of the Software or user manuals. Licensee may not modify, translate, decompile, disassemble, use for any competitive analysis, reverse engineer, distribute, or create derivative works from the Software or user manuals or any copy, in whole or in part. Except as expressly provided in this Agreement, Licensee may not copy or transfer the Software or user manuals, in whole or in part. The Software and user manuals embody Bay Networks' and its licensors' confidential and proprietary intellectual property. Licensee shall not sublicense, assign, or otherwise disclose to any third party the Software, or any information about the operation, design, performance, or implementation of the Software and user manuals that is confidential to Bay Networks and its licensors; however, Licensee may grant permission to its consultants, subcontractors, and agents to use the Software at Licensee's facility, provided they have agreed to use the Software only in accordance with the terms of this license.

3. Limited warranty. Bay Networks warrants each item of Software, as delivered by Bay Networks and properly installed and operated on Bay Networks hardware or other equipment it is originally licensed for, to function substantially as described in its accompanying user manual during its warranty period, which begins on the date Software is first shipped to Licensee. If any item of Software fails to so function during its warranty period, as the sole remedy Bay Networks will at its discretion provide a suitable fix, patch, or workaround for the problem that may be included in a future Software release. Bay Networks further warrants to Licensee that the media on which the Software is provided will be free from defects in materials and workmanship under normal use for a period of 90 days from the date Software is first shipped to Licensee. Bay Networks will replace defective media at no charge if it is returned to Bay Networks during the warranty

period along with proof of the date of shipment. This warranty does not apply if the media has been damaged as a result of accident, misuse, or abuse. The Licensee assumes all responsibility for selection of the Software to achieve Licensee's intended results and for the installation, use, and results obtained from the Software. Bay Networks does not warrant a) that the functions contained in the software will meet the Licensee's requirements, b) that the Software will operate in the hardware or software combinations that the Licensee may select, c) that the operation of the Software will be uninterrupted or error free, or d) that all defects in the operation of the Software will be corrected. Bay Networks is not obligated to remedy any Software defect that cannot be reproduced with the latest Software release. These warranties do not apply to the Software if it has been (i) altered, except by Bay Networks or in accordance with its instructions; (ii) used in conjunction with another vendor's product, resulting in the defect; or (iii) damaged by improper environment, abuse, misuse, accident, or negligence. THE FOREGOING WARRANTIES AND LIMITATIONS ARE EXCLUSIVE REMEDIES AND ARE IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Licensee is responsible for the security of its own data and information and for maintaining adequate procedures apart from the Software to reconstruct lost or altered files, data, or programs.

4. Limitation of liability. IN NO EVENT WILL BAY NETWORKS OR ITS LICENSORS BE LIABLE FOR ANY COST OF SUBSTITUTE PROCUREMENT; SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES; OR ANY DAMAGES RESULTING FROM INACCURATE OR LOST DATA OR LOSS OF USE OR PROFITS ARISING OUT OF OR IN CONNECTION WITH THE PERFORMANCE OF THE SOFTWARE, EVEN IF BAY NETWORKS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT SHALL THE LIABILITY OF BAY NETWORKS RELATING TO THE SOFTWARE OR THIS AGREEMENT EXCEED THE PRICE PAID TO BAY NETWORKS FOR THE SOFTWARE LICENSE.

5. Government Licensees. This provision applies to all Software and documentation acquired directly or indirectly by or on behalf of the United States Government. The Software and documentation are commercial products, licensed on the open market at market prices, and were developed entirely at private expense and without the use of any U.S. Government funds. The license to the U.S. Government is granted only with restricted rights, and use, duplication, or disclosure by the U.S. Government is subject to the restrictions set forth in subparagraph (c)(1) of the Commercial Computer Software—Restricted Rights clause of FAR 52.227-19 and the limitations set out in this license for civilian agencies, and subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause of DFARS 252.227-7013, for agencies of the Department of Defense or their successors, whichever is applicable.

6. Use of Software in the European Community. This provision applies to all Software acquired for use within the European Community. If Licensee uses the Software within a country in the European Community, the Software Directive enacted by the Council of European Communities Directive dated 14 May, 1991, will apply to the examination of the Software to facilitate interoperability. Licensee agrees to notify Bay Networks of any such intended examination of the Software and may procure support and assistance from Bay Networks.

7. Term and termination. This license is effective until terminated; however, all of the restrictions with respect to Bay Networks' copyright in the Software and user manuals will cease being effective at the date of expiration of the Bay

Networks copyright; those restrictions relating to use and disclosure of Bay Networks' confidential information shall continue in effect. Licensee may terminate this license at any time. The license will automatically terminate if Licensee fails to comply with any of the terms and conditions of the license. Upon termination for any reason, Licensee will immediately destroy or return to Bay Networks the Software, user manuals, and all copies. Bay Networks is not liable to Licensee for damages in any form solely by reason of the termination of this license.

8. Export and Re-export. Licensee agrees not to export, directly or indirectly, the Software or related technical data or information without first obtaining any required export licenses or other governmental approvals. Without limiting the foregoing, Licensee, on behalf of itself and its subsidiaries and affiliates, agrees that it will not, without first obtaining all export licenses and approvals required by the U.S. Government: (i) export, re-export, transfer, or divert any such Software or technical data, or any direct product thereof, to any country to which such exports or re-exports are restricted or embargoed under United States export control laws and regulations, or to any national or resident of such restricted or embargoed countries; or (ii) provide the Software or related technical data or information to any military end user or for any military end use, including the design, development, or production of any chemical, nuclear, or biological weapons.

9. General. If any provision of this Agreement is held to be invalid or unenforceable by a court of competent jurisdiction, the remainder of the provisions of this Agreement shall remain in full force and effect. This Agreement will be governed by the laws of the state of California.

Should you have any questions concerning this Agreement, contact Bay Networks, Inc., 4401 Great America Parkway, P.O. Box 58185, Santa Clara, California 95054-8185.

LICENSEE ACKNOWLEDGES THAT LICENSEE HAS READ THIS AGREEMENT, UNDERSTANDS IT, AND AGREES TO BE BOUND BY ITS TERMS AND CONDITIONS. LICENSEE FURTHER AGREES THAT THIS AGREEMENT IS THE ENTIRE AND EXCLUSIVE AGREEMENT BETWEEN BAY NETWORKS AND LICENSEE, WHICH SUPERSEDES ALL PRIOR ORAL AND WRITTEN AGREEMENTS AND COMMUNICATIONS BETWEEN THE PARTIES PERTAINING TO THE SUBJECT MATTER OF THIS AGREEMENT. NO DIFFERENT OR ADDITIONAL TERMS WILL BE ENFORCEABLE AGAINST BAY NETWORKS UNLESS BAY NETWORKS GIVES ITS EXPRESS WRITTEN CONSENT, INCLUDING AN EXPRESS WAIVER OF THE TERMS OF THIS AGREEMENT.

Contents

Appendix C
Windows Tutorial

Appendix D
Help Reference

If you are responsible for managing Remote Access Concentrators and similar devices you need to read this guide.

Before You Begin

Make sure that you are running the latest version of Annex Manager.

Conventions

This manual uses the following printing conventions:

Convention:	Represents:
`special type`	In examples, `special type` indicates system output.
italics	In the context of commands and command syntax, lowercase italics indicate variables for which the user supplies a value.
	Notes provide important information.
	Warnings inform you about conditions that can have adverse effects on processing.

Acronyms

GUI	graphical user interface
IP	Internet Protocol
ISDN	Integrated Services Digital Network
LAN	local area network
PPP	Point-to-Point Protocol
SNMP	Simple Network Management Protocol
TCP/IP	Transmission Control Protocol/Internet Protocol
Telnet	Telecommunication Network
WAN	wide area network

Ordering Bay Networks Publications

To purchase additional copies of this document or other Bay Networks publications, order by part number from Bay Networks Press™ at the following numbers:

- Phone--U.S./Canada: 888-422-9773
- Phone--International: 510-490-4752
- FAX--U.S./Canada and International: 510-498-2609

The Bay Networks Press catalog is available on the World Wide Web at *support.baynetworks.com/Library/GenMisc*. Bay Networks publications are available on the World Wide Web at *support.baynetworks.com/Library/tpubs*.

Bay Networks Customer Service

You can purchase a support contract from your Bay Networks distributor or authorized reseller, or directly from Bay Networks Services. For information about, or to purchase a Bay Networks service contract, either call your local Bay Networks field sales office or one of the following numbers:

Region	Telephone number	Fax number
United States and Canada	800-2LANWAN; then enter Express Routing Code (ERC) 290, when prompted, to purchase or renew a service contract 508-916-8880 (direct)	508-916-3514
Europe	33-4-92-96-69-66	33-4-92-96-69-96
Asia/Pacific	61-2-9927-8888	61-2-9927-8899
Latin America	561-988-7661	561-988-7550

Information about customer service is also available on the World Wide Web at *support.baynetworks.com*.

How to Get Help

If you purchased a service contract for your Bay Networks product from a distributor or authorized reseller, contact the technical support staff for that distributor or reseller for assistance.

If you purchased a Bay Networks service program, call one of the following Bay Networks Technical Solutions Centers:

Technical Solutions Center	Telephone number	Fax number
Billerica, MA	800-2LANWAN	508-916-3514
Santa Clara, CA	800-2LANWAN	408-495-1188
Valbonne, France	33-4-92-96-69-68	33-4-92-96-69-98
Sydney, Australia	61-2-9927-8800	61-2-9927-8811
Tokyo, Japan	81-3-5402-0180	81-3-5402-0173

Introduction

Annex Manager allows system administrators to monitor and configure model 8000 Remote Access Concentrators (RACs) and Annexes in a network. The 8000 RAC is a stand alone version of the 5399.

Annex Manager is a host-based, window-oriented, configuration and management application designed to manage Bay Networks® remote access communication servers.

Annex Manager offers the functions of the older RAC host-based na configuration tool in an easier to use format. In addition, it provides monitoring capabilities that were previously available only by connecting directly to the RAC.

Annex Manager Features

Annex Manager lets you:

- Configure RACs using Setup or Customize mode:
  - Setup mode lets you configure one or more RACs by setting the most commonly used parameters.
  - Customize mode allows users to set individual RAC parameters and provides access to all main menu commands.
- Simplify configuration operations using pre-defined parameter groups.
- Create additional parameter groups for easy configuration.
- Display online documentation for all RAC configuration parameters and for all Annex Manager windows and fields.
- Show and set values for all RAC configuration parameters.

- Save current configuration parameter settings into script files and restore settings from these files. Using script commands, you can:

  – Create ASCII text files and edit them with standard workstation editors.

  – Use predefined configuration script files to configure RACs and ports.

- Compare parameters and values for two RACs, for a RAC and a script, or for two scripts.

- Copy the current parameter settings from one port to another or from one RAC to another.

- Retrieve basic status and statistics information from a RAC or from a specific port on more than one RAC.

- Define site specific defaults.

- Identify RACs in the network.

- Save lists of RAC names or addresses.

- Display default values for each configuration parameter.

- Boot and reset RACs.

- Edit RAC configuration file.

- Reset ports or RAC subsystems automatically after you change parameter settings.

Supported RAC Hardware and Software

Software release 5.1 supports the 8000 RAC hardware platform and adds new software features such as support for the RADIUS protocol in the Remote Annex and Multi-System Multiline PPP.

Release 5.1 applies to all Remote Annex products, including:

- RA2000, RA4000, RA6100, RA6300
- 5390, 5391, 5393, 5399, 8000
- 3COM 6117C-XS and 6133C-XS
- CSMIM-II, Micro CS, MODMIM, and CSMIM-T1

Annex Manager supports Annex software versions 13.3 and 14.0.

Annex Manager Environment

Annex Manager is an SNMP-based management application that uses the X/Motif graphical environment for its user interface and the standard SNMP protocol to send commands to the RAC. Since it is designed to run stand-alone, Annex Manager includes statically linked SNMP protocol routines and the X/Motif binary libraries. The installation process copies the appropriate binary executable and all the associated help and data files from the distribution media to the workstation's disk storage. Although it is not a requirement, you should consider installing Annex Manager on the same workstation you use for the RAC software installation.

Annex Manager depends on the proprietary MIB defined for the RAC and on the various standard MIBs supported by the RAC. As such, Annex Manager cannot manage other SNMP-manageable nodes in the network, and is not intended to be a generic SNMP management tool.

Annex Manager can be loosely coupled with several standard network management products such as SunNet Manager, HP/Openview, or IBM Netview for AIX. However, Annex Manager is not tightly integrated with these products.

System Requirements

Release 3.0 of Annex Manager is intended to run on a workstation running BSD UNIX (Sun Sparc, HP, RS/6000). The following sections list the hardware and software requirements for installing and running Annex Manager.

Memory Requirements

You must have at least 10 MB of free disk space available prior to installation. Bay Networks recommends at least 32 MB of RAM, although specific memory requirements vary depending on the type of workstation and the other tasks that run concurrently with Annex Manager.

Annex Manager works best with a color monitor directly attached to the workstation or a color X-window terminal connected to the UNIX host over the network. Annex Manager also supports a gray-scale X-window terminal attached to the workstation. Any X-window terminal used with Annex Manager must have at least 2 MB of RAM.

Platforms and Hardware

Annex Manager runs on the following platforms and hardware:

- NT on Intel Systems 3.51, 4.0
- NT on DEC Alpha 4.0
- SunOS 4.1.3U and 4.1.4 on SPARC Systems
- Sun Solaris 2.4, 2.5, and 2.5.1 on SPARC Systems
- IBM RS6000 4.1.4, 4.1.5, 4.2
- HP9000 10.10, 10.20
- Linux 2.0.18

Starting Annex Manager

T his chapter tells you how to start Annex Manager and describes the
Main window.

Starting Annex Manager

To start Annex Manager and see a list of all the RACs available on your
local network, type:

> *%gui_am &*

To start Annex Manager and skip the Annex list, type:

> *%gui_am -nod &*

The Annex Manager *Main* window appears (Figure 1-1).
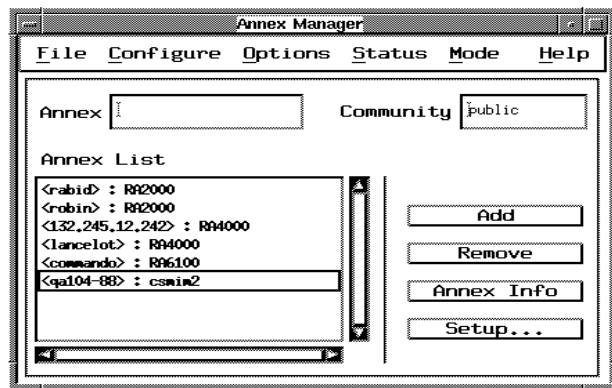
Figure 1-1. Main Window

Unless you disabled the automatic Annex list process when you started
Annex Manager, a window appears indicating that the process is taking
place (Figure 1-2).
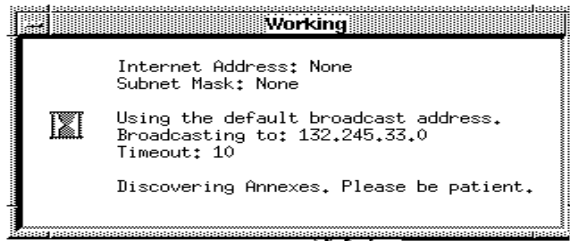
Figure 1-2. Automatic Discovery Process Window

As Figure 1-2 shows, this message window indicates that you did not enter a specific *Internet Address* or *Subnet Mask*. In addition, it includes the default broadcast address for your local network, and a default timeout value.

> You can use the *-dn* (Discover Network), *-ds* (Discover Subnet mask), *-dt* (Discover Timeout), and *-nod* (No Discovery) command arguments when you start Annex Manager to override default settings. For example, you can type *gui_am -dn 132.245.88.0 -ds 255.255.255.0 -dt 5* to discover RACs for the 132.245.88.0 internet address and 255.255.255.0 subnet mask with a response time of 5 seconds. You cannot use *-dn* and *-ds* separately. Annex Manager does not require that you enter a new timeout value.

When Annex Manager completes the discovery process, a window lists the number of RACs to be loaded in the Annex List (Figure 1-3).
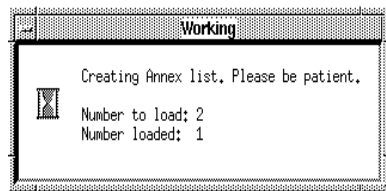
Figure 1-3. Creating Annex List Window

The Annex List box in the *Main* window (Figure 1-4) includes all available RACs on your local network.
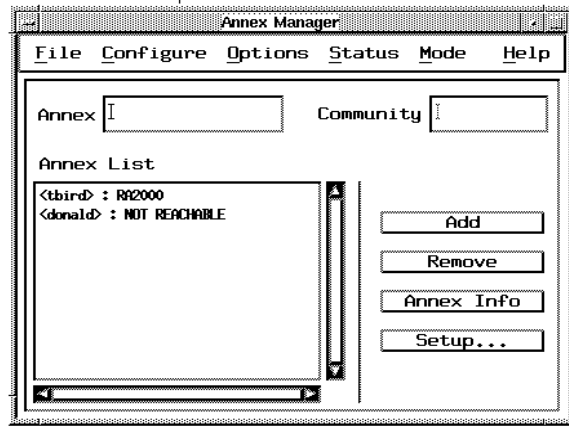
Figure 1-4. Main Window with Annex List

Setup and Customize Modes

Annex Manager provides two modes:

- Setup mode allows you to configure one or more RACs quickly. It provides a series of windows that allow you to choose basic RAC and port settings. The *Main* window appears in Setup mode when Annex Manager appears on your desktop.

- Customize mode allows you to set any RAC parameter. You can choose parameter values using a group of related parameters, or you can select one or more individual parameters.

Setup Mode

The *Main* window first appears in Setup mode (Figure 1-5).
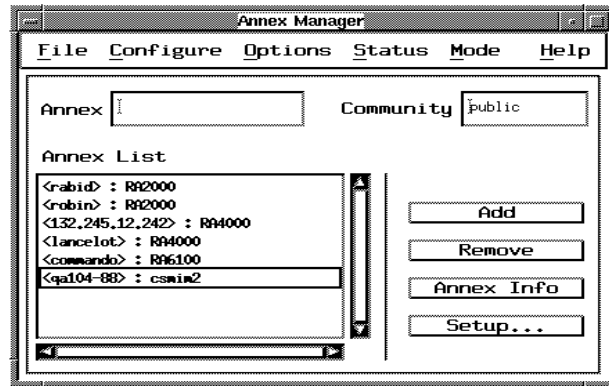
Figure 1-5. Main Window in Setup Mode

In Setup mode you use the *Main* window to enter one or more RAC names or IP addresses, add or remove RACs from the list, and display the Setup mode windows.

Setup mode allows you limited access to the Annex Manager pull-down menu. You cannot choose the *View Script*, *Create Script*, *Compare*, *Copy*, *Execute Script*, *Show*, *Set*, *User-defined Parameter Groups*, or *Site Parameters* commands.

Customize Mode

To enter Customize mode, select Customize from the *Mode* menu in the *Main* window. The window expands into Customize mode (Figure 1-6).
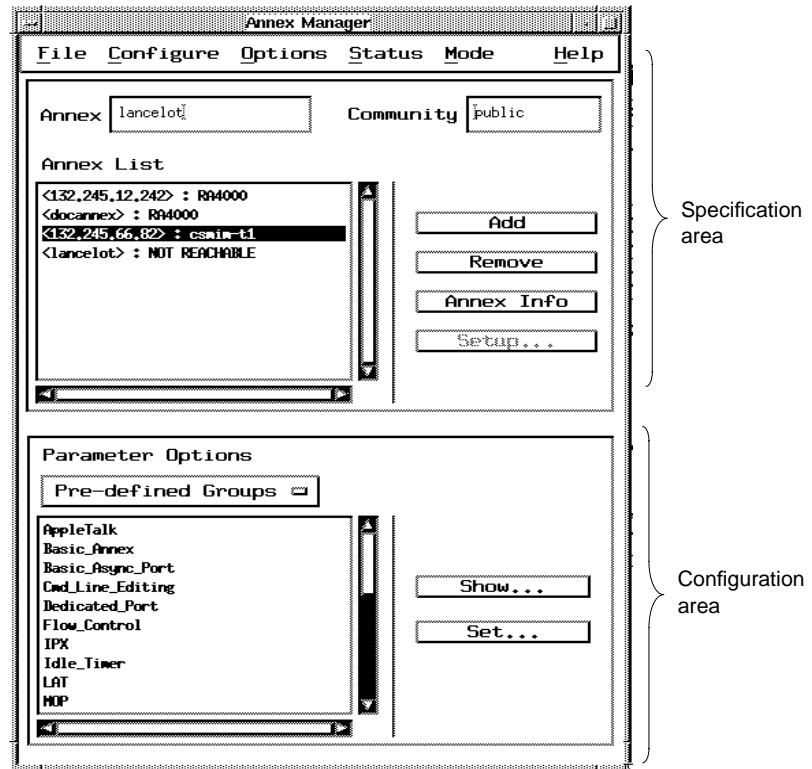
Figure 1-6. Main Window in Customize Mode

In Customize mode you have access to all Annex Manager commands.

In Customize mode the *Main* window is divided into specification and configuration areas. These areas work together, allowing you to select RAC names and parameter options.

- In the specification area you can select one or more RACs from a list. This area also appears in Setup mode.

- In the configuration area you choose the parameter groups or lists for the RACs you selected. This area appears only in Customize mode.

The information required in the specification and configuration areas depends on the command you choose. When you complete required

information, you can use Setup windows and other Annex Manager commands.

The *Main* window displays at all times when you use Annex Manager. In Customize mode, you can return to this window at any time to change list or parameter information. In Setup mode, you must close all other Setup windows before you can return to the *Main* window.

The Specification Area

The specification area of the *Main* window stores a RAC list. The Annex Manager configuration and status commands work for the RACs that appear on the list.

Chapter 2
Creating and Using RAC Lists

A basic function of Annex Manager is the creation of lists of RACs and other devices such as Annexes in your local network. You then use these lists for various Annex Manager functions. Most of the functions described in this book require you to first create a RAC list.

This chapter tells you how to create, view, and change RAC lists.

Creating a RAC List

As discussed in *Starting Annex Manager on page 1-1*, the Annex List box in the *Main* window (Figure 2-1) includes all available RACs on your local network. This is the master list you work from to create your own RAC lists.
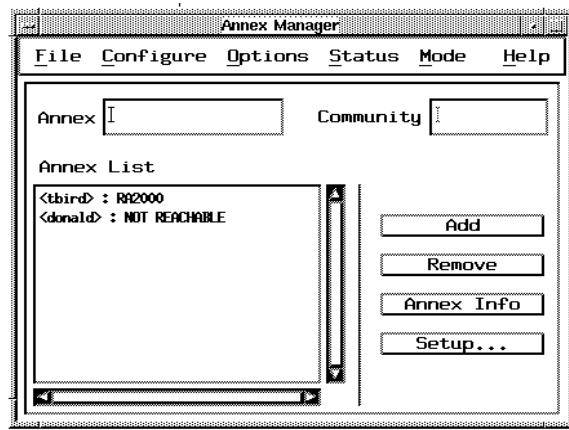
Figure 2-1. Main Window with Annex List

When you create a RAC list, Annex Manager verifies the name you enter and displays it, with its hardware type, in the *Annex List* box.

To create a RAC list:

1.   In the *Main* **window, enter a RAC name or IP address in the** *Annex*
field ([Figure 2-2](#)).

You can enter a RAC name or its IP address. If you add a RAC to
this list using one identifier (e.g., a name) and repeat the process
using the other identifier (e.g., the IP address) for the same RAC,
a message informs you that the RAC is already included in the list.

If you enter a device with which Annex Manager cannot
communicate using SNMP, *NOT REACHABLE* displays in place of
the RAC type. If you enter a device name that responds to SNMP
but is not a RAC, or if you enter the name of an unknown device,
a warning message informs you that the device cannot be added to
the list.
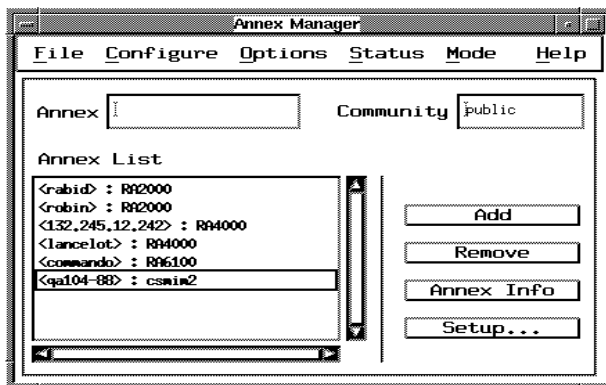
Figure 2-2. An Annex List in the Main Window

2.   Enter the RAC SNMP community string in the *Community* **field.**

The default string for the RAC is *public*. This string appears
automatically if you do not complete this field.

If you enter a valid RAC name and an incorrect SNMP
community string, the RAC appears in the list as *NOT
REACHABLE*.

3.   Click *Add* **or press Enter.**

The RAC name appears in the list box. All names appear in the
order in which you enter them.

4. **Repeat Steps 1 through 3 for as many RACs as you want on your list.**

If you use *public* as your community string, you can skip steps 2 and 3 by entering a RAC name and pressing Enter or Add. The default community string displays and the RAC name appears in the list.

If you need to add RACs later, repeat these steps.

5. **Save the list as described in the next section.**

Saving RAC Lists

You may want to save a RAC list after you have created or changed it. When you save a list Annex Manager stores community string, timeout, and retry information for each RAC.

To save a RAC list:

1. **Create a RAC list as described in the previous section.**

2. **Select the File menu and click** *Save Annex List.*

   The *Annex List Selection* window appears ().
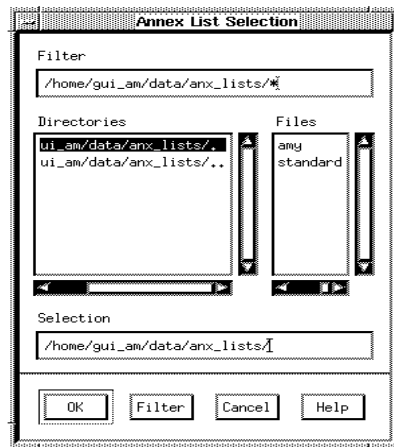
Figure 2-3. Save Annex List Selection Window

3.   **The** *Annex List Selection* **window displays the default list directory. Although you can select another directory, it is efficient to save RAC files in this directory.**

4.   **Either:**

   •   Select an existing list from the list names in the *Files* window. When you select an existing list, a window appears that allows you to verify your choice. You cannot overwrite a list that someone else created.

                                   OR

   •   Create a new list by entering a new file name in the *Files* window or a new path and name.

5.   **Click** *OK.*

Annex Manager saves the list in the file you specified.

Opening a RAC List

Open Annex List opens any list you previously saved so you can use it for Annex Manager processing.

To open a saved list:

1.   **Select the File menu and click** *Open Annex List.*

   The *Annex List Selection* window appears (<u>Figure 2-4</u>).
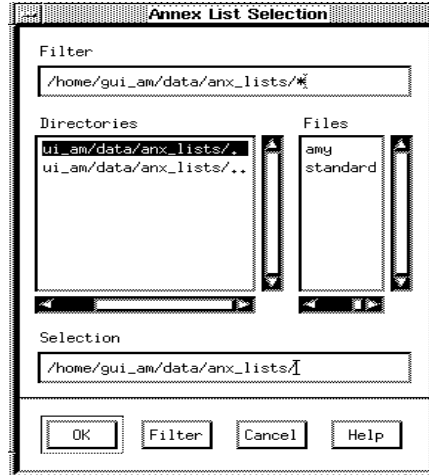
Figure 2-4. Annex List Selection Window

2.   Choose a list from the *Files* **box and click** *OK* **or press Enter**.

(If you store lists in another directory, enter a path and file name in the Selection field instead.)

Annex Manager attempts to communicate with each device on the list and displays either its type or the NOT REACHABLE designation. The list appears in the *Main* window specification area, replacing the new list.

You can now work with this list.

Editing List Files

You can use an ASCII editor to change the list files you save in the selection window. Annex Manager verifies each file according to its first four lines.

When you edit these files you *must* use Annex Manager conventions.

List files always begin with:

```
#
# DB_VERSION: V1.0
# FORMAT: Annex Name | Community String | Timeout | Retries
#
```

For example, you might enter *emma|public|2|2*. You can enter comment lines as long as each line begins with the pound sign (*#*). Annex Manager processing ignores these lines.

Selecting RACs in Lists

Many Annex Manager commands require you to select RACs from the *Main* window list. To select one or more RACs:

1. **Create a RAC list. See on page 2-1, *Creating a RAC List*.**

2. **Click the mouse button on each RAC you want.**

   You can select as many RACs as you like. (Some commands allow you to select only one RAC.) To deselect a RAC, hold Ctrl and click on any highlighted item. To display RAC information, click *Annex Info* or double click any RAC name in the list.

Changing RAC Lists

As you use commands to configure RACs you may need to change your original RAC list. You can change or verify list items at any time by using specification area buttons:

- *Add* adds a RAC to the existing list.

- *Remove* removes one or more devices from the list.

- *Annex Info* displays basic information about any RAC you select.

Adding a RAC

To add a RAC to a list:

1. **Enter a RAC name and a community string.**

   If you use the default community string (public) you do not need to complete this field.

2. **Click** *Add* **or press Return**.

   The device you entered appears in the *Annex list* box.

Deleting a RAC

To delete a device from an existing list:

1. **Select one or more devices from the list box.**

   Annex Manager highlights your selections.

2. **Click** *Remove***.**

   Annex Manager removes the devices you selected.

Displaying RAC Information

To display basic information about a RAC:

1.   Select a single RAC from the list box.

Annex Manager highlights your selection. If you select more than one RAC, a warning window informs you that the *Annex Info* window contains information about the first RAC you selected.

You can select a RAC and choose *Verify Annex State* from the Status menu to insure that the *Annex Info* window displays current information.

2.   Click *Annex Info* **or press Enter.**

The *Annex Info* window appears (Figure 1-24).
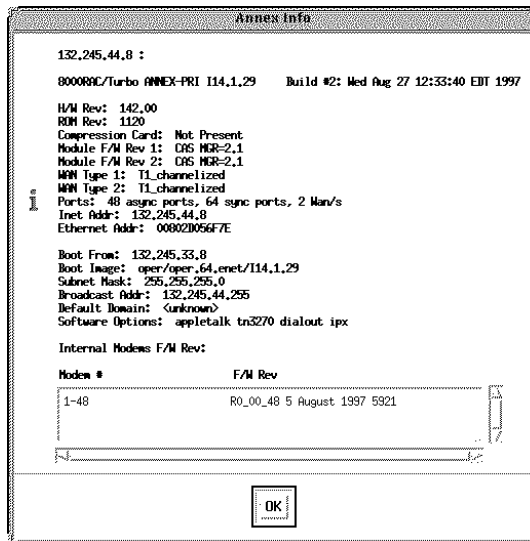
Figure 2-5. Annex Info Window

Verifying RAC Status

Because a RAC list can contain RACs or other devices that are not reachable, you may want to verify the status of these items.

To verify information about a RAC list device or to change the list:

1. **Select one or more items from the** *Annex list* **box.**

2. **Select** *Verify Annex State* **from the Status menu.**

    If you select a RAC whose status has changed from *NOT REACHABLE,* the RAC type replaces the original message. If you select a device that is now reachable but is not a RAC, Annex Manager removes it from the list.

    If a RAC has the *NOT REACHABLE* status because you added it using an invalid community string, and you use *Verify Annex State* again, Annex Manager attempts to connect using the original string. If this string differs from the one currently displayed in the *Community* field, Annex Manager attempts to connect using the string that appears in the field.

Chapter 3
Determining RAC Status

Annex Manager retrieves information about the status of a RAC or an Annex, its ports, and its interfaces. Status commands display hardware and software information as well as basic performance statistics. In addition, Annex Manager provides the *Discover Annexes* command. This command identifies all RACs known to a search device by retrieving its routing table. This chapter tells you how to:

- *Display RAC or Annex Status Information*

- *Display Asynchronous Port Status Information*

- *Display Interface Status Information*

- *Display PRI Channels Status Information*

- *Display PRI Internal CSU Status Information*

- *Display T1 Internal CSU Status Information*

- *Display T1 Modem Calls Status Information*

- *Display DVS Status Information*

- *Identify RACs or Annexes*

All status windows are snapshots of current values: status commands do not provide active polling of data. These commands and the *Discover Annexes* command provide information for display only and do not change RAC configurations.

Displaying RAC Status Information

This section tells you how to display basic information about a single RAC or Annex.

To display information about a single RAC:

1.   Create a RAC list (page 2-1).

2.   Select a single RAC from the list.

You cannot get status information for more than one device at a time.

3.   On the Status menu, click *Annex Status.*

The *Annex Status* window appears (Figure 3-1). The name of the RAC you selected appears in the window title bar. The fields in this window are described in *The Annex Status Window on page 3-3*.
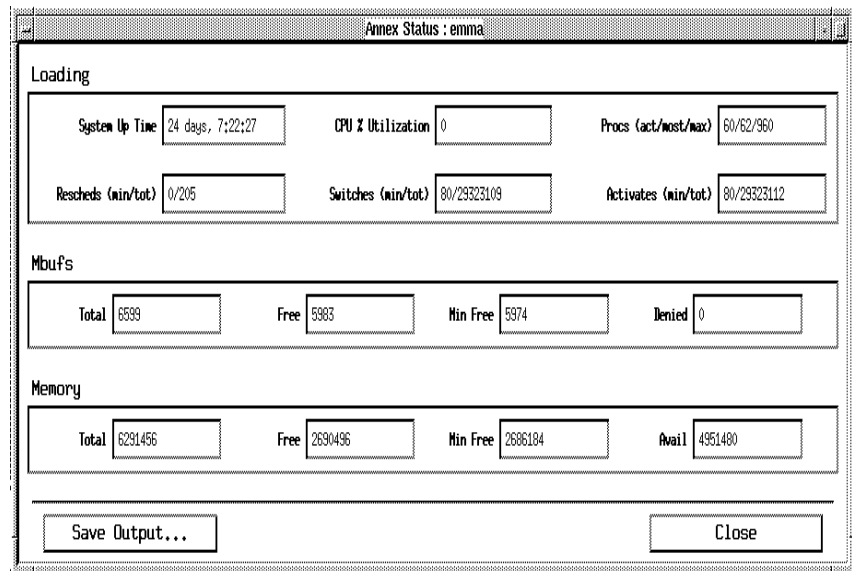
Figure 3-1. Annex Status Window

4.   **To optionally save the contents of this window, click** *Save Output ...*

The *File Selection* window displays. This window includes the default text directory. Enter a file name in the *Selection* field and click OK to store the contents of the *Annex Status* window output box or click Cancel to return to the *Annex Status* window.

5.   **Click** *Close* **to close the window.**

The Annex Status Window

The *Annex Status* window uses text fields to display information about a single RAC. You cannot change information in this window.

Annex Status displays information in *Loading*, *Mbufs,* and *Memory* boxes. Each box groups information in text fields.

Loading Box

The *Loading* box provides information about activity on the RAC using the following fields:

- *System Up Time* provides the time since the RAC was booted in days, hours, minutes, and seconds.

- *Rescheds (min/tot)* displays the number of processes whose time slice expired in the last minute followed by the number of processes whose time slice expired since the RAC was booted.

- *CPU% Utilization* displays the percentage of CPU resources currently being used.

- *Switches (min/tot)* lists the number of context switches in the last minute *(min)* followed by the number of context switches since the RAC was booted *(tot)*.

- *Procs (act/most/max)* displays the number of currently active processes (*act*), the largest number of active processes since the RAC was booted (*most*), and the total number of process structures allocated (*max*).

   • *Activates (min/tot)* supplies the number of processes activated during the last minute (*min*), followed by the number of processes activated since the RAC last booted (*tot*).

Mbufs Box

The *Mbufs* (memory buffer) box provides information about the number and use of memory buffers in the RAC.

   • *Total* indicates the number of memory buffers allocated by the RAC kernel.

   • *Free* provides the number of currently available memory buffers.

   • *Min Free* shows the smallest number of memory buffers that is available since the RAC was booted.

   • *Denied* indicates the number of times a process was denied a memory buffer because the buffer was not available.

Memory Box

The *Memory* box provides statistics about the memory of a RAC:

   • *Total* shows the total memory measured in bytes.

   • *Free* indicates the amount of currently available memory.

   • *Min Free* provides the lowest amount of free memory that is available since the RAC was booted.

   • *Avail* indicates the amount of memory that was available immediately after the RAC was booted.

There may be a problem with RAC software if:

   • *Denied* shows a number other than zero.

   • *Min Free* displays zero or its value slowly decreases over time.

If you encounter these circumstances, contact Bay Networks technical support.

Displaying Asynchronous Port Status Information

This section describes how to view information about one or more asynchronous ports for a RAC.

To view asynchronous port information for a single RAC:

1.   **Create a RAC list (page 2-1).**

2.   **Select a single RAC from the list.**

3.   **On the Status menu, click** *Async Port Status***.**

Not all devices support asynchronous ports. If the devices selected do not support asynchronous ports, this option is grayed out.

The *Annex Async Port Status* window appears (Figure 3-2). The name of the RAC you selected appears in the window title bar. Figure 3-2 shows the window for three asynchronous ports.

The fields in this window are describe in *The Annex Async Port Status Window on page 3-6*.
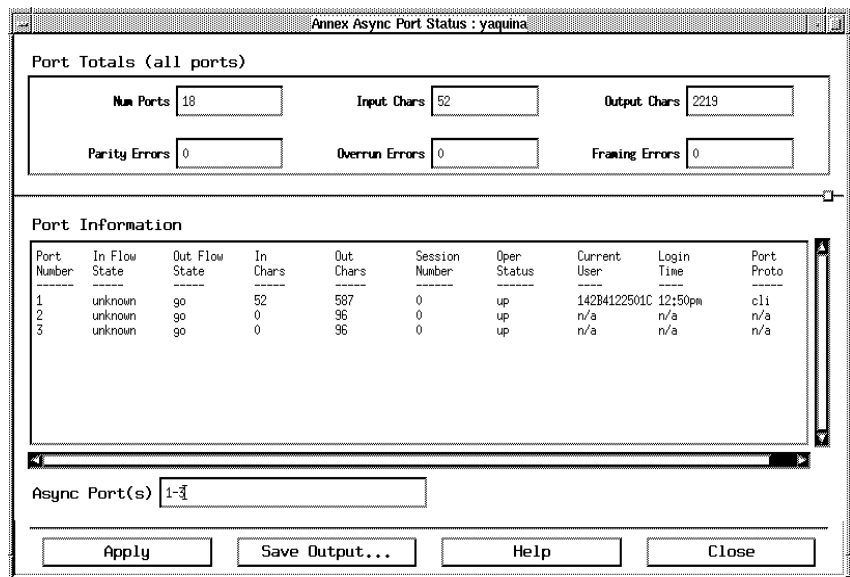
Figure 3-2. Annex Async Port Status Window

4. **Enter the port numbers you need in the** *Async Port(s)* **field.**

    You can enter one or more numbers, a range of numbers separated by commas or dashes, or *all.*

5. **Click** *Apply.*

    Port status information appears in the *Port Totals* and *Port Information* boxes.

6. **To optionally save the contents of this window, click**
    Save Output ...

    The *File Selection* window displays. This window includes the default text directory. Enter a file name in the *Selection* field and click *OK* to store the contents of the *Annex Async Port Status* window output box or click *Cancel* to return to the *Annex Async Port Status* window.

7. **Click** *Close* **to close the window.**

The Annex Async Port Status Window

The *Annex Async Port Status* window displays information in the *Port Totals* and *Port Information* boxes. In addition, it includes a port number field. Like all RAC status commands, you cannot change a RAC configuration from this window.

Port Totals Box

Annex Async Port Status displays information in the *Port Totals* and *Port Information* boxes. The *Port Totals* box gives you statistics for all asynchronous ports from the time the RAC was last booted or reset. This box includes the following fields:

•   *Num Ports* displays the total number of asynchronous ports on the RAC you selected.

•   *Input Chars* shows the total number of characters received.

•   *Output Chars* lists the total number of characters transmitted.

•   *Parity Errors* indicates the total number of parity errors detected.

- *Overrun Errors* displays the total number of overrun errors.

- *Framing Errors* displays the total number of framing errors detected.

Port Information Box

The *Port Information* box displays statistics for each port you entered in the *Async Port(s)* field. This box includes the following categories:

- *Port Number* shows the port numbers you entered. Each number appears on a separate line.

- *In Flow State* shows the current status of input flow control. If the field displays:

  – *Go*, flow control is allowed.

  – *Stop*, flow control is not allowed.

  – *None*, flow control is not applicable for this port.

  – *Unknown*, the flow control status cannot be identified.

- *Out Flow State* shows the current status of output flow control. If the field displays:

  – *Go*, flow control is allowed.

  – *Stop*, flow control is not allowed.

  – *None*, flow control is not applicable for this port.

  – *Unknown*, the flow control status cannot be determined.

- *In Chars* displays the number of characters received by each port.

- *Out Chars* indicates the number of characters transmitted from each port.

- *Session Number* provides the number of open sessions on the port that is connected, connecting, or disconnecting.

●   *Oper Status* shows the operational state of a port, independent of flow control. If this field displays:

  –   *Up*, the port is functioning normally.

  –   *Down*, the port is not functioning.

  –   *Active*, the port is up and a user is logged in.

●   *Current User* identifies the user logged in to the ports you selected.

●   *Login Time* displays the day and time that the port was opened according to the RAC clock.

●   *Port Proto* defines the protocol that is active on a port. This field can display the following codes.

  –   *Cli* indicates that this is a CLI port opened by a device connected to the port or by a connection from a host as a virtual CLI.

  –   *psvr* indicates that this is a slave port.

  –   *vcli* indicates that this is a virtual port.

  –   *dp* defines a dedicated port.

  –   *lpd* indicates that the port is using the RAC line printer daemon.

  –   *ppp* indicates that the PPP protocol is active.

  –   *slip* indicates that the SLIP protocol is active.

  –   *arap* indicates that the ARAP protocol is active.

  –   *ftp* indicates that the port is an FTP interface.

  –   *ndp* indicates that the port is a Novell dedicated port.

  –   *ipx* indicates that the port is a dedicated IPX port used only for dial-in access.

  –   *dyndial* defines a dynamic dial port.

Displaying Interface Status Information

To display information about a RAC interface:

1.   **Create a RAC list (page 2-1) and select a single RAC.**

2.   **On the Status menu, click** *Interface***.**

The *Annex Interface Status* window appears (Figure 3-3). The name
of the RAC you selected appears in the title bar. A description of
this window appears in *The Annex Interface Status Window on page
3-10*.
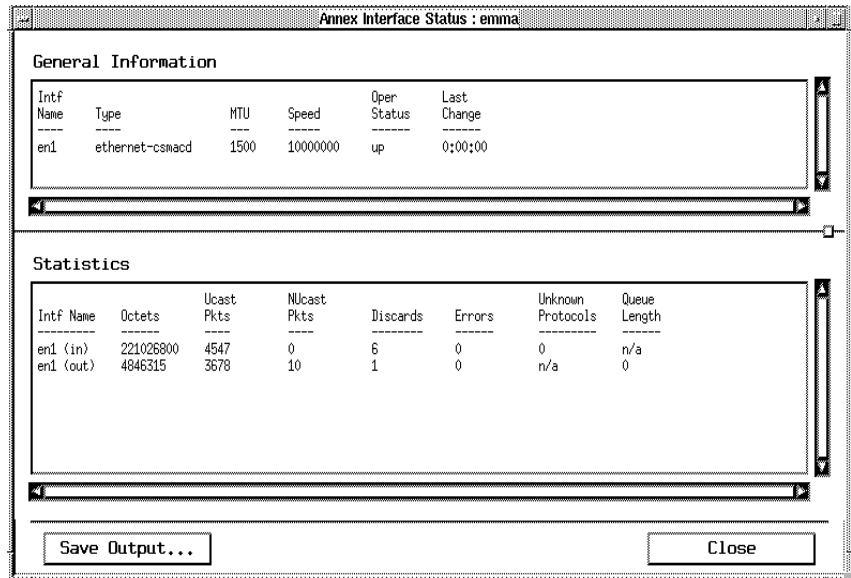
Figure 3-3. Annex Interface Status Window

3.   **Optionally click** *Save Output ...* **to save the screen output to a file.**

Save Output ... displays the standard *File Selection* window,
which includes the default text directory. You can enter a file
name in the *Selection* field and click *OK* to store the contents of
the *Annex Interface Status* window output box or Cancel to return
to the *Annex Interface Status* window.

4.   **Click** *Close* **to close the window.**

The Annex Interface Status Window

The *Annex Interface Status* window displays information in *General Information* and *Statistics* boxes. Like all RAC status commands, you cannot change a RAC configuration from this window.

General Information Box

The *General Information* box provides basic interface information for the RAC you selected. This box includes the following categories:

- *Intf Name* provides a text description of the interface. This can include the interface name, manufacturer, and version identifier.

- *Type* categorizes the interface according to the physical/link protocols immediately below the network layer.

- *MTU* (Maximum Transmission Unit) shows the size of the largest packet (in octets) that the interface can send or receive.

- *Speed* displays an estimate of the current bandwidth of the interface in bits per second.

- *Oper Status* shows the current operational state of the interface. This field can display *Up* or *Down.*

- *Last Change* indicates the time at which the interface entered its current operational state.

Statistics Box

The *Statistics* box displays statistics related to traffic on each interface. This box uses a separate line for information about incoming and outgoing traffic. It includes the following categories:

- *Intf Name* provides a text description of the interface.

- *Octets* shows the total number of octets received or transmitted on the interface, including framing characters.

- *Ucast Pkts* lists the number of subnetwork-unicast packets received from or delivered to a higher-layer protocol.

- *NUcast Pkts* lists the number of subnetwork-broadcast or subnetwork-multicast packets received from or sent to a higher-layer protocol.

- *Discards* displays the number of inbound or outbound packets that could not be delivered to a higher-layer protocol. Packets may not have errors and be discarded due to lack of buffer space.

- *Errors* provides the number of packets that could not be received or transmitted due to errors.

- *Unknown Protocols* lists the number of inbound packets discarded because of unknown or unsupported protocols.

- *Queue Length* displays the number of outbound packets in the packet queue.

Displaying PRI Channels Status Information

You can only view information about B channels with established calls on a single ISDN Primary Rate Interface (PRI) RAC.

To display B channel information:

1. **Create a RAC list (page 2-1).**

2. **Select a single ISDN Primary Rate RAC.**

3. **On the** *Status* **menu, click** *PRI***, then click** *Choose Channels.*

    The *Annex PRI Channels Status* window appears (Figure 3-4). A description of this window appears in. *Annex PRI Channels Status Window on page 3-12*.

Figure 3-4. Annex PRI Channels Status Window

4.   Enter one or more B-channel numbers.

Before you can display PRI channel statistics you must complete the *Channel(s)* field located below the *Sync Information* box. If you want to change the sorting order for statistics, use the *Sort Options* buttons.

The *Channel(s)* field accepts one or more B-channel numbers.You can separate numbers with commas or indicate a range of numbers using dashes. For example, you might enter *1, 20* to specify two channels, or *1-10, 20* to specify channels 1 through 10 and channel 20. In addition, you can enter *all*.

5.   Select an option from the Sort Options buttons.

The *Sort Options* buttons control how the *Async Information* and *Sync Information* boxes list information.

You can choose *Channel* to sort information according to channel number or *User* to sort information by user name.

6.   Optionally click *Save Output ...* **to save the screen output to a file.**

Save Output ... displays the standard *File Selection* window, which includes the default text directory. You can enter a file name in the *Selection* field and click *OK* to store the contents of the *Annex Interface Status* window output box or *Cancel* to return to the *Annex Interface Status* window.

7.   Click *Apply.*

The RAC statistics appear.

8.   Click *Close* **to close the window.**

The Annex PRI Channels Status Window

The *Annex PRI Channels Status* window displays information in the *Async Information* and *Sync Information* boxes. In addition, it includes the *Channel(s)* field and *Sort Options* buttons. Like all RAC status commands, you cannot change a RAC configuration from this window.

Information Boxes

Annex PRI Channels Status window displays information in the *Async Information,* and *Sync Information* boxes. Since the ISDN Primary Rate RAC assigns calls to channels based on call characteristics, a single channel can appear in the *Async Information* or *Sync Information* box:

- The *Async Information* box lists information about asynchronous or V.120 calls.

- The *Sync Information* box includes information about synchronous calls.

Each box lists information in the following categories:

- *Channel* lists the B-channel number you entered in the *Channel(s)* field.

- *Call Type* categorizes a call using a code and a number representing the modem or the logical connection assigned to a call.

    – The *Async Information* box lists asynchronous calls as *asy* and V.120 calls as *ta*.

    – The *Sync Information* box lists calls as *syn*.

- *Called #* identifies the telephone number the user entered to dial into the RAC.

- *Calling #* identifies the telephone number from which the call originated.

- *User* lists the user name.

Displaying PRI Internal CSU Status Information

To display PRI internal CSU status information:

1. **Create a RAC list (page 2-1) and select a single RAC that contains a CSU interface from the list.**

2. **On the Status menu click** *PRI* **and Choose** *Internal CSU***.**

   The *Annex PRI Internal CSU Status* window appears. (Figure 3-5). This window is described in *The Annex PRI Internal CSU Status Window on page 3-17*.

3. **Select an option from the menu next to** *Interval(s)***.**

   Before you can display PRI Internal CSU statistics you must complete the *Interval(s)* field.

   The T1 engine records ninety-six 15-minute intervals.

   You can select:

   - *Specified* to view *PRI Internal CSU* statistics for one or more intervals.

   - *Current* to see *PRI Internal CSU* statistics for the current interval.

   - *Total* to display cumulative statistics for each of the 96 intervals.

   If you select *Specified*, you must complete the text field.

Figure 3-5. Annex PRI Internal CSU Status Window

4.   Enter one or more interval numbers in the text field.

To enter specific intervals, separate interval numbers with commas
or indicate a range of numbers using dashes. For example, enter *1,
3, 8* to specify three intervals, or *1-3, 8* to specify intervals 1 through
3 and interval 8. In addition, you can enter *all*.

5.   Click *Apply***.**

T1 engine status information appears in the *PRI CSU Alarms*, *PRI
CSU Status,* and *Interval Information* boxes.

6.   Optionally click *Save Output ...* **to save the screen output to a file.**

Save Output ... displays the standard *File Selection* window,
which includes the default text directory. You can enter a file
name in the *Selection* field and click *OK* to store the contents of
the window output box or *Cancel* to return to the Annex *PRI
Internal CSU Status* window.

7.   Click *Close* **to close the window.**

The Annex PRI Internal CSU Status Window

The *Annex PRI Internal CSU Status* window displays information in the
PRI CSU Alarms, PRI CSU Status and *Interval Information* boxes. In addition, it
includes the *Interval(s)* field. You can enter information in this field. Like
all RAC status commands, you cannot change a RAC configuration from
this window.

Alarms Box

The PRI CSU Alarms box provides historical and current information
about PRI CSU alarms. This box includes the following fields:

- *Blue History* indicates whether a Blue alarm occurred since the
  T1 Engine has been on-line. This field displays *True* if an alarm
  occurred or *False* if an alarm did not occur.

- *Blue* reports the current status of the Blue alarm.This field
  displays *On* if the T1 engine is receiving AIS (all ones,
  unframed) from the network, or *Off* if the T1 engine is not
  receiving AIS.

- *Red History* indicates whether a Red alarm occurred since the T1
  Engine has been on-line. This field displays *True* if an alarm
  occurred or *False* if an alarm did not occur.

- *Red* reports the current status of the Red alarm. This field
  displays *On* if the T1 engine is detecting loss of frame
  synchronization and is sending a Yellow alarm to the network.
  The field displays *Off* if the T1 engine is in frame
  synchronization.

- *Yellow History* indicates whether a Yellow alarm occurred since
  the T1 Engine has been on-line. This field displays *True* if an
  alarm occurred or *False* if an alarm did not occur.

- *Yellow* indicates the current status of the Yellow alarm. This field
  displays *On* if the T1 engine is receiving a yellow alarm from
  the network or *Off* if the T1 engine is not receiving a Yellow
  alarm.

Status Box

The *PRI CSU Status* box displays statistics for the T1 network interface. This box includes the following categories:

- *Sync* indicates whether the T1 engine is detecting frame synchronization. This field displays *True* if the T1 engine is detecting frame synchronization or *False* if the T1 engine lost frame synchronization and entered the red alarm state.

- *Signal Loss* indicates whether the CSU is detecting pulses on the T1 network interface receivers. If the engine is not detecting pulses, the T1 line transmits AIS (all ones, unframed) on the T1 network interface. This field displays *True* when the engine is not detecting pulses and *False* when it is detecting pulses.

- *Loopback Mode* indicates loopback status. This field can display:

    - *NoLoop* to show that the signal is not looped through the T1 engine.

    - *LocalLoop* to indicate that the outgoing signal of the T1 engine is looped back to the incoming side.

    - *LineLoop* to show that the incoming signal is looped to the network without passing through the T1 engine.

    - *PayloadLoop* to show that the incoming signal is looped through the T1 engine after it passes through the framing function.

- *Unit ID* identifies the T1 engine, using its firmware number, firmware revision number, firmware release date, and EPROM check sum.

Interval Errors Box

The *Interval Errors* box provides T1 line statistics in the following categories:

- *Interval Number* lists each 15-minute interval for which statistics appear in this box. This column displays a number from 1 to 96, *Current*, or *Total*.

- *Out of Frame Errors* lists the number of Out of Frame (OOF) events that occurred. An OOF event begins when the network interface sends two of four incorrect consecutive frame synchronizing bits, and ends when reframe occurs.

- *BiPolar Violations* lists the number of BiPolar Violation (BPV) errors. For AMI-coded signals, a BPV event occurs when there are two consecutive pulses of the same polarity. For B8ZS-coded signals, a BPV event occurs when there are two consecutive pulses of the same polarity that are not part of the zero substitution code.

- *CRC Errors* lists the number of CRC errors. A CRC error occurs when the CRC field calculated by the installation, based on the incoming DS1 signal, does not agree with the CRC field contained in the DS1 signal received from the network.

- *Controlled Slip* lists the number of times the T1 engine replicates or deletes a DS1 frame.

- *Path Code Violations* lists the number of coding violations that occur on the remote side of a Layer 1 connection.

- *Line Code Violations* lists the number of coding violations that occur on the local side. A Layer 1 connection does not need to be established.

Interval Errored Seconds Box

The *Interval Errored Seconds* box provides T1 line statistics in the following categories:

- *Interval Number* lists each 15-minute interval for which statistics appear in this box. This column displays a number from 1 to 96, *Current*, or *Total*.

- *Rec. Net. Alarms* (Receive Network Alarms) lists the number of seconds with alarm events.

- *Error Seconds* lists the number of seconds with one or more CRC or OOF errors.

- *Sev. Err. Seconds* (Severe Error Seconds) lists the number of seconds with 320 or more CRC or OOF errors.

- *Unavailable Seconds* lists the number of one-second intervals during which service was unavailable.

- *Cntrl. Slip Seconds* (Controlled Slip Seconds) lists the number of seconds with one or more controlled slips.

- *Bursty Err. Seconds* (Bursty Error Seconds) lists the number of seconds with more than one, but less than 320 CRC errors.

- *Sev. Err. Framing Sec.* (Severe Errored Framing Seconds) lists the number of seconds with 320 or more CRC or OOF errors with a fatal framing error.

- *Line Err. Seconds* (Line Errored Seconds) lists the number of seconds with line code violations. This is independent of a Layer 1 connection having been established.

- *Degraded Minutes* lists the number of minutes (60 consecutive one-minute intervals) with more than four total errors.

Displaying T1 Internal CSU Status Information

To display this status information about the T1 network interface:

1. **Create a RAC list (page 2-1) and select a single RAC that contains a T1 DS1 interface from the list.**

2. **On the Status menu select** *T1.*

3. **Choose** *Internal CSU* **and release the mouse button.**

   The *Annex T1 Internal CSU Status* window appears (Figure 3-6).

Figure 3-6. Annex T1 Internal CSU Status Window

4. **Select an option from the menu next to** *Interval(s)***.**

    Before you can display T1 Internal CSU statistics, you must complete the *Interval(s)* field located below the *Interval Information* box.

    The T1 engine records ninety-six 15-minute intervals.

    You can select:

    •   *Specified* to view T1 statistics for one or more intervals.

    •   *Current* to see T1 statistics for the current interval.

    •   *Total* to display cumulative statistics for each of the 96 intervals.

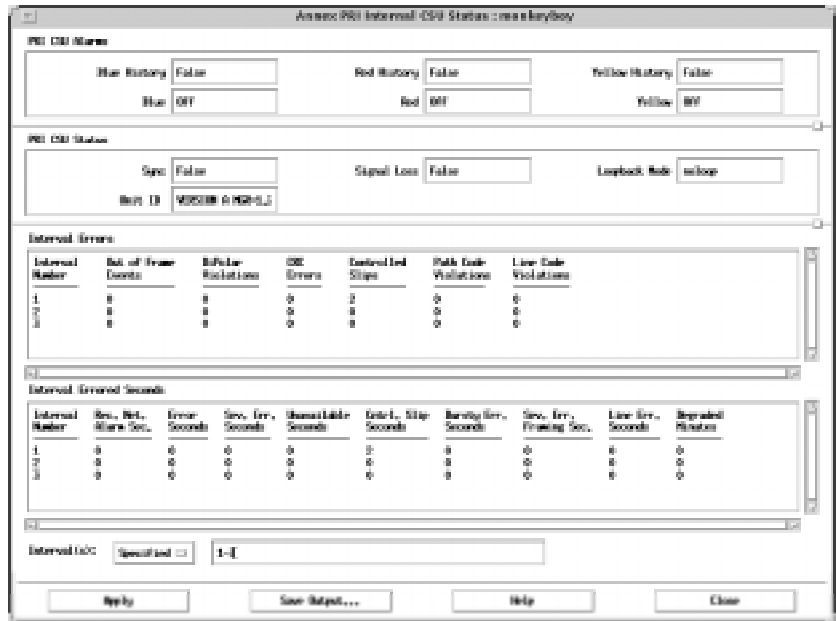   If you select *Specified*, you must complete the text field.

5. **Enter one or more interval numbers in the text field.**

    To enter specific intervals, separate interval numbers with commas or indicate a range of numbers using dashes. For example, you can enter *1, 3, 8* to specify three intervals, or *1-3, 8* to specify intervals 1 through 3 and interval 8. In addition, you can enter *all*.

6. **Click** *Apply***.**

    T1 Internal CSU statistics appear.

7. **Optionally click** *Save Output ...* **to save the screen output to a file.**

    Save Output ... displays the standard *File Selection* window, which includes the default text directory. You can enter a file name in the *Selection* field and click *OK* to store the contents of the window output box or *Cancel* to return to the *Annex T1 Internal CSU Status* window.

8. **Click** *Close* **to close the window.**

The Annex T1 Internal CSU Status Window

The *Annex T1 Internal CSU Status* window displays information in the
T1 Alarms, T1 Status and *Interval Information* boxes. In addition, it includes the
Interval(s) field. You can enter information in this field. Like all RAC status
commands, you cannot change a RAC configuration from this window.

Alarms Box

The T1 Alarms box provides both historical and current information about
T1 alarms. This box includes the following fields:

- *Blue History* indicates whether a Blue alarm occurred since the
  T1 Engine has been on-line. This field displays *True* if an alarm
  occurred or *False* if an alarm did not occur.

- *Blue* reports the current status of the Blue alarm.This field
  displays *On* if the T1 engine is receiving AIS (all ones,
  unframed) from the network, or *Off* if the T1 engine is not
  receiving AIS.

- *Red History* indicates whether a Red alarm occurred since the T1
  Engine has been on-line. This field displays *True* if an alarm
  occurred or *False* if an alarm did not occur.

- *Red* reports the current status of the Red alarm. This field
  displays *On* if the T1 engine is detecting loss of frame
  synchronization and is sending a Yellow alarm to the network.
  The field displays *Off* if the T1 engine is in frame
  synchronization.

- *Yellow History* indicates whether a Yellow alarm occurred since
  the T1 Engine has been on-line. This field displays *True* if an
  alarm occurred or *False* if an alarm did not occur.

- *Yellow* indicates the current status of the Yellow alarm. This field
  displays *On* if the T1 engine is receiving a Yellow alarm from
  the network or *Off* if the T1 engine is not receiving a Yellow
  alarm.

T1 Status Box

The *T1 Status* box displays statistics for the T1 network interface. This box includes the following categories:

- *Engine Bypass* indicates whether the engine is connected to the network interface. This field displays *enabled* if the T1 engine is connected to the network interface or *disabled* if the T1 engine is connected to the Drop/Insert Interface.

- *Sync* indicates whether the T1 engine is detecting frame synchronization. This field displays *True* if the T1 engine is detecting frame synchronization or *False* if the T1 engine lost frame synchronization and entered the Red alarm state.

- *DII Sync* indicates whether the Drop/Insert Interface is receiving ones pulses and is in frame synchronization. This field displays *True* if the Drop/Insert Interface is receiving ones pulses and is in frame synchronization or *False* if the Drop/Insert Interface is out of frame synchronization or not receiving pulses and is sending AIS (all ones unframed).

- *Signal Loss* indicates whether the T1 engine is detecting pulses on the T1 network interface receivers. This field displays *True* if the engine is not detecting pulses. If the engine is not detecting pulses, the T1 engine transmits AIS (all ones, unframed) on the T1 network interface. The field displays *False* if the T1 network interface is receiving pulses.

- *Loopback Mode* indicates loopback status. This field can display:

  - *noloop* to show that the signal is not looped through the T1 engine.

  - *localloop* to show that the outgoing signal of the T1 engine is looped back to the incoming side.

  - *lineloop* to show that the incoming signal is looped to the network without passing through the T1 engine.

  - *payloadloop* to show that the incoming signal is looped through the T1 engine after it passes through the framing function.

- *Uptime* indicates the amount of time (in hours, minutes, and seconds) that the T1 engine has been up. The hours field can count up to 2,700 days.

- *Unit ID* identifies the T1 engine, using its firmware number, firmware revision number, firmware release date, and EPROM check sum.

- *Serial Number* displays the number of the engine.

- *Circuit ID* displays the circuit identification number of the engine.

Interval Information Box

The *Interval Information* box provides T1 engine statistics in the following categories:

- *Interval Number* lists each 15-minute interval for which statistics appear in this box. This column displays a number from 1 to 96, *Current*, or *Total*.

- *Out of Frame Errors* lists the number of Out of Frame (OOF) events that occurred. An OOF event begins when the network interface sends two of four incorrect consecutive frame synchronizing bits, and ends when reframe occurs.

- *BiPolar Violations* lists the number of BiPolar Violation (BPV) errors. For AMI-coded signals, a BPV event occurs when there are two consecutive pulses of the same polarity. For B8ZS-coded signals, a BPV event occurs when there are two consecutive pulses of the same polarity that are not part of the zero substitution code.

- *CRC Errors* lists the number of CRC errors. A CRC error occurs when the CRC field calculated by the installation, based on the incoming DS1 signal, does not agree with the CRC field contained in the DS1 signal received from the network.

- *Controlled Slip* lists the number of times the T1 engine replicates or deletes a DS1 frame.

- *Rec. Net. Alarms* (Receive Network Alarms Seconds) lists the number of seconds with alarm events.

- *Error Seconds* list the number of seconds with one or more CRC or OOF errors.

- *Sev. Err. Seconds* (Severe Error Seconds) lists the number of seconds with 320 or more CRC or OOF errors.

- *Unavailable Seconds* lists the number of one-second intervals during which service was unavailable.

- *Cntrl. Slip Seconds* (Controlled Slip Seconds) lists the number of seconds with one or more controlled slips.

- *Bursty Err. Seconds* (Bursty Error Seconds) lists the number of seconds with more than one, but less than 320 CRC errors.

Displaying T1 Modem Calls Status Information

To display information about internal modems:

1. **Create a RAC list (page 2-1) and select a single RAC that contains a T1 DS1 interface from the list.**

2. **On the Status menu click** *T1.*

3. **Choose** *Modem Calls* **and release the mouse button.**

   The *Annex Modem Calls Status* window appears (<u>Figure 3-7</u>). The name of the RAC you selected appears in the title bar.

4. **Optionally click** *Save Output ...* **to save the screen output to a file.**

   Save Output ... displays the standard *File Selection* window, which includes the default text directory. You can enter a file name in the *Selection* field and click *OK* to store the contents of the window output box or *Cancel* to return to the *Annex Modem Calls Status* window.

5. **Click** *Close* **to close the window.**

Figure 3-7. Annex Modem Calls Status Window

The Annex Modem Calls Status Window

The *Annex Modem Calls Status* window displays information in the *Internal Modem Calls* box. Like all RAC status commands, you cannot change a RAC configuration from this window.

Internal Modem Calls Box

The *Internal Modem Calls* box displays statistics for all internal modems. This box includes the following categories:

- *Modem #* lists each modem in the RAC.

- *Total Calls* provides a count of the number of times the line is seized on the modem.

- *Total Failures* provides a count of the number of call failures for the modem.

- *Ring Count* provides a count of the number of times the modem asserted rings on a call.

- *Offhook Count* provides a count of the number of times the modem went offhook on a call.

- *DCD Assert Count* provides a count of the number of times the modem asserted DDC on a call.

- *Consecutive Failures* provides a count of the number of times the modem failed to accept a call consecutively.

Displaying DVS Status Information

This section tells you how to view information for all active tunnel interfaces.

To display this information:

1. **Create a RAC list (page 2-1) and select a single RAC from the list.**

2. **Select a single RAC that contains a tunnel from the list.**

3. **On the Status menu click** *DVS.*

   The *Annex DVS Status* window appears (see <u>Figure 3-8</u>).

Figure 3-8. Annex DVS Status Window

> **4.   Optionally click** *Save Output ...* **to save the screen output to a file.**
>
> *Save Output ...* displays the standard *File Selection* window, which includes the default text directory. You can enter a file name in the *Selection* field and click *OK* to store the contents of the window output box or *Cancel* to return to the *Annex DVS Status* window.
>
> **5.   Click** *Close* **to close the window.**

The Annex DVS Status Window

The *Annex DVS Status* window displays information in the *GRE Information* and the *Tunnel Information* boxes. Like all RAC status commands, you cannot change a RAC configuration from this window.

GRE Information Box

The *GRE Information* box provides statistics for GRE packets. This box displays information in the *Received* and *Transmitted* fields and the *Dropped Packets Info* box. The *Received* and *Transmitted* fields provide the following information:

- *Bytes Received* indicates the number of bytes received on the interface.

- *Bytes Transmitted* indicates the number of bytes sent on the interface.

- *Packets Received* indicates the number of GRE packets received.

- *Packets Transmitted* indicates the number of GRE packets sent.

- *Packets Dropped Received* indicates the number of GRE packets dropped on transmit.

- *Packets Dropped Transmitted* indicates the number of GRE packets dropped on transmit.

The *Dropped Packets Info* box provides information in the *Bad Checksum* field.

- *Bad Checksum* indicates the number of GRE packets received with bad checksums.

Tunnel Information Box

The *Tunnel Information* box displays data about all active tunnels. This box includes the following categories:

- *Device Type* lists the interface device to which the tunnel terminates.

- *Interface Protocol* lists the protocol used on the connection.

- *State* lists the state of the tunnel. Values are *registered, established,* or *deregistered.*

- *Login Time* lists the time the user logged in.

- *Home Addr* lists the address assigned to the remote node. This category is protocol specific.

- *Home Agent Addr* lists the IP address of the Home Agent (HA).

- *WAN Type* lists the type of WAN interface from the HA to the home network.

- *WAN Addr* lists the address of the home network from the HA (displayed *ad hex).*

Identifying RACs

This section describes how to:

- Use a specific internet address and subnet mask to find available RACs on any network

- Identify RACs on your network that are visible to a specific search device

The *Discover Annexes/Network* command can find Annexes or RACs running Annex software Release 13.2 and subsequent releases. To find RACs running software releases prior to 13.2, use the *Discover Annexes/Search Device* command.

Finding Available RACs on Any Network

This section describes you how to find RACs on your network that are visible to a specific search device. A search device is any network device (such as a router) that knows about the existence of other network devices via their IP addresses. You can list basic information about RACs and update a RAC list or save a list to a file.

Creating a New RAC Discovery List

To replace the *Main* window RAC list with the discovery list:

1. **On the Configure menu click** *Discover Annexes***, then click** *Search Device.*

   The *Annex Discovery* window appears (Figure 3-9). The fields referred to in the following instructions are described in *The Annex Discovery Window on page 3-35*.

2.   Enter a search device name or its IP address in the *Search Device* **field.**

3.   Enter a number of seconds in the *SNMP Timeout* **field.**

If you do not complete this field the process uses the current SNMP default.

4.   Enter a number in the *SNMP Retries* **field.**

If you do not complete this field, the process uses the current SNMP default.

5.   Select the level of detail you need using the *Verbose Output* **button.**

If you select *Verbose Output*, information about all devices appears. If you do not select this button, the window includes information about RACs and the @ symbol for other devices.

6.   Click *Apply.*

RACs and other devices appear in the *Discovery Output* box.
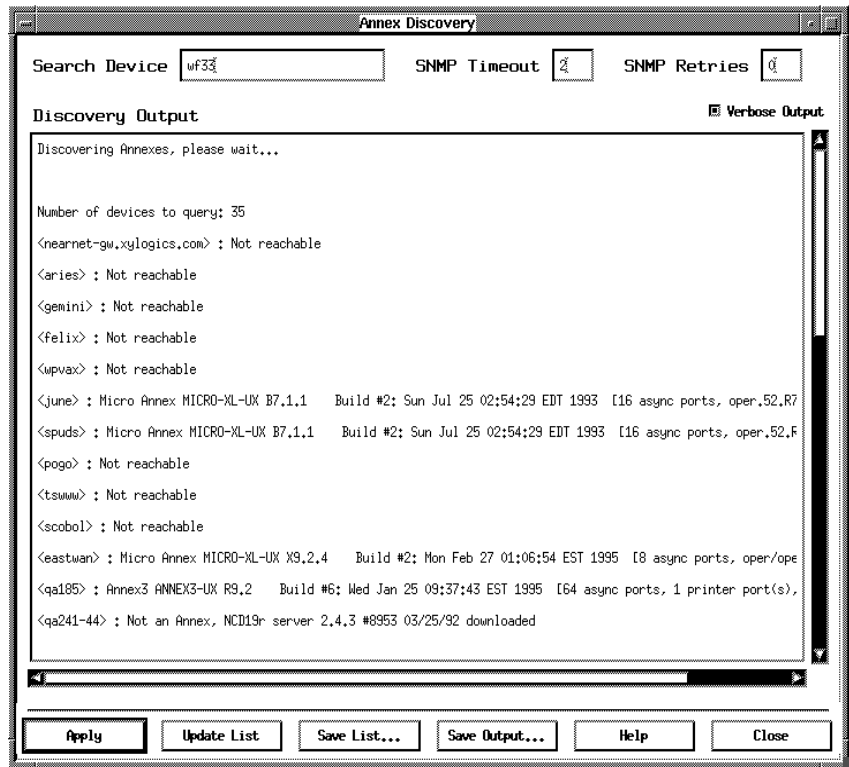
Figure 3-9. Annex Discovery Window

Updating and Saving Discover RAC Lists

This section tells you how to replace the *Main* window RAC list with the discovery list you created in the previous section and to save the discovery list in a file.

To update and save a discovery list:

    1. **Create a discovery list as described in *Creating a New RAC Discovery List on page 3-31.***

    2. **Click** *Update List.*

        Annex Manager replaces the *Main* window list with the discovery list and connects each RAC again in case there was a change in status.

   3.   **Click** *Save List*.

The *Annex List Selection* window displays (Figure 3-10).

Save List stores the values you entered in *SNMP Timeout* and *SNMP Retries* with each RAC name. In addition, it stores the Annex Manager default community string.
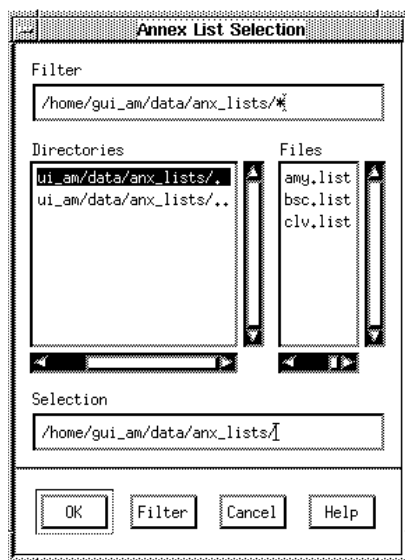
Figure 3-10. Annex List Selection Window

The *Annex List Selection* window displays the default list directory. It allows you to:

• Select a list to overwrite an existing list. You cannot overwrite a list that someone else created.

• Create a new list by entering a new path and list name and clicking *OK*.

When you complete this window, Annex manager saves the list.

4.   **Optionally click** *Save Output ...* **to save the screen output to a file.**

   Save Output ... displays the standard *File Selection* window, which includes the default text directory. You can enter a file name in the *Selection* field and click *OK* to store the contents of the window output box or *Cancel* to return to the window.

5.   **Click** *Close* **to close the window.**

The Annex Discovery Window

The *Annex Discovery* window uses text fields to control the discovery process, and an output box to display information about RACs and other devices. The window option button allows you to determine the level of detail that appears in the output box and the push buttons allow you to update your current RAC list or save the contents of the output box to a file.

> The *Annex Discovery* window may not find every RAC on a network because the discovery process can identify only those network devices that are visible to a specific search device at the current time.

The text fields control the identification process. You can complete the following fields:

- *Search Device* accepts the name or IP address of any network device that stores information about nodes, devices and addresses on your network. You can use a device name or IP address here. The *Annex Discovery* window uses the Annex Manager default community string to communicate with the search device and with each device it queries.

- *SNMP Timeout* specifies the length of time in seconds that Annex Manager waits for a response. You can enter a number of seconds here. If you do not enter a value Annex Manager uses the SNMP default.

- *SNMP Retries* controls the number of times that Annex Manager tries to reach a RAC or other device on the network. You can enter a number here. If you do not enter a value the discovery process uses the SNMP default.

The *Verbose Output* option button allows you to determine the level of detail that appears in the output box. If you click on the *Verbose Output* button, Annex Manager prints a device name and displays basic information about the device type or identifies it as *NOT REACHABLE*.

If you do not select the *Verbose Output* button, the @ sign identifies all devices that are not RACs or Annexes or are unreachable.

Discovery Output Box

The *Discovery Output* box contains detailed information about the RACs identified by the search device. Annex Manager goes to a search device, requests a list of addresses in its Address Translation table, and attempts to communicate with each address via SNMP. If communication is successful, Annex Manager compares the object identifier of the device to the value of a RAC object identifier. If there is a match, the device is a RAC or Annex. If there is no match, the output box displays information about the device based on your use of the *Verbose Output* command.

The output box displays:

- The *Discovering Annexes, please wait...* message, informing you that the process began.

- The *Number of devices to query:* message, followed by a dynamically updated number. This number can help you determine how long the discovery process takes.

- Basic information about each RAC, including the RAC name or IP address, and system descriptor information, which can contain the RAC type and software release, the number of ports for each port type, and the RAC current image name.

- Information about devices that are not RACs or Annexes. If you use the *Verbose Output* option from the Utilities menu, *Discover Annexes/Search Device* lists the names of all devices that are not RACs or Annexes, and prints a brief description or identifies devices as *NOT REACHABLE*.

    If you enter a short *SNMP Timeout*, *Discover Annexes/ Search Device* may identify a device as *NOT REACHABLE* because of network load.

• The *** *End of discovery* *** message, informing you that the
  process is complete.

Finding RACs Using an Internet Address and Subnet Mask

To find available RACs on a network using a network address and subnet
mask and add them to the *Main* window *Annex List* box:

1. **Select** *Discover Annexes* **from the Configure menu and then
    choose** *Network***.**

    The *Discover Annexes/Network* window appears (Figure 3-11).

Figure 3-11. Discover Annexes/Network Window

2. **Enter an** *Internet Address* **and a** *Subnet Mask* **for the network you
    want to search.**

    You must complete both the *Internet Address* and the *Subnet Mask*
    fields.

3. **Enter a number of seconds in the** *Timeout* **field.**

    This field uses a 10-second default if you leave the field blank.

4.   Click *OK.*

Annex Manager displays a window informing you that the discovery process is taking place (Figure 3-12).
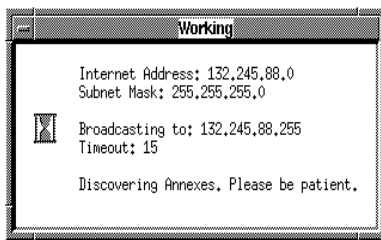
Figure 3-12. Discover Annexes/Network Process Window

As Figure 3-12 shows, this window lists the *Internet Address*, *Subnet Mask* and *Timeout* value you entered, as well as the broadcast address.

After Annex Manager completes this process it displays a window informing you about the number of RACS that were found (Figure 3-13).
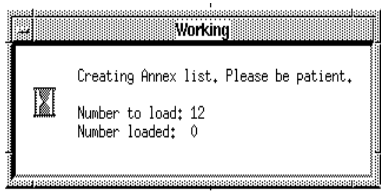
Figure 3-13. Creating Annex List Window

Annex Manager adds the RACs it finds to the *Main* window *Annex List* box. If this process found RACs that exist in the *Main* window list, a warning window lists duplicate devices and does not add them to the list. You can use the *Save Annex List* command to retain this list.

Chapter 4
Setting Up RACs

This chapter describes how to set up one or more RACs. You can set up either a single RAC or multiple RACs with the same parameters.

The set up windows discussed in this chapter are:

- *General Settings*
- *Options*
- *Async Ports*
- *WAN Modules*
- *Basic Dial Access*
- *PPP Dial Access*
- *Remote Address*
- *Security*
- *IP*
- *IPX*
- *LAT*
- *AppleTalk*

General Settings

This section describes how to configure RACs for these general settings:

- Boot

- Logging

- Time

- Security

- DHCP

- Dump

- Password settings

To view or change these settings:

1. **Create a RAC list (page 2-1) and select one or more RACs.**

2. **Click** *Setup.*

   The *General* window appears ([Figure 4-1.](#)). This window is described in *The General Window on page 4-5*.

3. **Enter or select new values in any field.**

4. **Optionally click** *Restore* **to return to the previous values in all fields. (If you have clicked** *Apply* **you cannot to this.)**

5. **Click** *Apply* **to apply the new values.**

6. **Click** *Close* **to close the window.**
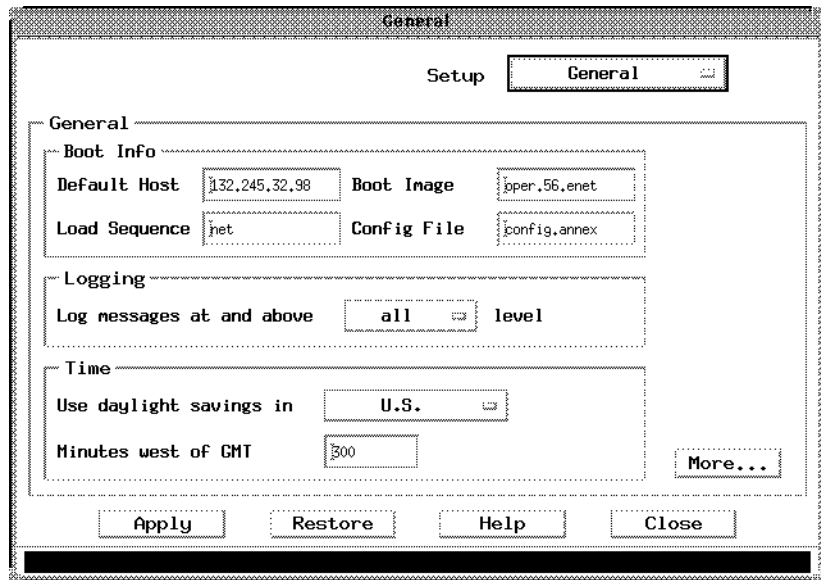
Figure 4-1. General Window

7.   Click *More*.

The *General (continued)* window appears (Figure 4-2). This window
is described in *The General (continued) Window on page 4-7*.

8.   Enter or select new values in any field.
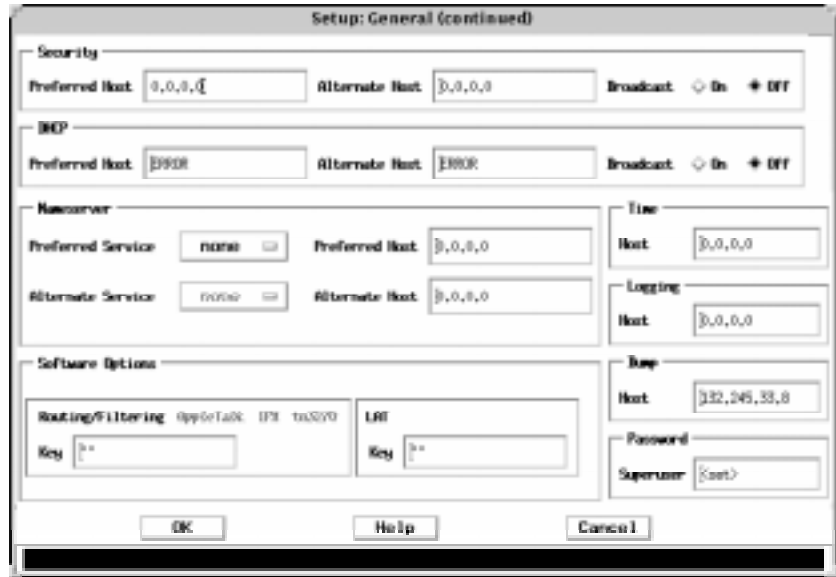
Figure 4-2. General (continued) Window

9. Click *OK*.

The *General* window reappears.

10. Click *Apply* **in the** *General* **window**.

If you checked *Confirm Auto Reset* in the *Options* menu of the *Main* window and the settings you changed require Annex Manager to reset RACs, the *Reset Parameters* window appears (<u>Figure 4-3</u>).

If you do not check *Confirm Auto Reset* Annex Manager resets RACs without notice.
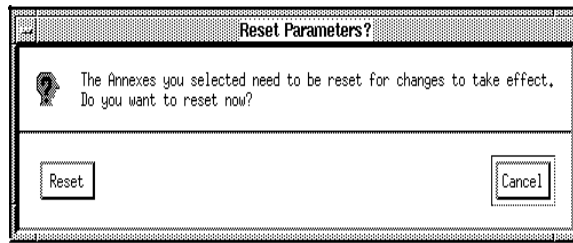
Figure 4-3. Reset Parameters Window

The General Window

The *General* window includes basic RAC information in *Boot Info, Logging*, and *Time* boxes. Use the information in this section to fill in the *General* window fields.

Boot Info Box

The *Boot Info* box uses the following fields:

- *Default Host* identifies the host used for the host server and for all services unless you enter host addresses in the *General (continued)* window. When this window appears the *Default Host* field displays the current address in the RAC's pref_load_addr parameter.

    When you configure a RAC for the first time, the *Security Preferred Host*, *DHCP Preferred Host, Nameserver Preferred Host*, *Nameserver Alternate Host, Time Host, Logging Host,* and *Dump Host* fields are *0.0.0.0*. In this situation, Annex Manager sets those fields to the address in the *Host* field. You can change these addresses using the *General (continued)* window.

- *Load Sequence* specifies available network interfaces and the order in which they are used for a down-line load or an up-line dump. You can list more than one interface by using commas to separate interface names. You can enter:

    – *net* to specify a local area network.

    – *sl + port number* (e.g., *sl2*) to specify a SLIP line. If you enter *sl* and a port number, you must enter an address in the slip_load_dump_host parameter.

    – *self* to instruct a RAC to boot its image from the Flash ROMs. Since the RAC cannot dump back to itself, you should include a secondary interface here by entering *self,net* or *self,sl+port number.*

- *Boot Image* contains the image file name loaded by default when the RAC is booted. This name can use up to 100 characters.

- *Config File* defines the name of the configuration file maintained on the boot host. The RAC uses this file for information on gateways, rotaries, macros, and services. It must reside in the /usr/spool/erpcd/bfs directory.

Logging Box

Log messages at and above determines the priority levels that the RAC logs. You can choose:

- *emergency* to log hardware failures.

- *alert* to log all RAC reboots.

- *critical* to log configuration and initialization problems such as configuration file format errors or lack of memory.

- *error* to log all line initialization errors.

- *warning* to log minor problems.

- *notice* to log time server queries and information about responses.

- *info* to start and end CLI sessions and RAC jobs created by rlogin, telnet, connect, ping. and tap commands.

- *debug* to start and end any RAC process.

- *all* to log messages at all levels.

- *none* to disable message logging.

Time Box

The *Use daylight savings in* field allows the RAC to adjust for daylight savings time in your geographic location. You can select a single location from the list.

The *Minutes west of GMT* field defines the time zone in which the RAC resides. You can enter a positive number of minutes for time zones west of Greenwich Mean Time (GMT) or a negative number for time zones east of GMT. For example, you would enter 300 for New York, since it is five hours west of GMT, or -60 for Paris, which is one hour east of GMT.

The General (continued) Window

The *General (continued)* window lets you change additional security, DHCP, nameserver, time, logging, dump, and password settings for the RACs selected in the *Main* window. Use the information in this section to fill in these fields.

Security Box

The *Security* box provides host information and broadcast message settings for RAC security. It includes the following fields and buttons:

- *Preferred Host* contains the IP address of the security host.

- *Alternate Host* contains the IP address of the backup security host.

- *Broadcast On* and *Off* determine whether or not a RAC broadcasts for security validation if the preferred security servers are not available.

  – *On* activates the ACP security server, including security for AppleTalk, CLI, and SLIP/PPP connections.

  – *Off* deactivates security.

If the selected RAC uses these security systems, *On* is selected when the window first appears. In this case, the enable_security parameter is activated. If you change the setting to *Off*, Annex Manager deactivates security but does not change the enable_security parameter setting.

DHCP Box

The *DHCP* box provides host information and broadcast message settings for RAC DHCP. It includes the following fields and buttons:

- *Preferred Host* contains the IP address of the DHCP server that the client attempts to use as the primary source for DHCP services.

- *Alternate Host* contains the IP address of the DHCP server that the client attempts to use as a backup source for DHCP services when the primary DHCP server does not respond to the backup security server.

The DHCP fields are optional and may be 0.0.0.0. When enabled, the client broadcasts DHCP messages.

- *Broadcast On* and *Off* determine whether or not a RAC broadcasts for a DHCP server if the preferred DHCP servers are not available.

  Click *On* to activate the ACP security server.

- DHCP parameters include DHCP_broadcast, pref_DHCP1_addr, and pref_DHCP2addr.

Nameserver Box

The *Nameserver* box defines a type of name service and host addresses:

- *Preferred Service* defines the type of name service used with the *Nameserver* box *Preferred Host* field. You can select *none*, *dns*, or *ien_116.*

- *Alternate Service* defines the type of name service used with the *Nameserver* box *Alternate Host* field. The RAC uses this service and host when the service specified in the *Preferred Service* field is not available. You can select *none*, *dns*, or *ien_116.*

- *Preferred Host* contains a host address for the *Preferred Service* you selected.

- *Alternate Host* contains a host address for the *Alternate Service* you selected.

Time Box

The *Time* box controls the time server host:

- *Host* lists the IP address that a RAC queries for time service. You can enter:

  – A loopback address (127.0.0.1) to disable time service queries.

  – A host address to send queries to a specific host.

  – A broadcast address to send queries to a specific network or networks instead of sending a general broadcast to all networks.

  – 0.0.0.0 to direct the RAC to query the boot host.

Logging Box

The *Logging* box specifies a log host for the RACs you selected. *Host* contains an IP address for the host that logs RAC messages. If you enter *0.0.0.0*, the RAC broadcasts its log messages.

Dump Box

The *Dump* box allows you to change dump host information: *Dump Host* contains an IP address for the host on which the RAC creates dump files. If you do not want dump files, you can enter *0.0.0.0*.

Password Box

The *Password* box allows you to change the superuser password. *Superuser Password* modifies the RAC's administrative password used for access to the superuser CLI commands and for administrative access to a RAC. This password overrides the CLI lock and virtual CLI passwords. For security reasons, Annex Manager displays this value as *set* or *unset*. These passwords use 1 to 16 characters.

Options

Use the *Options* window to set up these features for selected RACs:

- Maintain call history

- Set thresholds for taking modems and channels out of service

- Enable and disable modules

- Specify a LAT key

To configure these options for selected RACs:

1. **Create a RAC list and select the RACs you want to configure (page 2-1).**

2. **In the** *Main* **window, select** *Options* **from the** *Setup* **field at the top of the window or click** *Setup* **and then select** *Options***.**

   The *Options* window appears ([Figure 4-19](#)). This window is described in *The Options Window on page 4-13*.
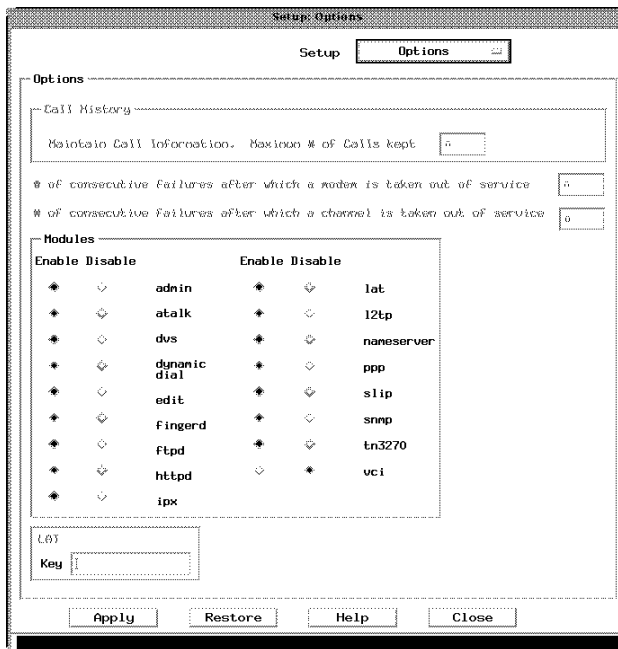
Figure 4-4. Options Window

3. **Set up options for the selected RACs as desired.**

4. **Optionally click** *Restore* **to reset all fields to the previous values. (If you have already clicked** *Apply* **you cannot do this.)**

5. **Click** *Apply.*

    Annex Manager sets the new values you entered.

6. **Click** *Close* **to close the window.**

The Options Window

This section describes the *Options* window.

Call History Box

The *Call History* box lets you maintain information on a specified number of calls. Enter the maximum number of calls for which you want information.

You can set up call history only for 5393/6300, 5399, and 8000 devices.

The range of this field is from 0 to 65535.

Taking a Modem or Channel Out of Service

You can set thresholds for taking modems and channels out of service. Enter the number of failures after which Annex Manager takes a modem out of service; then enter the number of failures after which Annex Manager takes a channel out of service.

The range of these fields is from 0 to 65535.

Modules Box

The *Modules* box lets you enable or disable any of the available software modules. Click the *Enable* box to enable a module; click the *Disable* box to disable a module.

LAT Box

You can only set the LAT key if you select a single RAC from your list.

The *LAT* box lets you set a software LAT key. The LAT key restricts access to LAT-specific commands, functions, parameters, and the RAC LAT protocol.

You must contact your supplier to obtain a LAT key. After you set your key your system administrator must reboot the RAC.

Async Ports

The Async Ports setup lets you view and change asynchronous port information, including modem and interface settings, for selected RACs.

To view and change asynchronous port information:

1. **Create a RAC list and select the RACs you want to configure (page 2-1).**

2. **In the** *Main* **window, select Async Ports from the** *Setup* **field at the top of the window or click** *Setup* **and then select** *Async Ports***.**

    The *Async Ports* window appears ([Figure 4-19](#)). In this window:

    • *Annex Name* displays the name of each RAC you selected in the main window.

    • *Port#* provides the number of each port.

    • *Mode* displays the current setting for the type of access on each port.

    • *Modem Type* includes the name of the modem attached to each port.

    • *Status* provides the current state for each port.

    The information in this window is current as of the time you selected Async Ports using *Setup*.

    You can click *Update* at any time to display the most recent values.
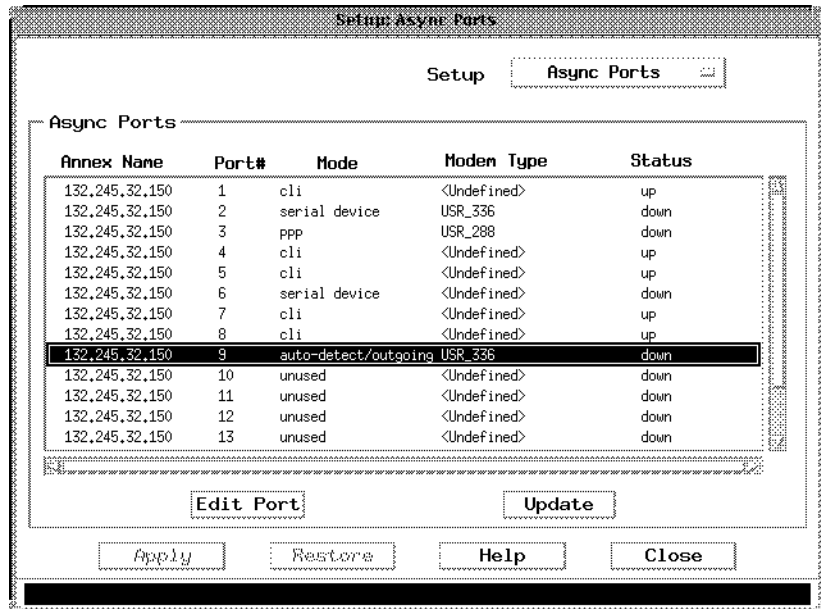
Figure 4-5. Async Ports Window

3. **Highlight one or more ports to edit.**

4. **Click** *Edit Port***.**

   The *Edit Async Ports* window appears. This window is described in *The Edit Async Ports Window on page 4-17*.

5. **Edit the parameters as desired.**

6. **If you disabled the modem in the** *Type* **box, skip to step 18. Otherwise continue to the next step.**

7. **Click** *More***.**

   The *Async Ports (continued)* window appears. This window is described in the . *Edit Async Ports (continued) Window on page 4-24*.

8. **Edit the parameters as desired.**

9. **If you want to edit modem parameters go to the next step. Otherwise skip to step 13.**

10. **Click** *Edit Modem ...* **in the** *Modem* **box.**

    The *Edit Modem* window appears (Figure 4-8). This window is
    described in *The Edit Modem Window on page 4-26*.

11. **Click** *OK* **to make the changes.**

12. **Click** *Close* **to close the window.**

13. **If you want to edit PPP or LAT parameters go to the next step.
    Otherwise skip to step 16.**

14. **On the** *Edit Async Ports* **window, click** *More***.**

    The *Edit Async Ports (continued)* window appears (Figure 4-7). This
    window is described in *The Edit Async Ports (continued) Window
    on page 4-24*.

15. **Change the parameters in the** *Edit Async Ports (continued)* **window
    as desired.**

16. **Click** *OK* **to make the changes and return to the** *Edit Async Ports*
    window or *Cancel* **to close the window without making the
    changes.**

17. **Optionally click** *Restore* **to reset all fields to the previous values.
    (If you have already clicked Apply you cannot do this.)**

18. **Click** *Apply***.**

    Annex Manager sets the new values you entered.

19. **Click** *Close* **to close the window.**
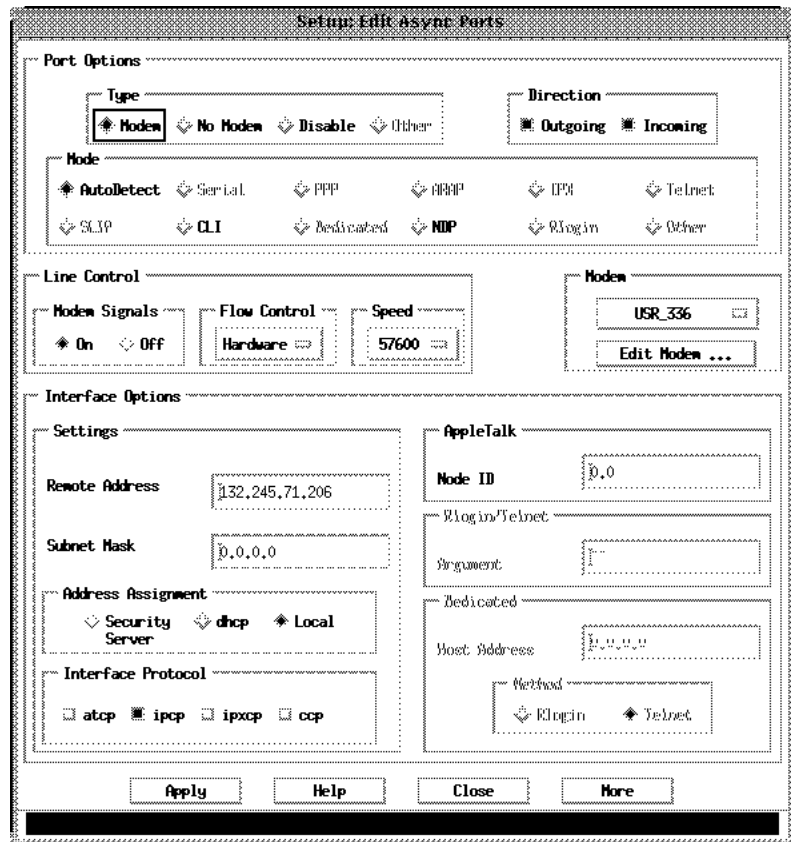
Figure 4-6. Edit Async Ports Window

The Edit Async Ports Window

The *Edit Async Ports* window lets you view and change modem and interface settings for the ports you selected. It groups related settings in boxes, and provides access to the *Async Ports (continued)* window and to the *Edit Modem* window.

Port Options Box

The *Port Options* box determines whether the ports you selected use modems and defines the type of access that is available on these ports.

- The *Type* box contains the *Modem, No Modem, Disable,* and *Other* buttons. These buttons define several settings for modem configuration. The button you choose here, combined with the your selections in the *Direction* box, determine the available selections in the *Mode* box.

  - *Modem* indicates that the ports you selected will use the modem specified in the *Modem Name* field. This button selects the *Modem Signals* button and sets flow control to hardware.

  - *No Modem* indicates that the ports you select will not use a modem. It clears modem signals, sets flow control to software, and disables the *Modem* box.

  - *Disable* disables the port. If you select this button you cannot enter additional information in the window.

  - *Other* indicates that one or more ports you selected currently define x25, tn3270, pc, terminal, or printer as the type of device attached to a port. You can return to the *Main* window and use Annex Manager *Customize* mode to check these values. If the *Other* button is selected when this window appears you can select *the Modem, No Modem*, or *Disable* buttons. You cannot select the *Other* button.

Direction Box

The *Direction* box determines whether the port transmits or receives data.

- The *Outgoing* and *Incoming* buttons allow the port to use outgoing or incoming connections. You can select one or both buttons. These buttons, combined with your selections in the *Type* box, determine the Mode options you can use. When an option is unavailable it is grayed out.

Mode Box

The *Mode* box defines the type of access to a port. This box includes the buttons:

- *Autodetect* allows a port to identify an incoming packet's protocol and to convert to IPX, PPP, ARAP or CLI.

- *Serial* provides access to modems, serial line printers, and other serial devices attached to the outgoing port.

- *PPP* specifies that a port can perform as a network interface using PPP.

- *ARAP* specifies that a port can perform as a network interface using ARAP.

- *IPX* allows dial-in Novell access.

- *Telnet* automatically connects a user to a host via the *telnet* command. You can specify the host and arguments in the *Rlogin/Telnet* box *Argument* field.

- *SLIP* specifies that a port can perform as a network interface using SLIP.

- *CLI* allows a port connected to a terminal or incoming modem access to the Annex Command Line Interface (CLI). CLI provides access to the network and connections to other hosts via the telnet, connect, rlogin, and tn3270 commands.

- *Dedicated* automatically connects a user with the host defined in the *Dedicated* box. Once you enter a host address there, you can choose whether the port will communicate via *telnet* or *rlogin*.

- *NDP* allows dial-in with authentication by Novell, dial-out, and routing.

- *Rlogin* automatically connects a user to a host defined in the *Dedicated* box. You can specify the host and arguments in the *Rlogin/Telnet* box *Argument* field.

- *Other* indicates that one or more RACs you selected currently use modes that differ from the options displayed in the *Mode* box. You can use the *Set* command in Annex Manager Customize mode to check these values, or you can select another option here. You cannot select the *Other* button.

If you select *Autodetect, PPP, ARAP, IPX*, or *SLIP*, Annex Manager does not allow a RAC to determine modem speed automatically. If you select *Serial, CLI, Telnet, Dedicated, NDP*, or *Rlogin* and the RACs you chose are set to select modem speed automatically, Annex Manager does not change this condition.

Line Control Box

The *Line Control* box defines flow control and line speed settings using the following boxes:

- *Modem Signals* indicates whether the ports you selected will use a modem for flow control. When you select this button, the ports and modem use DCD, DTR, and DSR signals.

- *Flow Control* specifies the type of signals a RAC uses to control data transfer. There are four choices:

  - *None* indicates that flow control is disabled.

  - *Hardware* indicates that the modem and/or port use CTS/RTS signals.

  - *Software* indicates that the modem and/or port use xon/xoff signals.

  - *Other* displays if the RACs you selected have flow control set to a value that is not *Hardware, Software*, or *None*. If you select another setting here, you cannot select *Other* again.

- *Speed* defines the baud rate of the asynchronous line between a device and a RAC. The value you choose must match the device's baud rate. For a port with a modem, the speed field is typically set to the maximum speed that the modem supports (e.g., 115200).

  All RACs do not support all port speeds. Refer to your RAC hardware guide for information.

Modem Box

The *Modem* box indicates the kind of modem attached to the ports you selected and provides access to the *Edit Modem* window.

The first button in this box specifies the type of modem attached to the ports you selected. You can display a list that includes all modems defined in the configuration file and *include* files for the RACs you selected.

This list displays names from the RAC configuration file followed by names in any *include* file. If you edit a modem definition that originates in an *include* file, Annex Manager copies the definition, places the edited version in the RAC configuration file, and displays the name from this file.

You cannot configure modem information if you select multiple RACs that do not use the same configuration file on the same host. (The configuration file does not have to reside on the same host as Annex Manager.) In addition, you cannot configure modem information if you select one or more RACs where the preferred boot host is different from the actual boot host.

The modem name that displays when the window first appears depends on your port selections:

- If you selected one port, or multiple ports that use the same modem, this field contains the current modem name.

- If you selected ports that use different modems, this field is blank. If you continue to use this window and do not enter a name here, Annex Manager will not change modem values when you click *Apply*.

- If the modem name is not set for the ports you selected, *<undefined>* appears.

- If the ports you selected use a modem that does not appear in the list, Annex Manager adds the name to this list, displays a warning window, and creates a default modem definition in the configuration file. Click *Edit Modem* to display and change this default definitions.

●   *Edit Modem* displays the *Edit Modem* window. Internal modem definitions can be viewed and changed in the *Edit Modem* window. The fields in the *Edit Modem* window apply to all calls established on a 5399/8000 RAC or ISDN Primary Rate Interface RAC, unless settings in the configuration file override these values.

Interface Options Box

The *Interface Options* box displays information in the *Settings, Address Assignment, Interface Protocol, AppleTalk, RLogin/Telnet*, and *Dedicated* boxes.

●   The *Settings* box displays address information for the ports you selected:

●   The *Remote Address* field contains the IP address for the host at the remote end of the point-to-point (SLIP or PPP) link.

●   The *Subnet Mask* field contains the RAC IP subnet mask. The subnet mask defines which portion of the IP address is the network, subnet, and host. Entering an incorrect subnet mask can cause routing problems.

●   The *Address Assignment* box allows a RAC to request an address from a host-based server. The *Address Assignment* buttons control the source of the address assignment.

●   If you select the *Security Server* button the RAC searches the *acp_dialup* file for the user name of the remote client and sets the remote address and other related values.

●   If the file contains a matching user name and remote address in the *acp_dialup* file, the RAC uses that value.

●   If the file does not contain a matching user name, the RAC uses the local value. If the remote address is set to 0.0.0.0, the RAC negotiates for the address with the remote PPP client. The connection is denied for a remote SLIP client.

●   If you select the *dhcp* button the RAC contacts a DHCP server to request the PPP dialup addresses.

• If you select the *Local* button the RAC uses the value from the RAC. If the remote address is set to 0.0.0.0, the RAC negotiates for the address with the remote PPP client. The connection is denied for a remote SLIP client.

• The *Interface Protocol* box lists the control protocols for which the RAC negotiates. You can select a single button or any combination of the following buttons:

  • *atcp* specifies the AppleTalk Protocol Control Protocol

  • *ipcp* specifies the Internet Protocol Control Protocol

  • *ipxcp* specifies the Internet Packet Exchange Control Protocol

  • *ccp* specifies the Compression Control Protocol

• The *AppleTalk* Box uses the *Node ID* field to specify the AppleTalk hint used by the RAC on a specific port. You can enter an ID in decimal or hexadecimal notation. Each ID has two parts separated by a dot:

  – A network address that ranges from 0 to 65534 (0x0000 to 0xFFFE).

  – A node address that ranges from 0 to 254 (0x00 to 0xFE).

• The *Rlogin/Telnet* box uses the *Argument* field to specify arguments for *rlogin* and *telnet* commands. The *Argument* field contains the commands used when you select *Rlogin* or *Telnet* in the *Mode* box. Include a host name or address here. You can enter up to 100 characters.

● The *Dedicated* box box uses the *Host Address* field and the *Method* box:

– The *Host Address* field contains the IP address of a host to which this port will connect.

– The *Method* box selects the application to which a RAC port can connect. You can select *Rlogin* or *Telnet.*

The Edit Async Ports (continued) Window

The *Edit Async Ports (continued)* window provides access to additional port settings in *PPP Security, Time,* and *LAT* boxes.
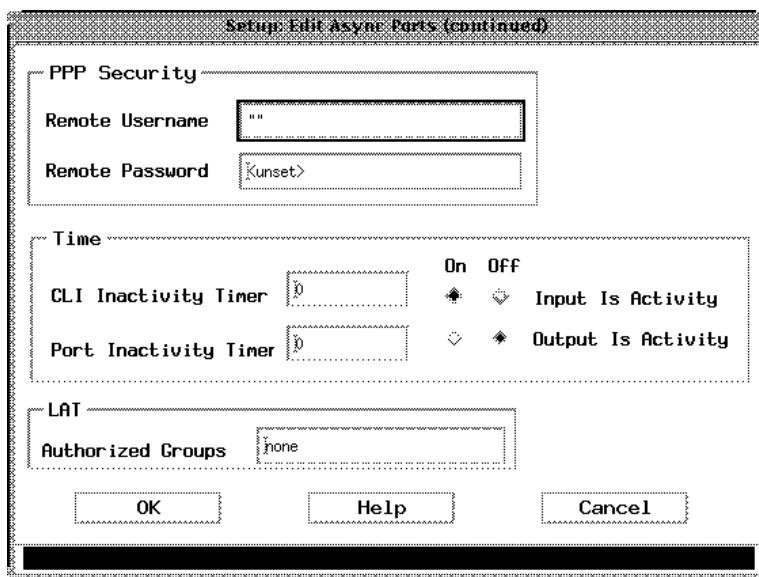
Figure 4-7. Edit Async Ports (continued) Window

PPP Security Box

The *PPP Security* box defines security on PPP ports using the following fields:

- The *Remote Username* field contains the user name by which the RAC identifies itself when the remote PPP peer asks for authentication. This name can contain up to 15 characters.

- The *Remote Password* field defines the user's password that the RAC uses when the remote PPP peer requests authentication. For security reasons, Annex Manager displays this value as set or unset. This password can contain up to 15 characters.

Time Box

The *Time* box defines activity on the ports you selected and controls inactivity timers.

- The *CLI Inactivity Timer* specifies the amount of time in minutes that the RAC remains idle before disconnecting a CLI session from a port. Entering zero disables the timer; entering 255 causes the RAC to disconnect as soon as it exits from its last job. You can enter any number of minutes up to 255. Unlike the port inactivity timer, this timer does not disconnect a CLI session with active jobs.

- The *Port Inactivity Timer* field specifies the number of minutes that a port can remain inactive. If the timer expires, the RAC terminates all sessions and resets the port. Use the *Input is Activity* and *Output Is Activity* buttons to define activity as input to the port or output from the port. If you do not use these buttons the timer runs independent of activity. You can enter any number of minutes up to 255 minutes.

- The *Input Is Activity* button defines activity as input. If you click this button the RAC sets the inactivity timer when it receives input at the port.

- The *Output Is Activity* button defines activity as output. If you click this button the RAC sets the inactivity timer when it sends output from the port.

LAT Box

The *LAT* box defines group codes.

The *Authorized Groups* field specifies the LAT protocol remote group codes that are accessible to users on a RAC port. You can enter all, none, a series of numbers separated by commas (e.g., 1, 5, 7) or a range of numbers separated by dashes (e.g., 1, 5, 200-255). You can use any number between 0 and 255.

The Edit Modem Window

The *Edit Modem* window lets you change an existing modem definition for any RAC and create a new definition or remove definitions from for RACs other than ISDN Primary Rate RACs.

The *Edit Modem* window uses the following fields:

- The *Modem Name* field specifies the type of modem attached to the ports you selected. For RACs with asynchronous ports, this field automatically displays the name that appears in the *Edit Async Port* window's *Modem Name* field. For ISDN Primary Rate RACs, it displays the name of the internal modems from the RAC configuration file.

- If this field displays an existing modem name, the *Connect Status String, Dialin Setup Command*, and *Dialout Setup Command* fields display current values. If you change values for a modem that exists in an include file, Annex Manager copies the file and place your new definition in the RAC configuration file.

- If this field displays *<undefined>* or is blank, Annex Manager provides default values in the *Connect Status String, Dialin Setup Command*, and *Dialout Setup Command* fields. You can use these default values or enter new values.

  If you want to view or edit a definition for a different modem than the one that appears in the window, click *OK* here and select another name from the *Modem Name* list. If the *Edit Modem* window first appears with a modem name and you change it to an existing name, the *Connect Status String, Dialin Setup Command* and *Dialout Setup Command* fields will not automatically display current values for the name you entered. If you click *Apply* at this point Annex Manager changes the definition for the name you entered to the original *Modem Name* values.
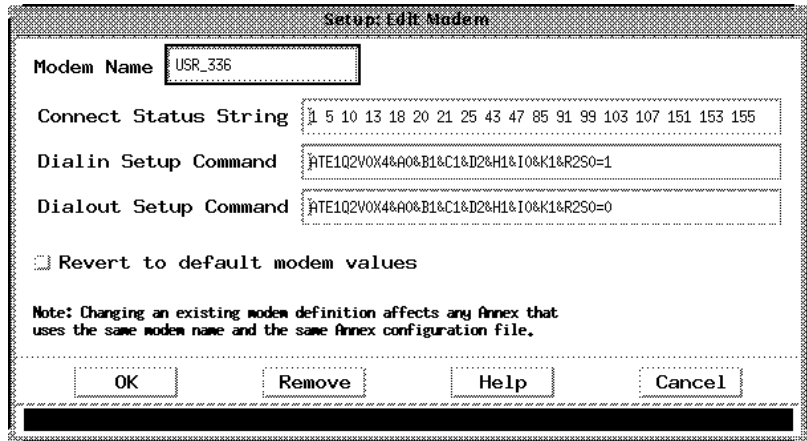
Figure 4-8. Edit Modem Window

- The *Connect Status String* field contains the string the RAC uses to initiate an outbound call. This string lists all successful connect messages that the modem can return. You can enter up to 80 status codes.

- The *Dialin Setup Command* field contains the command the RAC sends to incoming modem ports before the first user connects to a port. The command should include all modem steps required to answer a call coming into the RAC. For example, it should turn on the auto-answer feature and disable inbound modem connect messages.

- The *Dialout Setup Command* field contains the command the RAC sends to all serial device ports before they becomes active. This command should contain all configuration information required for the RAC to initiate an outbound call. For example, it should disable the auto-answer feature and enable modem connect messages. You can enter up to 80 characters.

- The *Revert to Defaults* button displays default values for a modem when you have changed the default definition.

WAN Modules

The Edit WAN Modules function lets you set WAN interface parameters.

1. **Create a RAC list and select the RACs you want to configure (page 2-1).**

2. **In the** *Main* **window, select** *WAN Modules* **from the** *Setup* **field at the top of the window or click** *Setup* **and then select** *WAN Modules***.**

   The *WAN Modules* window appears (Figure 4-19).

3. **Select one or more WANs for editing.**
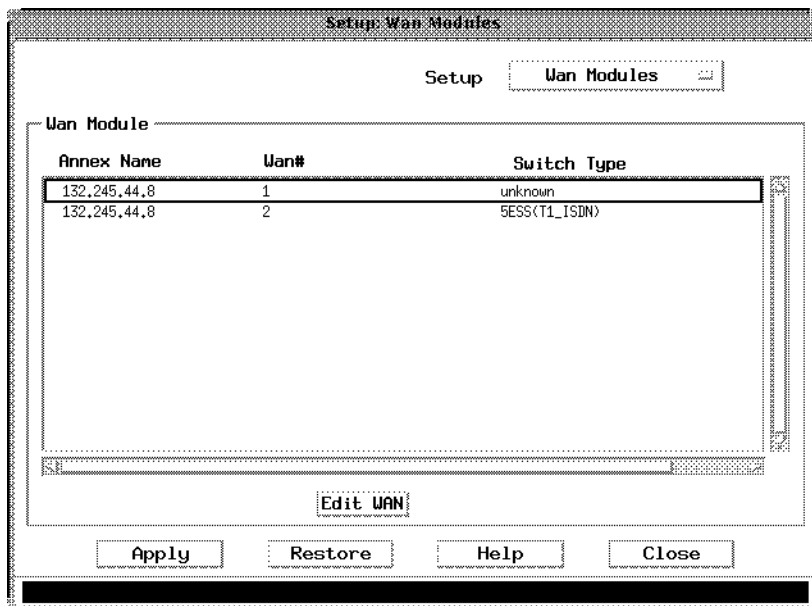
Figure 4-9. WAN Modules Window

4. **Click** *Edit WAN***.**

   The *Edit WAN* window appears (Figure 4-10). This window is described in *The Edit WAN Module Window on page 4-30*.

5. **Edit the parameters in this window as desired.**

6. **Click** *Apply* **to set your new values.**

7. **Click** *Close* **to close the window.**

8. **In the** *WAN Modules* **window, optionally click** *Restore* **to reset all fields to the previous values. (If you have already clicked** *Apply***, you cannot do this.)**

9. **Click** *Apply*.

   Annex Manager sets the new values you entered.

10. **Click** *Close* **to close the window.**

Figure 4-10. Edit WAN Modules Window

The Edit WAN Module Window

The *Edit WAN Module* window allows you to set WAN Interface parameters. The window displays information in the *WAN Parameters* box, the *DNIS Provisioning* box, and the *ANI Provisioning* box.

WAN Parameters Box

The *WAN Parameters* box displays uses the following option buttons:

- *Switch Type* defines the kind of switch the RAC uses. The value you choose here depends on the switch provided by your telephone company. You can select:

  - Default - see Table 4-1 for the default switch type

  - Other for a switch not listed

  - US/N.American(Chan_T1)

  - Singapore(E1_ISDN)

  - NI-2(T1_ISDN)

  - DMS-100(T1_ISDN)

  - 5ESS(T1_ISDN)

  - ETS1(E1_ISDN)

  - Australia(E1_PRI)

  - Japan_NTT

  - ETS1(w/o CRC4)E1_ISDN

  - HongKong(Chan_T1)

  - Taiwan(T1/R1)

  - CCITT(E1/R2)

  - 4ESS(T1_ISDN)

  - Brazil(E1/R2)

  - Korean(E1/R2)

  - Sweden(E1/P7)

- Indonesia(E1/R2)

- NewZealand(E1/R2)

Table 4-1: Default Switch Types

Module Type	Default Switch Type
CAS T1	US/N. American (Chan T1)
CAS E1	CCITT 9E1/R2
PRI T1	5ESS9T1 ISDN)
PRI E1	ETS1 (E1 ISDN)

The *Edit WAN Module* window selects the *Default* and *Other* buttons based on current *Switch Type* settings:

- *Default* is selected if you do not set the switch type before using the *Edit Wan Module* window.

- *Other* displays as selected if the switch type you set using the *CLI* or *admin* command is not one of the switches listed in the Annex Manager Switch Type list. Annex Manager ignores *Other* and does not change the current switch type.

- *Buildout* allows adjustment of the cable loss measurement between the last T1 signal regenerator and your location. This measurement is supplied by the telephone company at installation. Adjust your buildout based on this measurement. The measurements are in decibels. There are four choices:

  -    0_dB

  -   7.5_dB

  -   15_dB

  -   22.5_dB

- *FDL Type* allows configuration of the FDL standard. It describes the facilities data link use. This allows the telephone company to read the statistics maintained by a RAC and to perform diagnostic tests. There are two choices:

  -   att for ATT-54016 ESF FDL

  -   ansi for ANSI-T1-403 FDL

- *Framing* selects the superframe format used on the T1/E1 Network interface. Your selection must match the format supplied by the telephone company. The choices are:

  – ESF and D4 for T1

  – dDF, MFF_CRC4, and MFF_CRC4_G706 for E1

- *Line code* selects the T1/E1 Network interface. Your selection must match the codes supplied by the telephone company. The choices are:

  – B8ZS and AMI for T1

  – AMI and ITDB3 for E1

- *Ring Back* controls the audible ring for incoming calls. This parameter is useful only when you select wink or immediate in the Signalling box. Choose yes to enable or no to disable ringback.

- The *Protocol* box includes *Signalling* and *Direction*.

  - *Signalling* radio buttons indicate the protocols supported by each T1 DSO channel. Choose one of the following:

    – Wink

    – Ground

    – Loop

    – Immediate

  - *Direction* check buttons determine whether a channel transmits and/or receives data. Choose Outbound, Inbound, or both Inbound and Outbound for bi-directional.

DNIS Provisioning Box

The *DNIS Provisioning* box allows you to set the number of DNIS digits that the channelized WAN interface is provisioned to provide. Typical values are between 4 and 10. The default value is 0 and the maximum is 255.

ANI Provisioning Box

The *ANI Provisioning* box allows you to configure the number of ANI digits that the WAN interface is provisioned to provide. Typical values are between 4 and 10. The default value is 0 and the maximum is 255.

Basic Dial Access

The *Basic Dial Access* window lets you view and change commonly used parameter settings for an 8000 RAC, a 5399 RAC, or an ISDN Primary Rate RAC.

To view and change *Basic Dial Access* settings:

1.   **Create a RAC list and select the RACs you want to configure (page 2-1).**

2.   **In the** *Main* **window, select** *Basic Dial Access* **from the** *Setup* **field at the top of the window or click** *Setup* **and then select** *Basic Dial Access***.**

     The *Basic Dial Access* window appears (Figure 4-19). The parameters in this window are described in *The Basic Dial Access Window on page 4-35*.
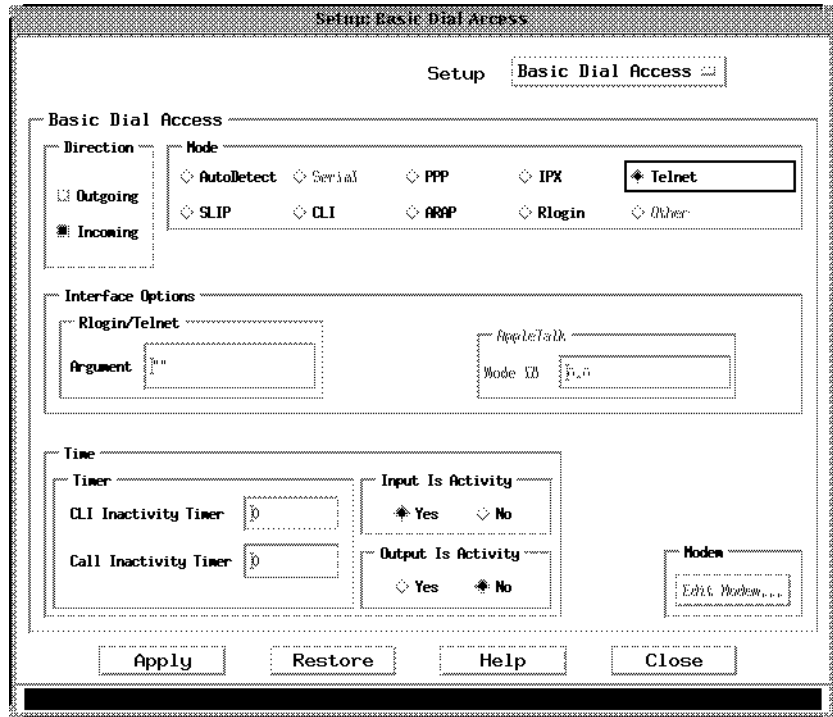
Figure 4-11. Basic Dial Access Window

3. **If you want to edit modems go to the next step. Otherwise skip to step 5.**

4. **Click** *Edit Modem* **in the Modem box.**

    The *Edit Modem* window appears (Figure 4-12). This window is described in *The Edit Modem Window on page 4-26*.

5. **Optionally click** *Restore* **to reset all fields to the previous values. (If you have already clicked** *Apply*, **you cannot do this.)**

6. **Click** *Apply*.

    Annex Manager sets the new values you entered.

7. **Click** *Close* **to close the window.**
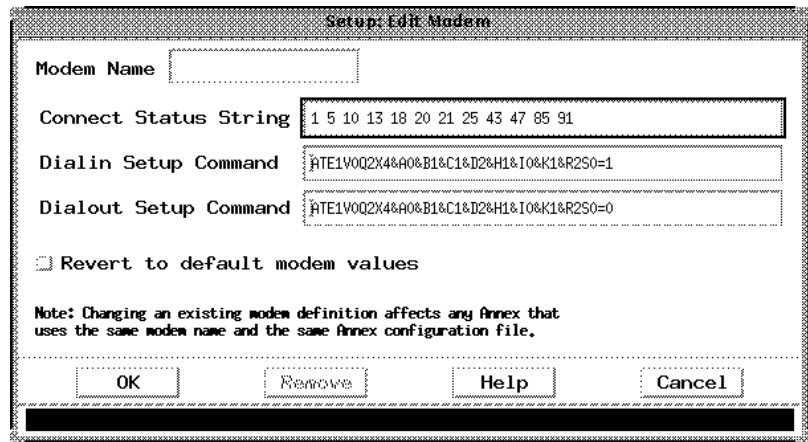
Figure 4-12. Edit Modem Window

The Basic Dial Access Window

The *Basic Dial Access* window allows you to change commonly used
parameter settings for an 8000 RAC, a 5399 RAC or ISDN Primary Rate
RAC. *Basic Dial Access* displays information in the *Direction, Mode, Interface
Options*, and *Time* boxes. In addition, click *Edit Modem* to view the *Edit Modem*
window which allows changes to internal modem definitions.

Direction Box

The *Direction* box determines whether the port transmits or receives data.

The *Outgoing* and *Incoming* buttons allow the channel to use outgoing or
incoming connections. You can select one or both buttons. These buttons,
combined with your selection in the *Type* box, determine the *Mode* box
options you can use. When an option is unavailable it is grayed out.

Mode Box

The *Mode* box defines the type of access available on a port. This box includes the buttons:

- *Autodetect* allows an ISDN Primary Rate RAC to identify an incoming packet's protocol and to convert it to IPX, PPP, ARAP or CLI.

- *Serial* provides access to modems, serial line printers, and other serial devices.

- *PPP* specifies that a connection can perform as a network interface using PPP.

- *IPX* allows dial-in Novell access with the Fastlink II client.

- *Telnet* automatically connects a user to a host via the *telnet* command. You can specify the host and arguments in the *Rlogin/Telne*t box *Argument* field.

- *SLIP* specifies that a call can perform as a network interface using SLIP.

- *CLI* allows a terminal or incoming modem access to the RAC Command Line Interface (CLI). CLI provides access to the network and connections to other hosts via the t*elnet, connect, rlogin,* and *tn3270* commands.

- *ARAP* specifies that a connection can perform as a network interface using ARAP.

- *Rlogin* automatically connects a user to a host via the rlogin command. You can specify the host and arguments in the *Rlogin/Telnet* box Argument field.

- *Other* indicates that one or more RACs you selected currently use modes that differ from the options displayed in the Mode box. You can use the *Set* command in Annex Manager Customize mode to check these values, or you can select another option here. You cannot select the *Other* button.

Interface Options Box

The *Interface Options* box displays information in the *AppleTalk*, and *Rlogin/Telnet* boxes.

- The *AppleTalk* box uses the *Node ID* field. *Node ID* specifies the AppleTalk hint used by the ISDN Primary Rate RAC. You can enter an ID in decimal or hexadecimal notation.

- The *Rlogin/Telnet* Box allows you to specify arguments for rlogin and telnet connections. The *Argument* field contains the commands used when you select *Rlogin* or *Telnet* in the *Mode* box. You should include a host name or address here. You can enter up to 100 characters.

Time Box

The *Time* box defines activity and controls inactivity timers:

- *CLI Inactivity Timer* specifies the amount of time in minutes that the ISDN Primary Rate RAC remains idle before disconnecting a CLI session. Entering 0 (zero) disables the timer; entering 255 causes the RAC to disconnect as soon as it exits from its last job. You can enter any number of minutes up to 255. Unlike the call inactivity timer, this timer does not disconnect a CLI session with active jobs.

- *Call Inactivity Timer* specifies the number of minutes that a connection can remain inactive. If the timer expires, the RAC terminates the call. Use the *Input is Activity* and *Output Is Activity* buttons to define incoming call activity. If you do not use these buttons, the timer runs independent of activity. You can enter any number of minutes up to 255 minutes.

- The *Input Is Activity* button defines activity as input. If you click *On* the RAC resets the inactivity timer when it receives input through an established call.

- The *Output Is Activity* button defines activity as output. If you click *On*, the RAC resets the inactivity timer when it sends output.

Modem Box

The *Modem* box *Edit Modem* button displays the *Edit Modem* window. You view and change internal modem definitions in the *Edit Modem* window. The fields in the *Edit Modem* window apply to all calls established on an ISDN Primary Rate RAC unless settings in the configuration file override these values.

PPP Dial Access

PPP Dial Access is available only for these devices: 5393/6300, 5399, and 8000.

PPP lets you use the RAC to provide access for remote nodes through the telephone network, using the RAC channels or WAN/CAS DS0 channels in combination with:

- Analog modems (V.34, V.32)
- ISDN BRI lines with terminal adapters using a rate adaptation protocol
- ISDN BRI lines using ISDN adapter cards or personal ISDN routers (Nautica Series CLAM)
- ISDN PRI lines using ISDN routers (Nautica Series Marlin)
- Switched 56 and switched 64 synchronous lines

To configure RACs for PPP:

1. **Create a RAC list and select the RACs you want to configure (page 2-1).**

2. **In the** *Main* **window, select PPP Dial Access from the Setup field at the top of the window or click** *Setup* **and then select** *PPP Dial Access***.**

   The *PPP Dial Access* window appears (Figure 4-19). This window is described in *The PPP Dial Access Window on page 4-39*.
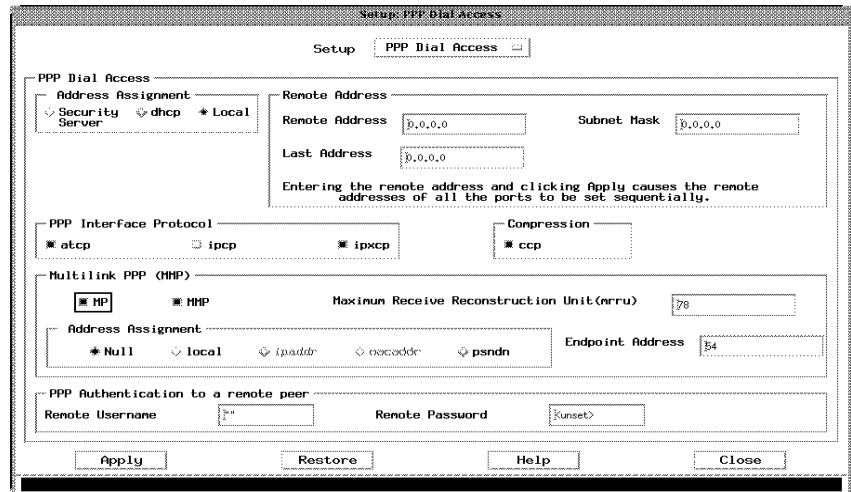
Figure 4-13. PPP Dial Access Window

3. **Change parameters as desired.**

4. **Optionally click** *Restore* **to reset all fields to the previous values. (If you have already clicked** *Apply*, **you cannot do this.)**

5. **Click** *Apply*.

   Annex Manager sets the new values you entered.

6. **Click** *Close* **to close the window.**

The PPP Dial Access Window

The *PPP Dial Access* window lets you set up:

- Address assignments
- Remote Address
- PPP Interface Protocol
- Compression
- Multisystem Multilink PPP (MMP)
- Multilink PPP (MP)

Address Assignment Box

Address assignment buttons control the source of the address assignment.

- *Security server* - RAC searches the acp_dialup file for the user name of the remote client and sets the remote address and other related values.

  - If the file contains a matching user name and remote address in the *acp_dialup* file, the RAC uses that value.

  - If the file does not contain a matching user name, the RAC uses the local value - the value from the RAC.

  - If the remote address is set to 0.0.0.0 the RAC negotiates for the address with the remote PPP client. The connection is denied for a remote SLIP client.

- *dchp* - the RAC contacts DHCP server to request the PPP dialup addresses.

- *Local* - the RAC uses the values from the *Remote Address* and *Subnet* fields.

Remote Address Box

The *Remote Address* box allows you to assign consecutive remote addresses to RAC ports or B-channels for SLIP or PPP connections. You can set up remote addressing from the *PPP Dial Access* window only for these devices: 5393/6300, 5399, and 8000. For other devices use the *Remote Addressing* window. This window is described on page 4-43.

The *Remote Address* window uses the *First Remote Address* and *Subnet Mask* fields to enter and display information. The *Last Remote Address* field displays the last remote address; you cannot enter text here.

- *First Remote Address* assigns the first IP address of the entire range of ports or channels for the selected Annex. If this field displays *0.0.0.0,* all addresses in the range of ports or channels are 0.0.0.0.

- If any of the values set for individual ports or channels using other methods (admin, na, or Customized mode) are non-consecutive, this field and the *Last Remote Address* field are blank.

- If you change the *First Remote Address* and click *Apply*, the IP address you entered is assigned to the first port or channel of the Annex you selected in the *Main* window. Subsequent ports or channels are then assigned IP addresses numbered consecutively after the first address (if you enter 0.0.0.0, all IP addresses in the range are assigned this value). For 5399 devices, IP addresses are assigned consecutively beginning with the first channel of the first WAN Module and ending with the last channel of the second WAN Module.

PPP Interface Protocol Box

The *PPP Interface Protocol* box lists the control protocols for which the RAC negotiates. You can select a single button or any combination of buttons:

- *atcp* - the AppleTalk Control Protocol
- *ipcp* - the Internet Protocol Control Protocol
- *ipxcp* - the Internet Packet Exchange Control Protocol

Compression Box

If you want ccp compression for the selected RACs, select *ccp*. Otherwise compression is turned off.

Multilink PPP (MMP) Box

Multisystem Multilink PPP (MMP) is a superset of Multilink PPP. It allows MP links for a telco hunt group to terminate on multiple RACs. The RACs are combined together in an MMP group to use all of the incoming channels in the group, increasing the potential bandwidth of an MP bundle. The RACs support MMP for incoming calls only.

MMP is available only on ISDN-based products: 6300, 5393, 5399, 8000.

MP is a protocol standard that provides a method to adjust the bandwidth of a connection between two network devices to accommodate dynamically changing network loads.

The selections are:

- MP - specifies the MP protocol standard

- MMP - specifies the MMP protocol standard

- Maximum Receive Reconstruction Unit (mrru)

- Address Assignment - determines the Endpoint Discriminator Address used:

    – *Null* - causes the RAC to use the NULL Endpoint Discriminator (no address)

    – *Local* - causes the RAC to use to use the local device address of the ethernet interface of the RAC for the Endpoint Discriminator Address

    – *ipaddr* - causes the RAC to use to use the IP address of the ethernet interface of the RAC for the Endpoint Discriminator Address

    – *macaddr* - causes the RAC to use to use the MAC address of the ethernet interface of the RAC for the Endpoint Discriminator Address

    – *psndn* - (Public Switched Network Directory Number) causes the RAC to use the value stored in the mp_endpoint_address parameter for the Endpoint Discriminator Address

- Endpoint Address - Sets the value of the Endpoint Discriminator Address for Endpoint Discriminator Classes that allow user-configured information. This parameter is accessed only when set to PSNDN (Public Switched Network Directory Number)

PPP Authentication to a Remote Peer

You can enable PPP authentication for remote users by entering the Remote Username and Remote Password. These are the user name and password by which the ISDN Primary Rate RAC identifies itself when the remote PPP peer asks for authentication. Each can have from 1 through 15 characters.

Remote Address

Remote addressing is *not* available from the Setup menu for the 5393/
6300, 5399, and 8000. For these devices use the *Remote Addressing* box in
the *PPP Dial Access* window. See *The PPP Dial Access Window on page
4-39* for instructions.

To configure RACs for remote addressing:

1. **Create a RAC list and select the RACs you want to configure
   (page 2-1).**

2. **In the** *Main* **window, select** *Remote Address* **from the** *Setup* **field at
   the top of the window or click** *Setup* **and then select** *Remote
   Address***.**

   The *Remote Address* window appears (Figure 4-14). This window
   is described in *Remote Address Window on page 4-44*.

Figure 4-14. Remote Address Window

3. **Enter the** *First Remote Address* **and** *Subnet Mask* **address as
   required. Annex Manager fills in the** *Last Remote Address* **field.**

4. **Optionally click** *Restore* **to reset all fields to the previous values. (If you have already clicked** *Apply***, you cannot do this.)**

5. **Click** *Apply.*

   Annex Manager sets the new values you entered.

6. **Click** *Close* **to close the window.**

Remote Address Window

The *Remote Address* window allows you to assign consecutive remote addresses to RAC ports or B-channels for SLIP or PPP connections. You can set up remote addressing from the *PPP Dial Access* window only for these devices: 5393/6300, 5399, and 8000. For other devices use the *Remote Addressing* window. This window is described on page 4-43.

The *Remote Address* window uses the *First Remote Address* and *Subnet Mask* fields to enter and display information. The *Last Remote Address* field displays the last remote address; you cannot enter text here.

- *First Remote Address* assigns the first IP address of the entire range of ports or channels for the selected Annex. If this field displays *0.0.0.0,* all addresses in the range of ports or channels are 0.0.0.0.

- If any of the values set for individual ports or channels using other methods (admin, na, or Customized mode) are non-consecutive, this field and the *Last Remote Address* field are blank.

- If you change the *First Remote Address* and click *Apply*, the IP address you entered is assigned to the first port or channel of the RAC you selected in the *Main* window. Subsequent ports or channels are then assigned IP addresses numbered consecutively after the first address (if you enter 0.0.0.0, all IP addresses in the range are assigned this value). For 5399 devices, IP addresses are assigned consecutively beginning with the first channel of the first WAN Module and ending with the last channel of the second WAN Module.

Security

The *Security* window controls security systems for the RACs you select in the *Main* window. You can select either acp or RADIUS as the security protocol.

To set up port security for selected RACs:

1. **Create a RAC list and select the RACs you want to configure (page 2-1).**

2. **In the** *Main* **window, select** *Security* **from the** *Setup* **field at the top of the window or click** *Setup* **and then select** *Security.*

    The *Security* window appears (Figure 4-19). Each window field is described in *The Security Window on page 4-46*.
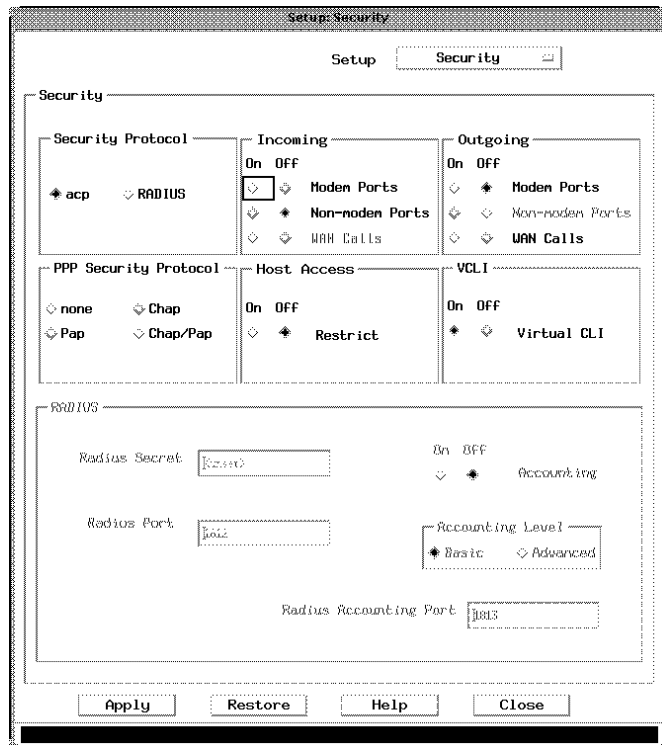
Figure 4-15. Security Window

3. **Set up security for the selected RACs as desired.**

4. **Optionally click** *Restore* **to reset all fields to the previous values. (If you have already clicked** *Apply* **you cannot do this.)**

5. **Click** *Apply.*

    Annex Manager sets security for the selected RACs.

6. **Click** *Close* **to close the window.**

The Security Window

If the RACs you selected in the *Main* window currently use this security system, the *On* button for Modem Ports, Non-modem Ports, WAN Calls, Restrict, and Security is selected when this window first appears. In this case the *enable_security* parameter is set to *enabled*. If you change these settings to *Off,* Annex Manager deactivates security but does not change the *enable_security* parameter setting.

Incoming Box

The *Incoming* box controls security for incoming modem ports, non-modem ports, and WAN Calls.

The *On* and *Off* buttons control security for the RACs you selected in the *Main* window. If you choose *On*, Annex Manager activates the ACP security server, including security for AppleTalk, CLI, IPX, and SLIP/PPP connections.

Modem Ports and Non-modem Ports do not apply for ISDN Primary Rate RACs. WAN Calls does not apply for RACs with asynchronous ports.

PPP Security Protocol Box

The *PPP Security Protocol* box defines the security check that the RAC requires before it starts the network control protocol. You can select:

- None
- *Pap* - to use password authentication protocol
- *Chap* - to use challenge-handshake protocol
- *Chap/Pap* - to request the challenge handshake protocol or to request password authentication if the peer rejects *Chap*

Outgoing Box

The *Outgoing* box activates security for outgoing modem and non-modem ports, and for WAN calls.

The *On* and *Off* buttons control host-based security for access through the port server. If you select the *On* button only authorized users have access to the ports.

Host Access Box

The *Host Access* box provides *Restrict* buttons. The *On* and *Off* buttons for the *Restrict* field activate host-based security that authorizes connections from CLI to a network host. If you select the *On* button, the security server authorizes a connection based on the *acp_restrict* file.

VCLI Box

The *VCLI* box provides the *Security* buttons.

The *On* and *Off* buttons for the Security field control user validation on virtual CLI connections to a RAC. If you select the *On* button the RAC uses the same user name and password validation for virtual CLI connections as it does for CLI security.

RADIUS Box

RADIUS (Remote Authentication Dial In User Service) is a standardized method of information exchange between a device that provides network access to users (such as a Remote Access Server used for network dial-up) and a device that contains authentication and profile information for these users (such as BaySecure Access Control).

RADIUS provides a higher level of security than acp, and offers an accounting feature to track security events.

You can set these RADIUS parameters:

- *RADIUS Secret* - enter any value. This serves as your RADIUS code. Bay Networks recommends that you enter a value at least 16 characters long, is not guessable, and contains at least two non- alphanumeric characters. If it is preceded by "0x" then the RADIUS shared secret is interpreted as hexadecimal binary.

- *RADIUS Port* - enter the number of the UDP port on which you want RADIUS to listen. The default value is 1812.

- *Accounting* - turn *On* to activate RADIUS accounting. RADIUS will then track security events. Turn *Off* to deactivate accounting.

- *Accounting Level - Basic* logs only basic security events. *Advanced* logs all other events, such as those relating to Tunnel Management and MP.

- *RADIUS Accounting Port* - enter the number of the UDP port on which you want the RADIUS accounting server to listen. The default value is 1812.

IP

This section describes the RAC implementation of Internet Protocol (IP) routing and the Routing Information Protocol (RIP) for SLIP, PPP, and Ethernet ports. It describes how to view and change IP addresses and interface routing information for selected RACs.

To configure IP:

1. **Create a RAC list and select the RACs you want to configure (page 2-1).**

2. **Select IP from the** *Setup* **field at the top of the** *Main* **window or click** *Setup***, then select** *IP.*

   The *IP* window appears ([Figure 4-16]). The window is described in *The IP Window on page 4-50*.
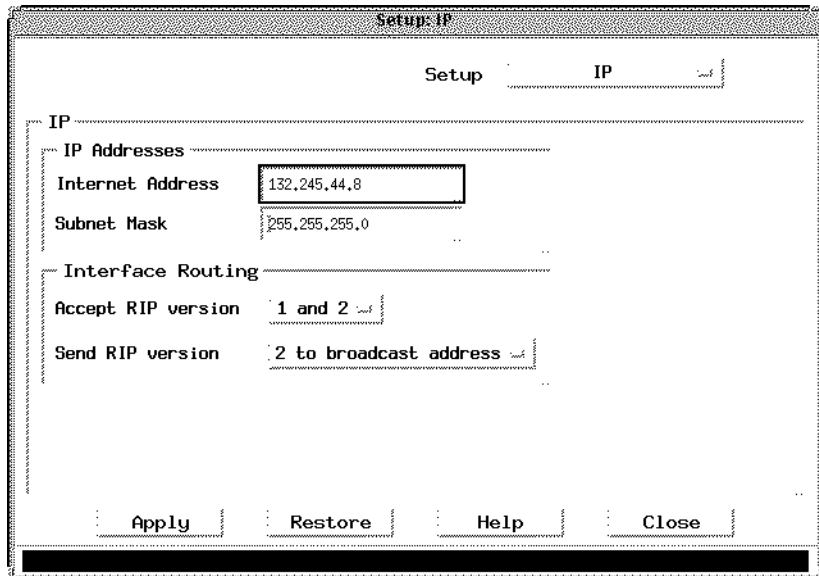
Figure 4-16. IP Window

3. **Enter the desired information into the appropriate fields in the** *IP* **window.**

4. **Optionally click** *Restore* **to return to the default values. (You cannot do this if you have already clicked** *Apply.***)**

5. **Click** *Apply* **to set your changes.**

   The *Reset Parameters* window ([Figure 4-17]) appears if you selected the *Confirm Auto Reset* option from the pull-down menu and if the settings you changed require Annex Manager to reset RACs. If you did not select *Confirm Auto Reset*, Annex Manager resets RACs without notifying you.
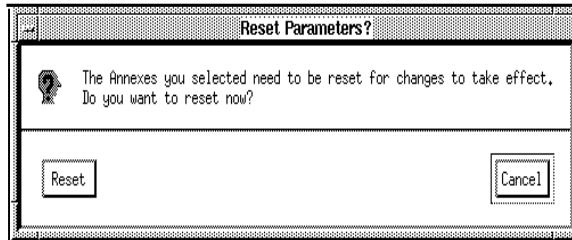
Figure 4-17. Reset Parameters Window

6.   Click *Close* **to close the window.**

The IP Window

The *IP* window allows you to view and change IP addresses and interface routing information for the RACs you selected.

- *Internet Address* defines the RAC's IP address. This 32-bit address contains four 8-bit fields separated by periods. Each field contains a number ranging from 0 to 255 or a hexadecimal number. The IP address always displays in decimal notation. You can use this field only when you select a single RAC in the *Main* window.

- *Subnet Mask* contains the IP subnet mask. The initial display of the field is based on the network portion of the RAC IP address. Entering an incorrect *Subnet Mask* can cause routing problems.

Interface Routing Box

The Interface Routing box allows you to specify RIP versions.

- *Accept RIP version* controls the RIP versions that a RAC accepts. You can enter:

    – *1* to accept version 1 packets only.

    – *2* to accept version 2 packets only.

    – *1 and 2* to accept version 1 and 2 packets.

- *Send RIP version* controls the RIP versions that a RAC sends over IP interfaces. You can choose:

    – *1 to broadcast address.*

    – *2 to multicast address.*

    – *2 to broadcast address.*

IPX

This section describes how to configure the RAC for access by remote nodes using the Internet Packet Exchange (IPX) protocol. IPX is the network-layer communications protocol that Novell networks use to deliver data packets. The RAC provides Novell dial-in connectivity and routing.

To configure IPX:

1. **Create a RAC list and select the RACs you want to configure (page 2-1).**

2. **In the** *Main* **window, select IPX from the** *Setup* **field.**

    The *IPX* window appears (Figure 4-18). The *IPX* window uses only the *Frame Type* box. *Frame Type* defines framing used for IPX packets on the Ethernet interface.
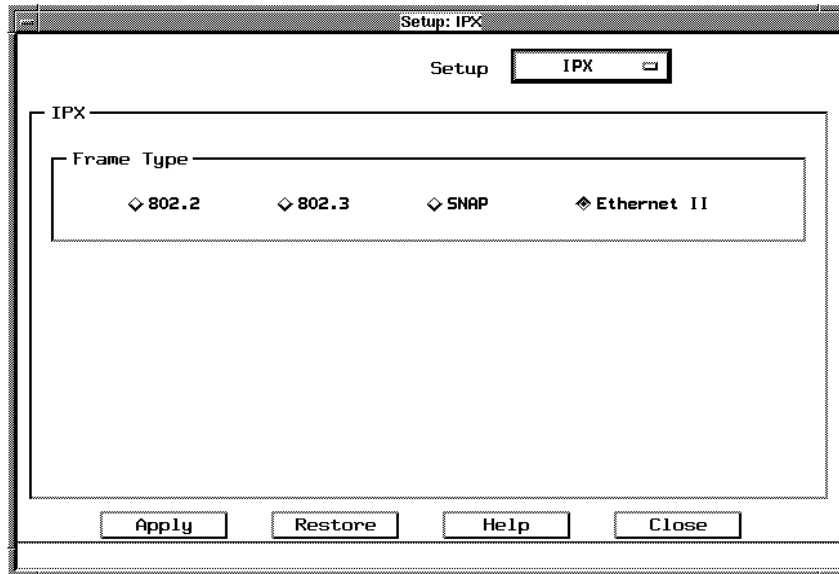
Figure 4-18. IPX Window

3. **Select the desired frame type.**

4. **Optionally click** *Restore* **to return to the original frame type. (You cannot do this if you have already clicked** *Apply***.)**

5. **Click** *Apply*. **Annex Manager sets the frame type you selected for the selected RACs.**

6. **Click** *Close* **to close the window.**

LAT

The LAT function lets you view and change server names and group codes for RACs you selected that use the LAT protocol.

To configure LAT:

1. **Create a RAC list and select the RACs you want to configure (page 2-1).**

2.   In the *Main* **window, select** *LAT* **from the** *Setup* **field.**

The *LAT* window appears (Figure 4-19).

Figure 4-19. LAT Window

3.   Enter new values for the LAT server or group codes.

Each *LAT* window field is described in *The LAT Window on page 4-54*.

4.   Optionally click *Restore* **to reset all fields to the previous values. (If you have already clicked** *Apply***, you cannot do this.)**

5.   Click *Apply*.

Annex Manager sets the new values you entered.

6.   Click *Close* **to close the window.**

The LAT Window

The *LAT* window uses the following fields:

- *Server Name* identifies the RAC in the LAT protocol. The name you enter should match the VMS host's node name used in the HIC configuration file. The default value is *LAT* followed by the physical ethernet address of the server (e.g., *LAT_080002BF0020*).

- *Remote Group Codes* specifies LAT protocol remote group codes that can access local services offered by a RAC. To access these services, the RAC must have at least one enabled group code that matches the service's group codes. Enter *all*, *none*, a series of numbers separated by commas, (e.g., 1, 5, 7) or a range of numbers separated by dashes (e.g., 1, 5, 200-255). You can use any number between 0 and 255.

- *Virtual CLI Group Codes* specifies remote group codes that are assigned to virtual CLI users. All virtual CLI users have the same group code. Enter *all* to enable all groups, *none* to disable all groups, a series of numbers separated by commas (e.g., 1, 5, 7), or a range of numbers separated by dashes (e.g., 1, 5, 200-255). You can use any number between 0 and 255.

AppleTalk

The RAC implementation of AppleTalk provides dial-in connectivity in a multi-protocol network. Using the RAC as a dial-in AppleTalk Remote Access (ARA) server, a remote ARA user can dial into the RAC and become a directly connected ARA network user. The RAC is transparent to the ARA user; it behaves like an AppleTalk end node.

AppleTalk Remote Access Protocol (ARAP) allows Apple PowerBook and Macintosh computers to communicate with one another or with an AppleTalk network over standard telephone lines. A remote ARA user can dial into an AppleTalk network and take advantage of all the services available on the network, including:

- File transfer
- Electronic mail
- Database access
- Printing
- Mounting remote disks

AppleTalk on the RAC supports ARAP V1 and V2.

To configure AppleTalk:

1. **Create a RAC list and select the RACs you want to configure (page 2-1).**

2. **Select** *AppleTalk* **from the** *Setup* **window.**

The *AppleTalk* window appears (<u>Figure 4-20</u>). This window uses only the *Default Zone* field. *Default Zone* provides the AppleTalk zone name that the RAC uses at start-up. You can enter a name using up to 32 characters. You must use spaces to separate words (e.g., *general engineering lab*). To escape embedded spaces, use the backslash (\).

.
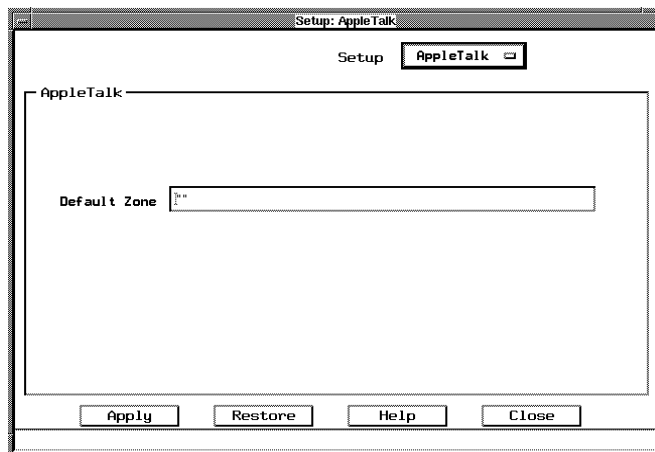
Figure 4-20. AppleTalk Window

3. **Enter a new value for the** *Default Zone***.**

4. **Optionally click** *Restore* **to return to the default value. (You cannot do this if you have clicked** *Apply.***)**

5.   **Click** *Apply.*

Annex Manager sets new values for the *Default Zone*.

Chapter 5
Booting and Resetting RACs

When you change parameters for one or more RACs on the network, the RACs do not automatically updated to reflect the new information. You must boot the affected RACs to update them.

You can also change a specific RAC or port configuration without booting, thereby resetting port and interface settings, several configuration file options, and name servers.

When you intend to boot or reset RACs, you should broadcast a message to users of terminals connected to these RACs, letting them know about the boot and updates.

This chapter describes how to:

- Boot a RAC
- Reset a RAC configuration
- Broadcast messages

Booting a RAC

When you change parameter values use the *Boot* or *Reset* commands to apply the new RAC configurations.

You can boot one or more active RACs. You can choose to boot RACs immediately, set a time in the future for the boot to take place, and send an explanatory message to all users. Annex Manager changes values for the *Pref Load Addr* and *Pref Dump Addr* parameters before the boot takes place.

The *Boot* command terminates all active connections to a RAC. You cannot return to the main window once you display the *Boot* window.

To boot a RAC:

1. **Create a RAC list and select one or more RACs (page 2-1).**

2. **Select** *Boot* **from the Configure menu.**

   The *Boot* window appears (). You cannot return to the main window unless you close the *Boot* window. *The Boot Window on page -4* provides information about each option.

3. **Choose the** *Boot Option* **you need.**

Figure 5-1. Boot Window

4. **Enter information in the** *Boot* **window text fields.**

   Text fields may be required or may not be available, depending on the *Boot Option* you choose. Text fields are described on page 5-5. If you selected:

   • *Immediate*, *Diagnostic*, or *Save in Flash* you can enter text in the *Pref Load Addr, Boot Image*, and *Boot Message* fields.

   • *Delayed* you must complete the *Boot Time* field. You can enter a time in HH:MM format, or you can enter a plus sign (+) followed by a time in HH:MM format to indicate an amount of time in the future. You can enter text in the *Pref Load Addr*, *Boot Image*, and *Boot Message* fields.

You can enter more than one delayed request. However, if you enter a second request for a time earlier than an existing request, the selected RACs boot at the earlier time and all other existing boot requests are deleted.

• *Dump* you can enter text in the *Pref Load Addr, Pref Dump Addr,* *Boot Image*, and *Boot Message* fields.

• *Abort* you can enter text in the *Boot Message* field. You cannot complete other fields.

• *Quiet* you can enter values in the *Pref Load Addr* and *Boot Image* fields, but you cannot enter text in the *Boot Message* field.

> If you select a single RAC, *Pref Load Addr*, *Pref Dump Addr*, and *Boot Image* display the RAC's current addresses and image.
>
> If you select multiple RACs whose values differ for *Pref Load Addr*, *Pref Dump Addr*, or *Boot Image*, values do not appear. If you leave these fields blank, *Boot* uses the current load and dump addresses for each selected RAC, and uses the value in the default_image_name parameter for *Boot Image*. You can enter new values in any available field.

5. **Click** *Apply*.

A *Confirmation* window appears (Figure 5-2).
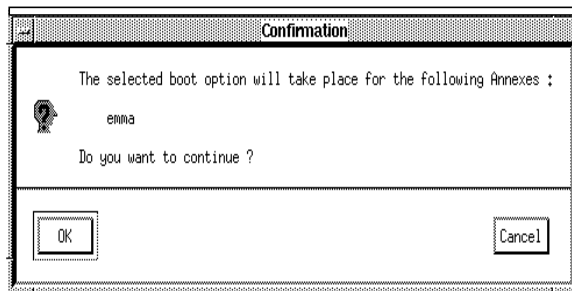
Figure 5-2. Boot Command Confirmation Window

6.   Click *OK* **to activate the boot or Cancel to return to the** *Boot* **window.**

When you click *OK*, Annex Manager notifies the console and all terminals connected to the RACs you selected about the boot. Boot command messages are described on page 5-6.

When the boot takes place, a warning window appears. This window lists the RACs where the boot transmission was successful and, if necessary, lists RACs where the boot transmission was unsuccessful.

If you boot an active RAC, its status in the main window list changes to *NOT REACHABLE*. In fact, although the RAC is not available while boot processing takes place, a successful boot does restore the RAC on your network. Use *Verify Annex State* to restore the display.

The Boot Window

The *Boot* window radio buttons define the type of *boot* operation. Text fields control the *Boot* command addresses, source, time, image, and message to users. The Annex Manager standard push buttons activate the command. This section describes each window element.

You can choose one of the following *Boot Option* buttons:

•   *Immediate* boots RACs as soon as you activate the command.

•   *Delayed* accepts a *Boot Time* at which the boot occurs. You can enter more than one delayed request. However, if you enter a second request for a time earlier than an existing request, the selected RACs boot at the earlier time and all other existing boot requests are deleted.

•   *Dump* saves the current image to the address you enter in the *Pref Dump Addr* field.

•   *Diagnostic* places a RAC in test mode and begins diagnostic tests. When these tests end, the RAC is in ROM Monitor mode and cannot respond to Annex Manager requests until you boot it.

- *Abort* cancels all delayed boot requests.

- *Quiet* boots the RACs you selected without sending a warning
  message to users.

- *Save In Flash* loads the boot image and saves it in flash memory.
  When you reboot, you can use the image in the flash memory
  rather than an image from a server on the network.

  For *Boot Options* other than *Quiet*, Annex Manager sends a status
  message to all terminals connected to the RACs you are booting. Each
  message contains RAC names and an indication of shutdown. For
  Delayed, the message includes the boot time. For *Abort*, the message
  indicates cancellation.

Text Fields

The *Boot* window text fields control the *boot* command addresses, source,
time, image, and message to users:

- *Pref Load Addr* stores the address from which the *boot* command
  loads the image.

- *Pref Dump Addr* accepts the address to which *boot* dumps the
  current image. You can use this field only when you select the
  Dump option.

- *Load Dump Gateway* accepts the address of a gateway that a RAC
  uses when it loads or dumps an image to a host located on a
  different network or subnetwork.

- *Boot Time* lets you enter the time at which the boot operation
  occurs. You can use this field only when you select the *Delayed*
  option. You can enter a time in HH:MM format, or you can
  enter a plus sign (+) followed by a time in HH:MM format to
  indicate an amount of time in the future.

- *Boot Image* accepts the path and file name for the operational
  code that is loaded. If you change the *Boot Image*, make sure the
  new image is appropriate for the RAC types you select. If you
  do not specify an image name each RAC you selected boots
  using the current default image for that RAC.

- *Boot Message* allows you to add your own text to the standard boot message. The text you enter displays on every terminal connected to the RACs you select for booting. You cannot use this field if you selected the *Quiet* option.

    The *Preferred Load Address*, *Preferred Dump Address*, and *Boot Image* fields use the default addresses and image. If you select:

    - A single RAC, *Boot* displays the default addresses and image.

    - Two or more RACs with the same preferred load and dump address and default image, *Boot* displays these addresses and image.

    - Two or more RACs with different default values for load or dump addresses and images, *Boot* displays a warning message informing you about this condition and leaves the fields blank.

    - If you leave these fields blank *Boot* uses the default value for *Preferred Load Address*, *Preferred Dump Address* and *Boot Image* for each RAC you selected.

Boot Command Messages

The *boot* command sends a standard message to all terminals connected to the RACs you are booting. Message text depends on the options you select. If you select:

- *Immediate*, *Dump*, *Diagnostic*, or *Save in Flash* the message text includes the RAC names and an indication of shutdown. For example, booting a RAC named "Emma" sends the following message: ****Annex (emma) shutdown message from NA by SNMP@network manager****.

- *Delayed* the message contains the boot time and amount of time until the boot takes place. For example, if you schedule a boot for 11:50 a.m. on Thursday, the message reads ****Annex (emma) shutdown message from NA by SNMP@network manager**** *Annex (emma) going down in 57 minutes (11:50 Thu)*.

- *Abort* stops a scheduled boot: the message indicates that the boot is cancelled. For example, if you cancel the boot scheduled for 11:50 a.m. on Thursday, the message reads *Annex (emma) boot at 11:50 is canceled*.

- *Quiet* no boot messages are sent.

For all options except *Quiet*, add your own message using the *Boot Message* field. If you create your own message its text follows the standard boot message.

Resetting a RAC Configuration

This section tells you how to change a specific RAC or port configuration without booting, thereby resetting port and interface settings, several configuration file options, and name servers.

To reset a RAC:

1. **Create a RAC list and select one or more RACs (page 2-1).**

2. **Select the Configure menu and click** *Reset***.**

   The *Reset* window displays ([Figure 5-3](#)).

3. **Choose the** *Reset Option* **you need.**

   You can select one option. For information about these options, refer to *Managing Remote Access Concentrators Using Command Line Interfaces*.

   Reset terminates active connections to a RAC when you use the *All*, *All Async Ports*, *All Printer Ports*, *All Virtual Ports*, *All T1 DS1 Ports (Hard)*, *All T1 DS1 Ports (Soft)*, *All Internal Modems*, *Individual Ports* and *Individual Internal Modems* options.

   > If you selected the *Individual Ports* or the *Individual Internal Modems* option, continue to step 4. For all other options, skip step 4 and go to step 5.
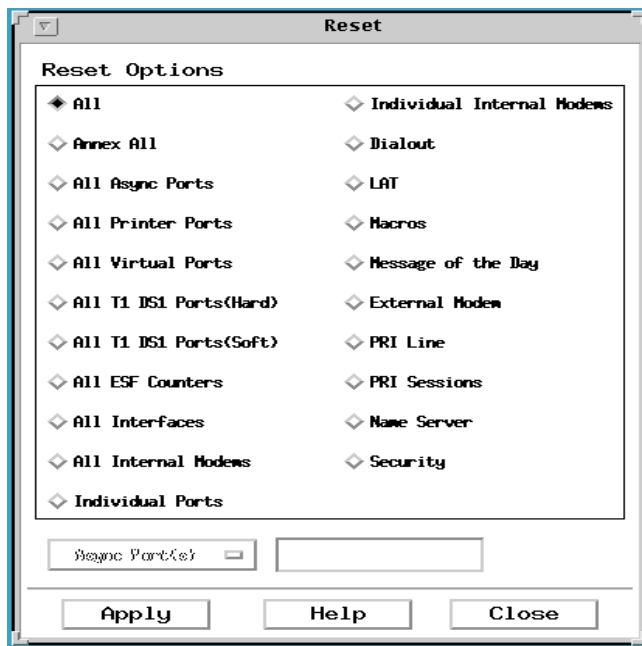
Figure 5-3. Reset Window

4. Enter a port type and port or modem number information in the fields below the *Reset Options* **box.**

You can use these fields only if you selected the *Individual Ports* or the *Individual Internal Modems* option. See page 5-11.

5. Click *Apply.*

A *Confirmation* window appears (Figure 5-4).
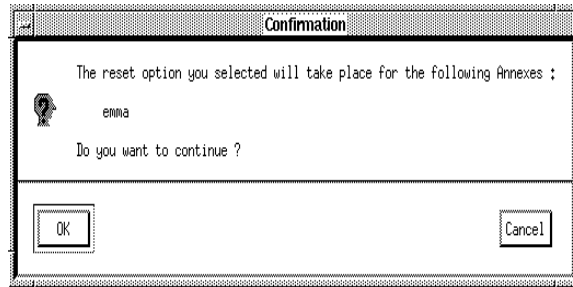
Figure 5-4. Reset Command Confirmation Window

6.   Click *OK* **to reset the RAC or** *Cancel* **to return to the** *Reset* **window.**

After you reset a RAC a warning window appears. This window lists the RACs that were reset and, if necessary, lists RACs for which *Reset* was unsuccessful.

Reset Window

The *Reset* window uses radio buttons, port type and port number fields, and push buttons to apply parameter value changes to the RACs you select.

The *Reset* window radio buttons define the options that Annex Manager changes.

> *Reset* terminates active connections to a RAC when you use the *All*, *All Async Ports*, *All Printer Ports*, *All Virtual Ports*, *All T1 DS1 Ports (Hard)*, *All T1 DS1 Ports (Soft)*, *All Internal Modems*, *Individual Ports, All Internal Modems, Individual Internal Modems*, *Individual Internal Modems*, and *PRI Line* options.

You can choose one of these buttons:

- • *All* resets all items listed in the remaining buttons.

- • *Annex All* resets all items included in the *LAT*, *Macros*, *Message of the Day*, *Name Server*, and *Security* buttons.

- • *All Async Ports* resets the asynchronous ports.

- *All Printer Ports* resets the parallel printer ports.

- *All Virtual Ports* resets the virtual connections.

- *All T1 DS1 Ports (Hard)* resets the T1 engine and terminates the T1 Drop/Insert interface and modem sessions.

- *All T1DS1 Ports (Soft)* resets parameters and disrupts service only on DS0 channels that were changed.

- *All ESF Counters* resets all T1 engine statistics.

- *All Interfaces* resets the interface parameters.

- *All Internal Modems* resets entries for internal modems only.

- *Individual Ports* resets only the port type you enter in the option button below the *Reset Option* box and the port numbers you enter in the adjacent field.

- *Individual Internal Modems* resets one or more internal modems you enter in the option button below the *Reset Option* box and the modem numbers you enter in the adjacent field.

- *Dialout* resets entries used for dialing out from a UNIX host to a remote node over a port in slave mode.

- *LAT* resets LAT (Local Area Transport) parameters. When you use this option, existing connections keep their current values: new parameter values apply only to LAT connections established after using *Reset*.

- *Macros* resets macros after you customize them in the RAC configuration file.

- *Message of the Day* resets the file for the message that appears when you establish a connection to a RAC.

- *External Modem* resets modem entries for external modems only.

- *PRI Line* resets a PRI line for an ISDN Primary Rate RAC.

- *PRI Sessions* reloads session parameter blocks in the configuration file for an ISDN Primary Rate RAC session.

- *Name Server* resets the parameters and host table that enable a RAC to translate addresses to names.

- *Security* resets security parameters.

Port Type and Port or Modem Information

If you choose the *Individual Port* or *Individual Internal Modem* option you must complete the field located below the *Reset Options* box.

To choose a port type and port numbers or an internal modem name:

1.   Click and hold the option button that displays *Async Ports***.**

   If you choose *Individual Ports*, the menu displays *Async Port(s)*, and *Printer Port(s)*. If you choose *Individual Internal Modems*, the menu displays *Internal Modem(s)*. If you choose *PRI Line*, the menu displays *WAN Module #*.

2.   Highlight the selection you want and release the mouse.

   If you choose *Individual Internal Modems*, you do not have to select an option here. If you choose *PRI Line*, *2* displays automatically.

3.   Enter one or more port, line, or modem numbers in the field.

   To enter specific ports or modems, separate numbers with commas or indicate a range of numbers using dashes. For example, you can enter *1, 3, 8* to specify three ports, or *1-3, 8* to specify ports 1 through 3 and port 8.

Broadcasting Messages

When you intend to boot or reset RACs, you should send a message to all terminals connected to the affected RACs, letting users know of the upcoming operation.

This section tells you how to communicate quickly with all terminals connected to the RACs you select to boot or reset.

To send a message:

1. **Create a RAC list and select one or more RACs (page 2-1).**

2. **Select the Configure menu and click** *Broadcast***.**

   The *Broadcast* window displays (Figure 5-5).
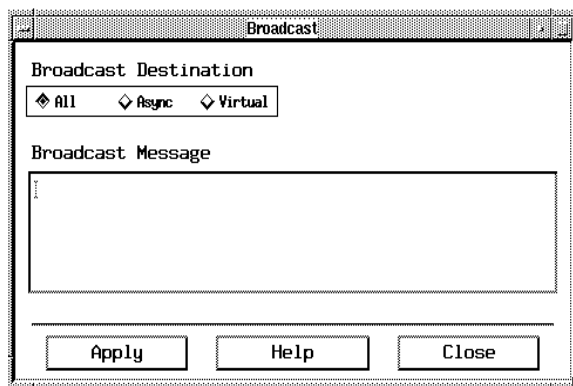
Figure 5-5. Broadcast Window

3. **Choose the** *Broadcast Destination* **you need.**

   You can select *All*, *Async,* or *Virtual*. For instructions see *The Broadcast Window on page 5-13*.

4. **Enter your message text in the** *Broadcast Message* **box.**

   Your message can contain up to 128 characters in any number of lines.

5. **Click** *Apply*.

Annex Manager sends your message to all users connected to the RACs you selected.

The Broadcast Window

The *Broadcast* window uses radio buttons, a message box, and push buttons to transmit a message to the RACs you selected. This section explains these window elements.

Choosing a Broadcast Destination

Before broadcasting a message, you must select the port type where you are sending the message. The *Broadcast* window *Broadcast Destination* buttons specify port types. Select one of these buttons:

- *All* sends your message to all asynchronous ports and to those that have virtual connections to the RACs you select.

- *Async* sends your message to all asynchronous ports on the RACs you select.

- *Virtual* sends your message to all virtual connections on selected RACs.

After choosing a destination you can enter message text.

Writing a Message

The *Broadcast* window *Broadcast Message* box lets you enter the text of your message. Your message can:

- Contain from 1 to 128 characters.

- Contain any number of lines. You can change the *Broadcast* window size to display a message that exceeds the standard message box, or you can use 🔼 and 🔽 to display any part of your message.

The *Broadcast* command uses the standard message followed by the date and time information and by the text you entered. For example, a broadcast message sent to warn users that you want to boot a RAC might read:

***Broadcast from SNMP net manager
[Thu Aug 18 11:16:34 1994]*** Please log off Emma immediately for reboot.

Chapter 6
Viewing and Changing SNMP
Information

This chapter describes how to view and update SNMP timeout, retry, and community string information for one or more RACs or for the Annex Manager defaults.

Viewing SNMP Information

To view SNMP information for one or more RACs:

1. **Create an Annex list (page 2-1) and select one or more RACs.**

2. **On the** *Main* **window, click the Options menu and select** *SNMP Information***.**

   The *SNMP Information* window appears (Figure 3-1).
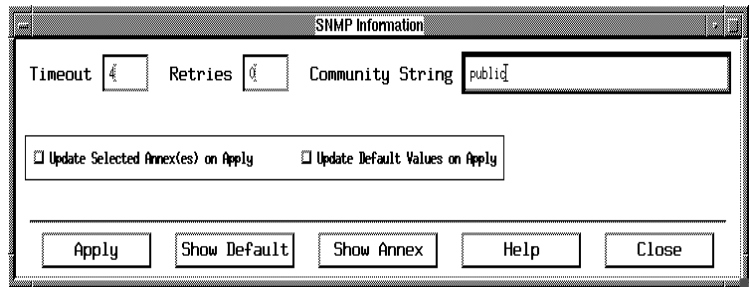
Figure 6-1. SNMP Information Window

3. **To view current RAC values in the text fields, click** *Show Annex***.**

   If you selected multiple RACs with different values, a warning window informs you that these values do not appear.

4. **To view current SNMP default values, click** *Show Default***.**

Changing SNMP Information

This section describes how to change SNMP information for one or more RACs.

Annex Manager saves the values you change using *SNMP Information* for an active session only. When you exit Annex Manager, the original *Timeout, Retries*, and *Community String* values are reinstated.

SNMP Information uses these text fields:

- *Timeout* specifies the length of time in seconds that Annex Manager waits for a response. You can enter a number of seconds here. If you leave this field blank, *SNMP Information* uses the Annex Manager five-second default.

- *Retries* controls the number of times that Annex Manager tries to reach a RAC or other device on the network. You can enter a number here. If you leave this field blank, the command uses the Annex Manager default of 0 (zero) retries.

- *Community String* specifies the SNMP password Annex Manager uses to communicate with RACs. You can enter a new string here. If you do not complete this field, Annex Manager uses *public*, which is the default community string.

The initial *SNMP Information* window does not include values for these fields.

To change RAC values:

1. Create an Annex list (page 2-1) and select one or more RACs.

If you want to update only RAC defaults, skip this step.

2. In the *Main* **window, click the Option menu and choose** *SNMP Information***.**

The *SNMP Information* window appears (Figure 3-1).

3. Enter new values for *Timeout***,** *Retries* **or** *Community String***.**

4. Select *Update Selected Annex(es) on Apply* **to update RACs you highlighted on a list, or** *Update Default Values on Apply* **to update RAC defaults, or both.**

5.   Click *Apply*.

Annex Manager changes RAC or default values.

6.   Click *Close* **to close the window.**

Chapter 7
Configuring RAC Parameters

Annex Manager lets you view and configure RAC parameters. RAC parameters are described in *RAC Parameters on page A-1*.

This chapter describes how to:

- View existing parameter groups and create new groups
- Modify parameter groups
- View and change parameter values
- Compare and change RAC configurations
- Interpret error messages

Viewing and Creating Parameter Groups

The Annex Manager Customize mode includes groups of related parameters that you can use to configure a RAC. In addition, you can create your own parameter groups. This section lists each group delivered with the system and describes how to create new groups.

Viewing Parameter Groups and Parameters

This section describes:

- How to view the list of pre-defined groups that comes with Annex Manager
- How to view individual parameters in each group
- How to view information for each parameter in a group

Viewing Pre-Defined Parameter Groups

To view Annex Manager's pre-defined parameter groups:

On the *Main* window, click *Parameter Options* and select *Pre-defined Groups*. This list of groups appears:

AppleTalk	Channel	IPX	Basic_Annex
Cmd_Line_Editing	Idle_Timer	Basic_Async_Port	Dedicated_Port
LAT	Call_Defaults	Flow_Control	MOP
MP	Modem_Internal	Nameserver	PPP
PRI_Line	Printer_Port	Routing	SLIP
Security	Sync_Call_Defaults	SysLog	T1_DS0
T1_DS1	TMux	TN3270	Time_of_Day
VCI_Interface	Virtual_CLI		

Viewing Individual Parameters in a Group

To see the parameters included in a particular group, double click on the group.

For information about a particular parameter, click on the parameter.

Creating User-Defined Parameter Groups

Annex Manager lets you select individual parameters to create your own groups. These groups appear in the configuration area of the *Main* window when you select the *User-Defined Groups* option.

To create a parameter group:

1. **On the** *Main* **window, click the** *Options* **menu and select** *User Defined Parameter Groups***.**

    The *User Defined Parameter Groups* window appears (Figure 7-1).

    The *Parameter Groups* box lists the names of all existing user-defined groups. To view the parameters in any group, either highlight the group and click *View*, or double click on the group.
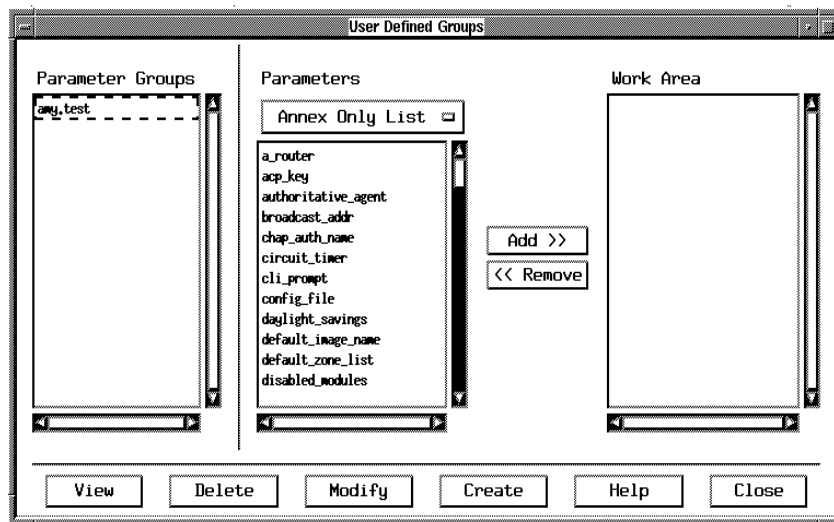
Figure 7-1. User Defined Parameter Groups Window

2. **The** *Parameters* **box includes an option button and the list box. The option button controls the parameter list that displays below it. Select one of the options:**

- The *Annex Only List* option includes all parameters, excluding port parameters. This is the default option.

- The *Async Port List* option displays asynchronous port parameters.

- The *Printer Port List* option includes printer port parameters.

- The *Enet Port List* option displays Ethernet port parameters.

- The *DS0 Channel List* option displays DS0 Channel parameter values.

- The *DS1 Line List* option displays DS1 port parameter values.

The parameters associated with the list you select appear in the *Parameters* box.

3. **Select the parameters you want to include in the new group from the** *Parameters* **box and click** *Add*.

The selected parameters appear in the *Work Area* box.

> If you add a parameter and then decide you do not need it in the group, select it in the *Work Area* box and click *Remove*.

4. **Click** *Create***.**

    The *Name Entry* window appears (Figure 7-2).
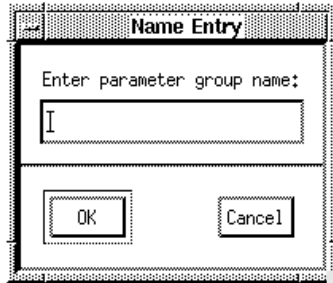
Figure 7-2. Name Entry Window

5. **Enter a name for the group.**

    You must enter a new name without using spaces in the field *Enter parameter group name*.

6. **Click** *OK* **to create the new group or** *Cancel* **to return to the** *User-defined Parameter Groups* **window.**

Modifying a Parameter Group

You can modify an existing parameter group by adding or removing parameters from the group.

You can modify only groups that you created.

To modify an existing group:

1. **On the** *Main* **window, click the Options menu and select** *User Defined Parameter Groups***.**

   The *User Defined Parameter Groups* window appears (Figure 7-1).

   The *Parameter Groups* box lists the names of all existing user defined groups. To view the parameters in any group, either highlight the group and click *View*, or double click on the group.
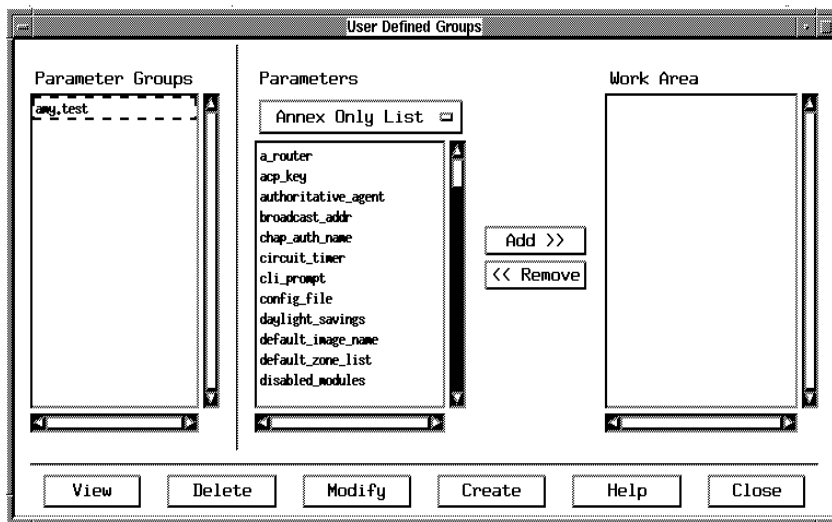
Figure 7-3. User Defined Parameter Groups Window

2. **Select the group you want to modify from the** *Parameters* **box.**

3. **Click** *View* **or double click on the group name.**

   The selected parameters appear in the *Work Area* box.

4. **Select the parameters you want to add to the group from the** *Parameters* **box and click** *Add***.**

5. **Select the parameters you want to remove from the** *Work Area* **box and click** *Remove***.**

6. **Click** *Modify***.**

   Annex Manager modifies the group.

7.   Click *Close* **to return to the** *Main* **window.**

Viewing and Changing Parameter Values

This section describes how to view and change individual RAC parameter values.

Viewing Parameter Values

To view the values for one or more parameters:

1.   Create a RAC list (page 2-1) and select one or more RACs from the list.

Show and *Set* display information only for connected RACs that you select.

2.   Click on the Parameters list and select a *Parameter Option***.**

The selected list appears in the box.

3.   Select a single parameter group or one or more individual parameters.

4.   Click *Show* **or click the Configure menu and select** *Show***.**

The *Show* window appears (Figure 7-4).

To use *Show* again without closing the window, repeat step 2. Annex Manager saves all output in the *Show* window until you click *Clear* or *Close*.

5.   Optionally select a detailed listing by clicking the *Verbose Output* **check box.**

When you select *Verbose Output,* the output box includes parameter names, MIB definitions, default values, and current values. If you do not select it, *Show* includes only parameter names and current values.
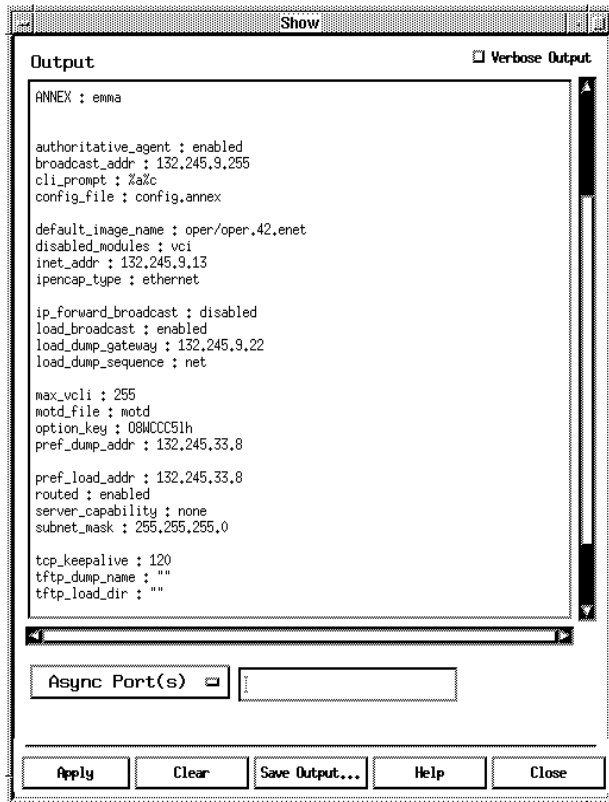
Figure 7-4. Show Window

6.   Select a port/channel type and port/channel number.

If you selected parameter groups that require port or channel
numbers, you must use these fields. See the instructions on page
7-8. If your selections do not require this information you can skip
this step.

7.   Click *Apply.*

Values appear in the *Output* box for the parameters you selected.
The level of detail supplied depends on whether you selected the
Verbose Output check box.

8. **To save your output, click** *Save Output.*

   Save Output displays the standard *File Selection* window, which includes the default text directory. Enter a file name in the *Selection* field and click *OK* to store the contents of the *Show* window output box or click *Cancel* to return to the *Show* window.

Show Output Box

The *Show* window output box lists parameter names and values. The output box always includes:

- A message informing you that you may need to enter port or channel information when you first use *Show.*

- A separate section for each RAC you selected. In Figure 7-4, a line of asterisks separates information about two RACs.

- All parameters included in a group or all parameters you selected.

  – Parameters in groups display in the order in which they appear in the group. If you choose a parameter that requires port or channel information and you enter more than one port or channel number, the *Show Output* box displays a separate line for each port or channel.

  – Parameters you select from the parameter lists appear in alphabetical order.

Entering Port and Channel Information

The parameters you choose in the *Main* window determine whether you need to enter port or channel information when viewing parameter values. If you select parameters that require this information, you can select a port or channel type and enter port or channel numbers in fields located below the *Show Output* box.

To select a port or channel type and enter port or channel numbers:

1. **Click and hold** *Async Ports.*

   The menu displays *Async Port(s)*, *Printer Port(s), Enet Port(s) DS0 Channel(s)* and *WAN Module #.*

2. **Highlight the port or channel type you want and release the button.**

    You must enter a port or channel type that matches your *Parameter Options* selection. For example, if you choose the *Async Port List* option, do not select *Enet Port(s)*.

3. **For** *Async Port(s)*, *Printer Port(s)*, *DS0 Channel(s)*, and *WAN Module #* **enter one or more port or channel numbers or** *All* **in the field.**

    To enter specific ports or channels, separate numbers with commas or indicate a range of numbers using dashes. For example, you can enter *1, 3, 8* to specify three ports, or *1-3, 8* to specify ports 1 through 3 and port 8. For *Enet* port(s), *1* displays automatically. You cannot change this value.

Changing Parameter Values

To change parameter values:

1. **Go to the** *Main* **window and create a RAC list (page 2-1).**

2. **Select the RACs and parameters you want to include.**

3. **Click** *Set*.

    The *Set* window appears shows the *Basic_Annex* group values for more than one RAC.

4. **Enter port or channel information in the fields below the** *Work Area* **(see page 7-8).**

    If your selections in the *Main* window require port or channel information, you must select a port or channel type from the option button and enter a port or channel number in the field next to the port/channel type.
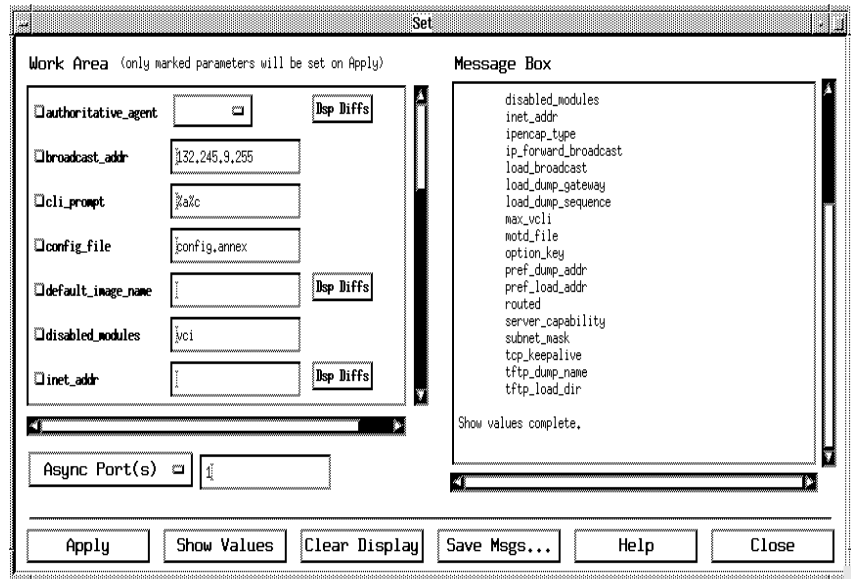
Figure 7-5. Set Window

5.   Optionally click *Show Values*.

The *Work Area* displays values for the parameters you selected. The *Message Box* lists each parameter name. You can skip this step if you do not want to see current values.

If you selected RACs, ports, or channels that do not have the same parameter value, the Disp Diffs button displays in the *Work Area* of the *Set* window. Click *Disp Diffs* to display the *Set (differing values)* window (Figure 7-6). The window displays the parameter value for each RAC and port or channel. It scrolls automatically to the parameter you selected. You can use scroll bars to view other parameter values.
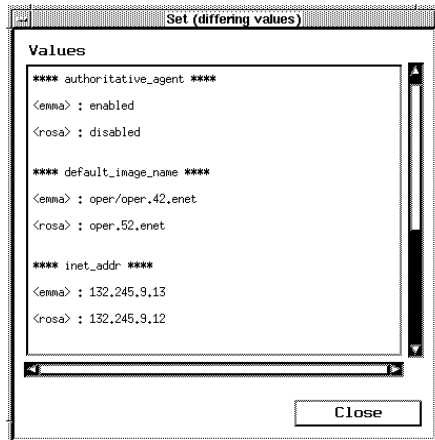
Figure 7-6. Differing Values Window

6. Click the *Check* **or drag the cursor through a range of check buttons for each parameter you want to change.**

The check button appears filled. This marks each parameter that is to change.

7. Enter new values or select new options for any marked parameter.

8. Click *Apply.*

This step triggers several operations.

• A *Confirmation* window (Figure 7-7) displays, allowing you to check your work before values change. Click *Cancel* to return to the *Set* window or *OK* to continue the *Set* process and change parameter values.
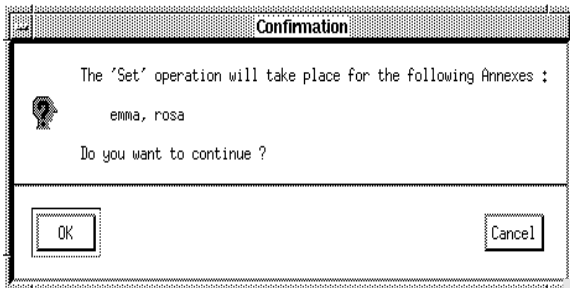
Figure 7-7. Set Command Confirmation Window

- A *Reset Parameters* window (Figure 7-8) appears if you selected the *Confirm Auto Reset* option from the pull-down menu and changed parameters that require a RAC to be reset. Click *Reset* to continue the process or Cancel to return to the *Set* window. If you did not select *Confirm Auto Reset*, Annex Manager resets the RACs without notifying you.
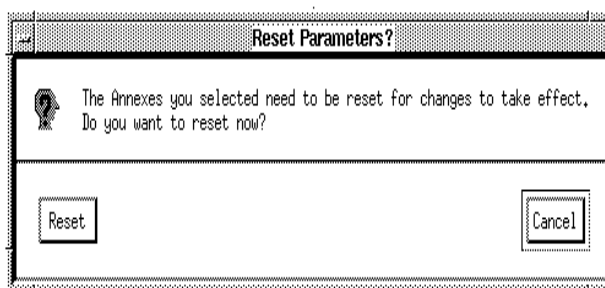
Figure 7-8. Set Command Reset Parameters Window

- *Set* changes marked parameters that have valid values. For parameters that did not change, the message box lists error conditions.

- The work area displays current values. If you entered incorrect values, the original values appear in the work area and error messages appear in the message box.

Set Window Work Area

When you click *Show Values* the work area in the *Set* window can list values for the parameters you selected in the *Main* window. You can verify current values, mark the parameters you want to change, and enter new values or options here.

Several components appear for each parameter:

- A check button (☐) precedes each parameter name. You need to select this button in order to mark a parameter and select or enter the values you want to change.

- Parameter names provide access to additional information. You can highlight any parameter name or the corresponding value field and click *F1* or *Help* to display a message about the parameter.

- Text fields or option buttons follow each parameter name. If the RACs or ports/channels you selected have the same value, these fields and buttons display that value. After selecting the check button, you can enter new values or select new options here.

- The Dsp Diffs (Display Differences) button follows a text field or an option button if the combination of RACs and ports or channels you selected or the ports or channels you selected from one RAC do not have the same parameter value. When the button appears, text fields or option buttons remain blank.

You can leave the window displayed and use *Set* again to select a parameter option that differs from your original selection. In this case, clicking *Set* again in the *Main* window displays these new parameters.

Comparing and Changing RAC Configurations

This section describes how to view and change RAC configurations.

Comparing RAC Configurations

To compare RAC configurations:

1. **Create a RAC list (page 2-1).**

   If you want to compare two scripts you can skip this step.

   You must create a RAC list if you want to compare two RACs or a RAC and a script. You can create a list before you display the *Compare* window, or you can display the *Compare* window first, return to the *Main* window to create the list, and again choose *Compare*.

2. **Choose the Configure menu and click** *Compare.*

   The *Compare* window appears (<u>Figure 7-9</u>).
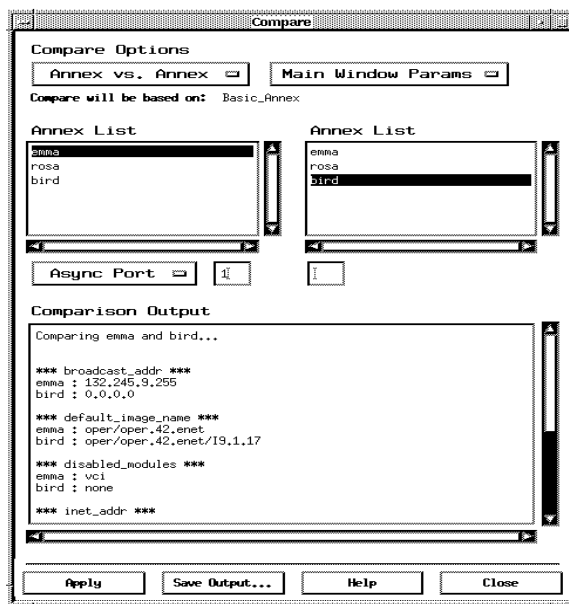
Figure 7-9. Compare Window

3.   Click *Compare Options* **and select the comparison type you want.**

The list boxes and fields change depending on the option you choose. If you select *Annex vs. Annex*, you must choose a *Parameter Option* from the *Main* window.

> If you select *Annex vs. Annex* or *Annex vs. Script*, go to step 3. If you select *Script vs. Script*, skip steps 3 and 4 and go to step 5.

The comparison option you select determines the kinds of boxes and fields that display. When you compare:

- Two RACs, each box displays your Annex list, a port type button, and a port number field for each Annex list. A message appears below the *Compare Options* reminding you that the comparison is based on your selections in the *Main* window. You can select one RAC from each box, and a port type and number for each RAC.

  Annex Manager compares two RACs based on the parameter options you selected. If you select *Main Window Params* and a parameter option that includes port parameters, the port type you enter must match your *Main* window selections. [Figure 7-10](#) shows the window that compares two RACs.
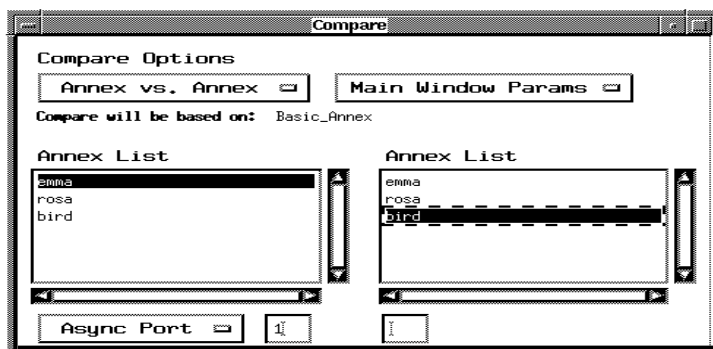
Figure 7-10. Compare Window for two RACs

The selections for *Main Window Params* are:

- *Main Window Params* to compare values based on the parameter options you selected in the *Main* window.

- *Annex Only Params* to compare all parameters, excluding port parameters.

- *Async Port Params* to compare asynchronous port parameter values.

- *Printer Port Params* to compare printer port parameter values.

- *Enet Port Params* to compare Ethernet port parameter values.

- *WAN Module Params* to compare WAN module parameter values.

- A RAC and a script, the left-hand box displays the RAC list and the right-hand box displays the default script directory. A message can appear below the *Compare Options* window reminding you that the port you enter substitutes for the wild card ports of the script. The port type button and port number field display below the Annex list box. You can select a single RAC from the list. If the script you select contains wild card ports, you must enter a port type and number.

The script selection field displays below the *Script List* box. If you select an existing script, its directory and file name appear in the field. If you want to compare a script stored in another directory, enter its directory and name in the selection field. <u>Figure 7-11</u> shows the window for the *Annex vs. Script* option.
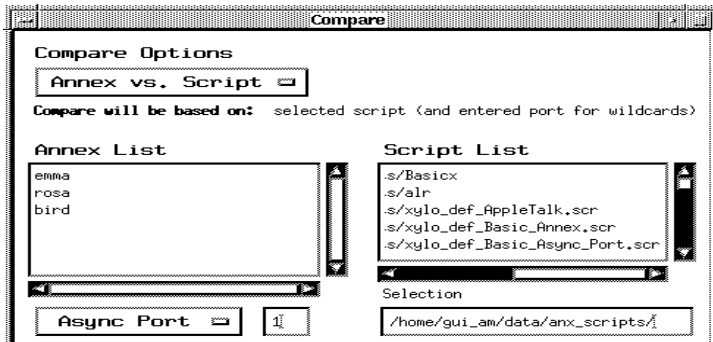
Figure 7-11. Compare Window for RAC vs. Script

• For two scripts, both boxes display the default script
  directory followed by script selection fields. When you
  select an existing script from each list, the script's path and
  file name appear in the selection box. If you want to use a
  script that is not stored in the default directory, you can enter
  its directory and name in either selection box. Figure 7-12
  shows the *Compare* window for two scripts.
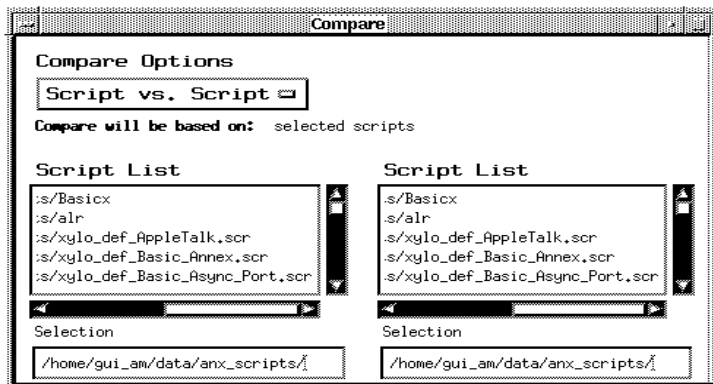
Figure 7-12. Compare Window for Two Scripts

The *Comparison Output* box reports the differences in parameter values between the RACs and scripts you select. If parameter values differ, or if a parameter name does not exist, the box displays the parameter information. The *Comparison Output* box format depends on the option you choose. Table 7-1 describes these formats.

Table 7-1. Comparison Output Box Information

If values differ and you select:	The Output Box includes:
RAC vs. RAC	Parameter name followed by each RAC name, port number (if necessary), and the parameter value.
RAC vs. Script	Parameter name followed by the RAC name and value, and the file name and value.
Script vs. Script	Parameter name followed by each script name. Parameter values appear if a parameter exists in both scripts but values are different. If a parameter exists in one script but not in the other, the box lists the parameter name and explains which script stores the parameter.

The *Compare* process considers the wild card indicator (an asterisk (*)) as a special port number. If you select *Script vs. Script* and the two scripts have the same parameter but one uses a wild card, the parameter appears in the output box.

4.   Choose a RAC from each *Annex List* **box that displays.**

If your list has one RAC, you do not need to select it. If you want to compare two ports on the same RAC, select the same RAC in both list boxes.

5.   Select one port type and a port number for each Annex List.

If you selected the *Annex vs. Annex* option, you must select a port type that matches the parameters you selected. For all other *Compare Options*, you can select only the appropriate port type. If

you selected the same RAC in both list boxes, you must select different port numbers here.

> If you selected *Annex vs. Annex*, go to step 6.

6. **Choose an existing script from each** *Script List* **box that displays, or enter a script stored in another directory in the script selection field.**

   If you selected the *Annex vs. Script* option and the script you use has wild card indicators, the comparisons are based on the port number you enter here.

   If you selected *Script vs. Script* and parameters match, but one script has wild card indicators, *Compare* considers this a difference in port numbers.

7. **Click** *Apply.*

   The *Comparison Output* box lists the parameters and values that differ, displays the number of differences in the *Compare* process, and if necessary, lists error conditions.

   When Annex Manager completes *Compare* processing, the box lists the number of differences found. If you repeat the *Compare* command for another combination of RACs and scripts, new information replaces the original display.

8. **To save your output, click** *Save Output.*

   Save Output displays the standard *File Selection* window, which includes the default text directory. You can enter a file name in the *Selection* field and click *OK* to store the contents of the output box or click *Cancel* to return to the *Compare* window.

Copying Parameter Values

This section describes how to copy the parameter values of a single RAC to one or more RACs.

> For security reasons, you can copy any parameter except the Internet address (inet_addr), the administrative password (password), the port password (port_password), the access control protocol key (acp_key), the Local Area Transport key (lat_key), the option key (option_key) and the virtual password (vcli_password) parameters.

To copy parameter values:

1. **Create a RAC list (page 2-1).**

   Copy works only for reachable RACs.

2. **Select the Configure menu and click** *Copy*.

   The *Copy* window displays ([Figure 7-13](#)).

3. **Select one option from the** *Copy Options* **button.**

   If you select *Main Window Params*, you must choose a parameter group or one or more parameters in the *Main* window. You can select one of the following:

   - *Main Window Params* copies values for the parameters you selected in the *Main* window. If you use this option with a parameter group or list that includes port parameters or with individual port parameters, you can copy values from only one port.

   - *Annex Only Params* copies the parameters, excluding port parameters, from the RAC you select.

   - *Async Port Params* copies asynchronous port parameter values from one RAC and port.

   - *Printer Port Params* copies printer port parameter values from one RAC and port.

   - *Enet Port Params* copies Ethernet port parameter values from one RAC and port.

- *WAN Module Params* copies DS1 line parameter values from one RAC and port.
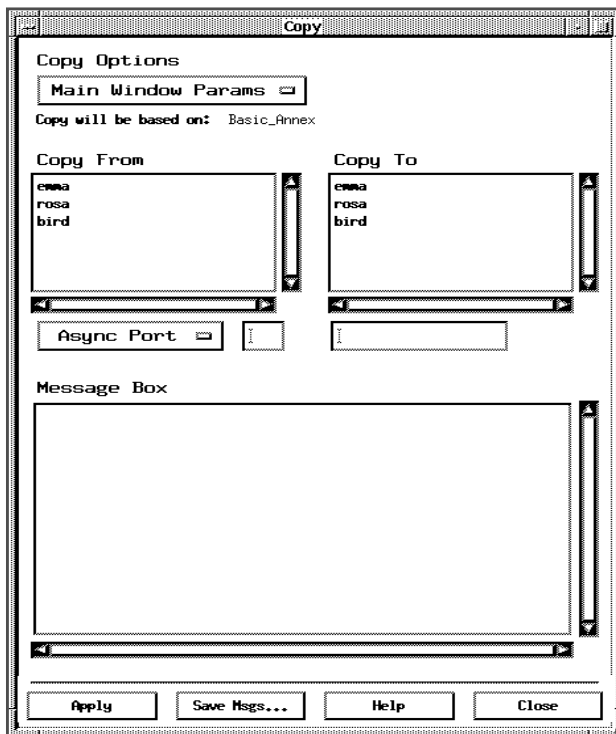
Figure 7-13. Copy Window

4. Choose one RAC from the *Copy From* **window.**

This list displays only reachable RACs. If you need to add a RAC to the list, you must return to the *Main* window and reissue the Copy command. If your list contains only one RAC, you do not need to select it.

5. Choose a port type.

You can choose a port type only if you choose the *Main Window Params* option. The port type you choose must correspond to the port type in the parameters you selected in the *Main* window.

If you selected an option other than *Main Window Params*, skip this step and go to step 6.

The port type selections are:

- *Main Window Params*, you can select the appropriate port type for the parameter group or list you chose. For example, if you use a group that includes asynchronous ports and you select printer ports here, the copy command displays a warning and does not use all asynchronous parameters.

- *Annex Only Params*, you cannot use the port button or fields. You cannot change port parameters.

- *Async Port(s)*, *Printer Port(s)*, and *WAN Module #,* enter one port number in the field. For *Enet* port(s), *1* displays automatically. You cannot change this value.

- *Async Port Params*, *Printer Port Params*, *Enet Params*, or *WAN Module Params,* the corresponding port option displays automatically. You cannot change the port type button.

The two port number fields list the ports involved in the copy process. You can enter one port number in the left-hand field for the RAC from which you are copying values, and one or more numbers (or a range of numbers) in the right-hand field for the RAC to which you are copying values. To enter specific ports, separate port numbers with commas or indicate a range of numbers using dashes. For example, you can enter *1, 3, 8* to specify three ports, or *1-3, 8* to specify ports 1 through 3 and port 8.

6. **Enter a port number in the field next to the port type button if you selected** *Main Window Params* **that require port information,** *Async Port Params***,** *Printer Port Params, WAN Module Params***, or** *Enet Port Params***.**

If you choose *Main Window*, this port type must match those in the parameters you selected.

> If you choose *Annex Only Params*, or *WAN Module Params*,
> you do not need to complete this field: skip this step and
> go to step 7.

7.   Select one or more RACs from the *Copy To* **window.**

If you need to add a RAC to the list you must return to the *Main*
window and reissue the Copy command. If your list contains only
one RAC, you do not need to select it.

**8.   Enter one or more port numbers, or a range of port numbers in
the field below the** *Copy To* **box.**

9.   Click *Apply.*

This step triggers several operations:

•   A *Confirmation* window appears (Figure 7-14), listing the
RACs whose parameter values will change.
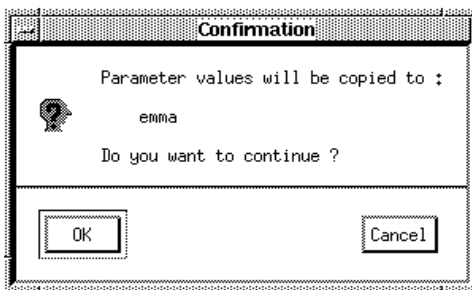
Figure 7-14. Copy Command Confirmation Window

The message box displays status messages, and, if necessary, it lists
error messages.

•   The *Reset Parameters* window (Figure 7-15) appears if you
selected the *Confirm Auto Reset* option from the pull-down
menu and if the parameters you are copying require Annex
Manager to reset RACs. If you did not select *Confirm Auto
Reset* Annex Manager resets RACs without notifying you.
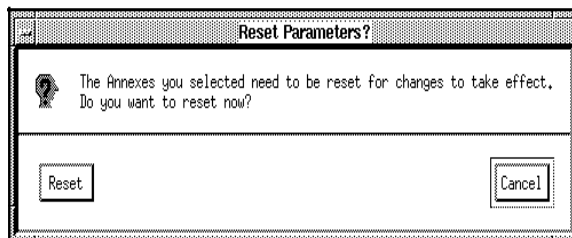
Figure 7-15. Copy Command Reset Parameters Window

Error Messages

The *Compare* and *Copy* commands notify you about error conditions by displaying warning windows and by listing errors in output and message boxes. You can encounter errors based on *Main* window selections or on parameter value limitations. This section includes:

- *Compare Command Errors*
- *Copy Command Errors*

Compare Command Errors

Compare displays warning windows if you:

- Do not select a RAC or a script from list boxes that contain more than one RAC or script.

- Use the *Annex vs. Annex* option for a list with more than one RAC and do not select a RAC and parameters.

- Use *Annex vs. Annex*, do not enter port information, and then select parameters that require this information.

- Use *Script vs. Script* and select the same script in each window.

- Select a port type that does not match one or more parameter port types. For example, a warning window appears if you choose *Enet Port* type and the *Basic_Async_Port* group, or if you enter a port number that does not exist in a selected RAC.

- The output box displays errors when *Compare* cannot find values for selected parameters or when communication with the RACs you selected times out.

Copy Command Errors

The *Copy* command displays warning windows when you:

- Do not create a RAC list.

- Do not select a RAC from a list that contains more than one RAC.

- Use the *Main Window Params* option and do not select parameters.

- Use the *Main Window Params* option and do not enter port information for parameter groups that require this information.

The message box includes error information when:

- Annex Manager cannot read or copy one or more parameters.

- You click *Apply* and the *Copy* operation cannot change one or more parameters. The message box includes error messages for those parameters that could not change. In addition, the *Copy complete with errors* message appears.

- Communication with the RACs you selected times out.

Chapter 8
Configuring Modems

T his chapter describes how to:

- Change the definition of an existing modem for any RAC

- Create a new modem definition or remove modem definitions for RACs other than ISDN Primary Rate RACs

- Configure WAN internal modems

  We recommend that you use the *Edit Modem* window (Figure 8-1) to change modem definitions (except WAN internal modems). However, you can use *Edit Configuration* from the Annex Manager Configure menu for the same purpose.

Creating and Changing Modem Definitions

This section describes how to:

- Change definitions for RACs with asynchronous ports
- Change definitions for ISDN primary rate RACs
- Remove a definition

Changing Definitions for RACs with Asynchronous Ports

To edit or create a new definition for RACs with asynchronous ports:

1. **From the** *Async Ports* **window click** *Edit Port* **to display the** *Edit Async Ports* **window and choose the appropriate settings in the** *Port Options* **box.**

2. **In the** *Modem* **box field**, **choose the modem whose definition you want to edit, or choose** *<undefined>* **to create a new definition from default values and click** *Edit Modem*.

   The *Edit Modem* window appears (Figure 8-1). It contains the current values for the modem you selected.

3. Enter new values or change existing values in the *Modem Name*, *Connect Status String*, *Dialin Setup Command*, **and** *Dialout Setup Command* **fields.**

See *The Edit Modem Window on page 8-6* for a description of all the fields in this window.
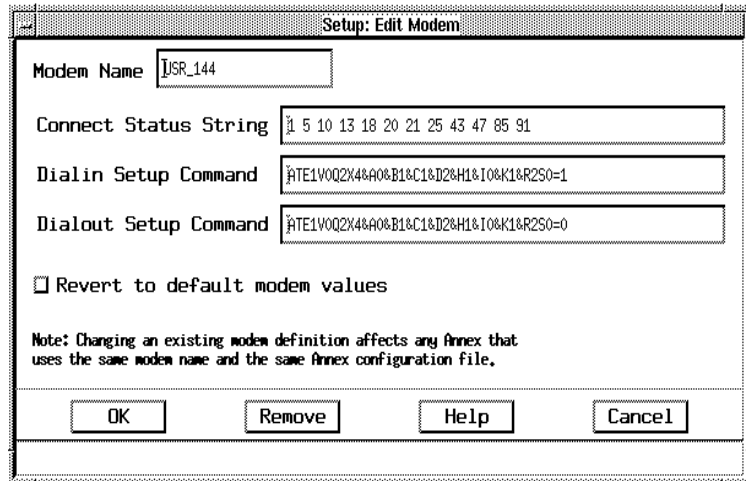
Figure 8-1. Edit Modem Window

4. Click *OK*.

Annex Manager closes the *Edit Modem* window and returns you to the *Edit Async Ports* window.

5. Click *Apply* **to set your changes**.

A confirmation window appears (Figure 8-2).

6. Click *OK* **to continue or** *Cancel* **to return to the window.**
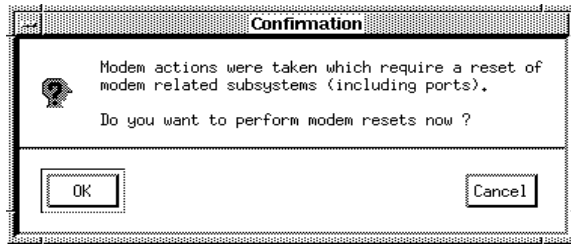
Figure 8-2. Modem Definition Confirmation Window

> If you create a new modem definition or edit one that exists in the RAC configuration file, your changes modify the current file. If you edit a definition for which defaults exist, Annex Manager copies the definition and places it in the RAC configuration file. Use the *Revert to default modem values* button in this case to see the default values.

7. **Copy the configuration file to alternate load hosts and to self-boot units.**

   See *Editing and Creating Modem Definitions on page 8-7*.

Changing Definitions for ISDN Primary Rate RACs

To edit a definition for ISDN Primary Rate RACs:

1. **Display the** *Call Defaults* **window and click** *Edit Modem***.**

   The *Edit Modem* window appears (Figure 8-1).

2. **Change existing values in the** *Connect Status String***,** *Dialin Setup Command***, and** *Dialout Setup Command* **fields.**

3. **Click** *OK*.

   Annex Manager closes the *Edit Modem* window and returns to the *Call Defaults* window.

4. **Click** *Apply*.

   A confirmation window appears (Figure 8-3). Click *OK* to continue or *Cancel* to return to the window.
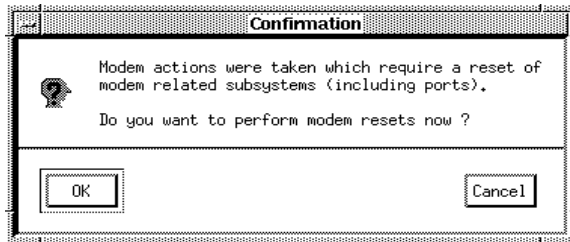
Figure 8-3. Modem Definition Confirmation Window

> If you edit a modem definition that exists in the RAC
> configuration file, your changes modify the current file.
> If you edit a definition for which defaults exist, Annex
> Manager copies the definition and places it in the RAC
> configuration file. Use the *Revert to default modem values*
> button in this case to see the default values.

5. **Copy the configuration file to alternate load hosts and to self-
    boot units.**

    See *Editing and Creating Modem Definitions on page 8-7* for
    information.

Removing a Definition

You can remove a modem definition only for RACs that have
asynchronous ports. To remove a definition:

1. **Click** *Edit Port* **to display the** *Edit Async Ports* **window and choose
    the appropriate settings in the** *Port Options* **box.**

2. **In the** *Modem* **box click** *Edit Modem*.

    The *Edit Modem* window appears with current values for the modem
    you selected.

    > You can remove only those definitions you created or
    > modified. You cannot remove Annex Manager default
    > definitions, since they exist in *include* files.

3. **In the** *Modem Name* **box enter the name of the modem whose
    definition you want to remove**

4.   Click *Remove*.

A confirmation window appears (Figure 7-4). Click *OK* to continue or *Cancel* to return to the window.
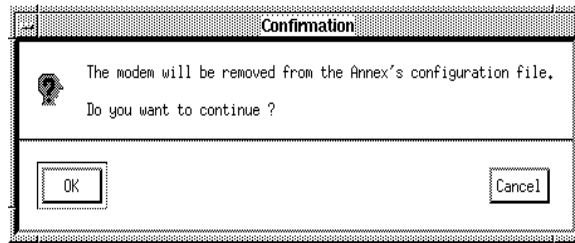
Figure 8-4. Remove Modem Definition Confirmation Window

When you click *OK* Annex Manager displays the *Edit Async Port* window. If you remove a definition that you created it does not appear in the modem list. If you remove a definition that has a default, the values of the definition revert to the default values and its name remains in the list.

5.   Click *Apply*.

The *Reset Parameters* (Figure 8-5) window appears if you selected the *Confirm Auto Reset* option from the pull-down menu and if the settings you changed require Annex Manager to reset RACs.   If you did not select *Confirm Auto Reset,* Annex Manager resets RACs without notifying you.
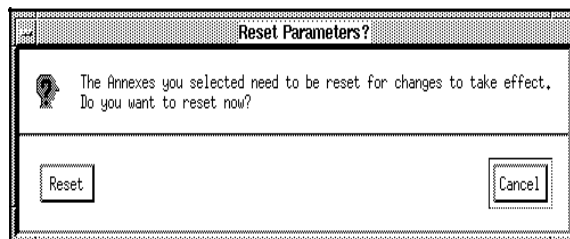
Figure 8-5. Reset Parameters Window

The Edit Modem Window

Modem definitions reside in the RAC configuration file. Default modem definitions are stored in include files. If you change a definition that uses default values, Annex Manager copies the definition from the *include* file and places it in the RAC configuration file.

> The definitions you create or change here apply to all ports and all RACs that use the same load host. Your changes may not apply solely to the RACs or ports you selected.

Edit Modem uses these fields:

- *Modem Name* specifies the type of modem attached to the ports or RACs you selected. For RACs with asynchronous ports, this field automatically displays the name that appears in the *Modem Name* field of the *Edit Async Port* window. For ISDN Primary Rate RACs, it displays the internal modem name from the RAC configuration file.

  – If this field displays an existing modem name, *Connect Status String*, *Dialin Setup Command*, and *Dialout Setup Command* display current values.

  – If this field displays *<undefined>* or is blank, Annex Manager provides default values in *Connect Status String*, *Dialin Setup Command*, and *Dialout Setup Command*. Use these default values or enter new values.

  > If you want to view or edit a definition for a modem other than the one listed in the window, click *OK* here and select another name from the list.
  >
  > If the *Edit Modem* window appears with a modem name and you enter another existing name, *Connect Status String*, *Dialin Setup Command* and *Dialout Setup Command* do not automatically display values for the name you entered. If you click *Apply* at this point, Annex Manager changes the definition for the name you entered to the values displayed in the window. Use this method to create a new definition with the same values as an existing one.
  >
  > *Connect Status String* contains the string the RAC uses when it initiates an outbound call. This string lists all

successful connect messages that the modem can return.
You can enter up to 80 status codes.

- *Dialin Setup Command* contains the command the RAC sends to
  incoming modem ports before the first user connects to a port.
  The command should include all modem steps required to
  answer a call coming into the RAC. For example, it should turn
  on the auto-answer feature and disable inbound modem connect
  messages.

- *Dialout Setup Command* contains the command the RAC sends to
  all serial device ports before they becomes active. This
  command should contain all configuration information required
  for the RAC to initiate an outbound call. For example, it should
  disable the auto-answer feature and enable modem connect
  messages. You can enter up to 80 characters.

- *Revert to default modem values* displays default values for a
  modem when you changed the default definition.

Editing and Creating Modem Definitions

The Annex Manager modem database consists of modem definitions
stored in the RAC configuration file and in *include* files. Annex Manager
Setup mode provides:

- The Modems section of the RAC configuration file. The RACs
  you select must use the same configuration file on the same host
  and must use the same address for current and default boot
  hosts. The configuration file does not have to reside on the
  same host as does Annex Manager.

- Any *include* files referenced in the accessible RAC configuration
  files. These *include* files contain the Annex Manager default
  modem definitions.

  References to *include* files must follow modem definitions
  in the configuration file.

Editing Modem Definitions

You can use Annex Manager to edit any modem definition:

- If you edit a definition stored in the RAC configuration file, your changes overwrite current values in the file.

- If you edit a definition stored in an *include* file, Annex Manager copies the edited definition and places it in the RAC configuration file. If you edit the definition again, your changes overwrite current values in the configuration file; *include* file definitions retain their original values.

Creating New Modem Definitions

You can create new modem definitions using either the *Edit Async Port (continued)* window ([Figure 4-7](#)) or the *Edit Modem* window ([Figure 8-1](#)).
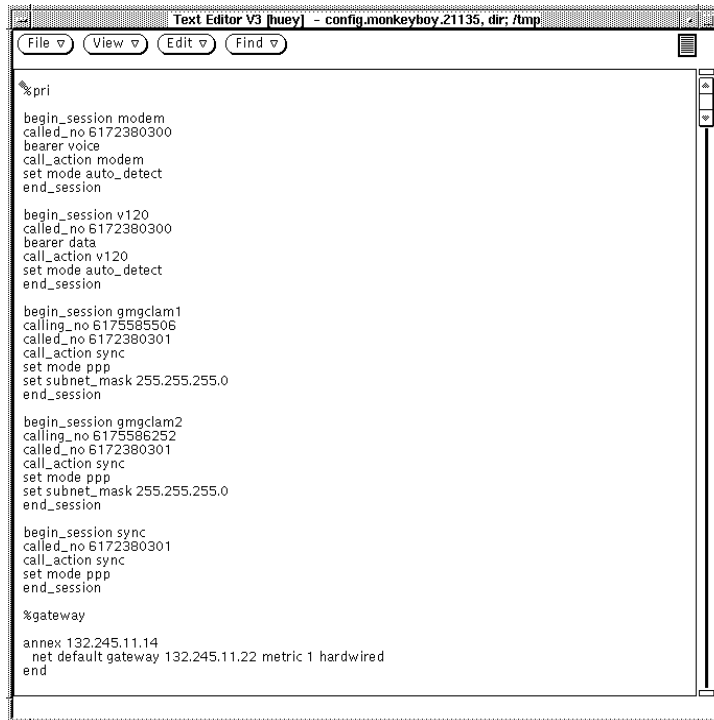
- If you enter a new name in the *Modem* box of the *Edit Async Port* window, Annex Manager creates a definition with default values in the RAC configuration file. Use these default values or change them in the *Edit Modem* window.

- If you enter a new name in the *Modem* box of the *Edit Modem* window, Annex Manager copies the values that display at the time you enter the name and uses them in the new definition. Use these values or edit them for the new definition.

Editing the Configuration File

Annex Manager allows you to edit modem definitions in the RAC configuration file. The RACs you select must use the same configuration files. If you select RACs that use different configuration files, you cannot edit the files.

To edit the file:

1. **Choose** *Edit Configuration* **from the menu.**

    The configuration file appears ([Figure 8-6](#)).

2. **Change, add, or remove modem definition information.**

```
┌──────────────────────────────────────────────────────────────────┐
│        Text Editor V3 [huey]  - config.monkeyboy.21135, dir; /tmp  │
├──────────────────────────────────────────────────────────────────┤
│ ( File ▽ )  ( View ▽ )  ( Edit ▽ )  ( Find ▽ )                     │
├──────────────────────────────────────────────────────────────────┤
│ %pri                                                               │
│                                                                    │
│ begin_session modem                                                │
│ called_no 6172380300                                               │
│ bearer voice                                                       │
│ call_action modem                                                  │
│ set mode auto_detect                                               │
│ end_session                                                        │
│                                                                    │
│ begin_session v120                                                 │
│ called_no 6172380300                                               │
│ bearer data                                                        │
│ call_action v120                                                   │
│ set mode auto_detect                                               │
│ end_session                                                        │
│                                                                    │
│ begin_session gmgclam1                                             │
│ calling_no 6175585506                                              │
│ called_no 6172380301                                               │
│ call_action sync                                                   │
│ set mode ppp                                                       │
│ set subnet_mask 255.255.255.0                                      │
│ end_session                                                        │
│                                                                    │
│ begin_session gmgclam2                                             │
│ calling_no 6175586252                                              │
│ called_no 6172380301                                               │
│ call_action sync                                                   │
│ set mode ppp                                                       │
│ set subnet_mask 255.255.255.0                                      │
│ end_session                                                        │
│                                                                    │
│ begin_session sync                                                 │
│ called_no 6172380301                                               │
│ call_action sync                                                   │
│ set mode ppp                                                       │
│ end_session                                                        │
│                                                                    │
│ %gateway                                                           │
│                                                                    │
│ annex 132.245.11.14                                                │
│   net default gateway 132.245.11.22 metric 1 hardwired             │
│ end                                                                │
└──────────────────────────────────────────────────────────────────┘
```

Figure 8-6. Configuration File Window

Annex Manager identifies the configuration file by querying the RAC, copying the file to a local host, and launching an editor with the file. You must define the editor you want to use in the EDITOR environment variable.

3.   Save and close the file.

When you end an editing session, Annex Manager displays a window (Figure 8-7) informing you that you changed the configuration file.
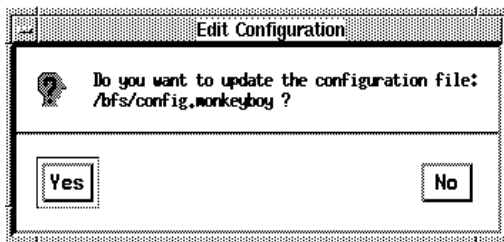
Figure 8-7. Edit Configuration Window

Select *Yes* to update the file or *No* to leave it unchanged. When you complete this window Annex Manager copies the file to its original location.

Configuring WAN Internal Modems

This section describes how to select and change the status of one or more internal modems.

To change modem status:

1.   Create a RAC list and select one or more RACs (page 2-1).

2.   Select the Configure menu and click *WAN Internal Modems***.**

The *Set WAN Internal Modems* window displays (Figure 8-8). The window is described on page 8-11.
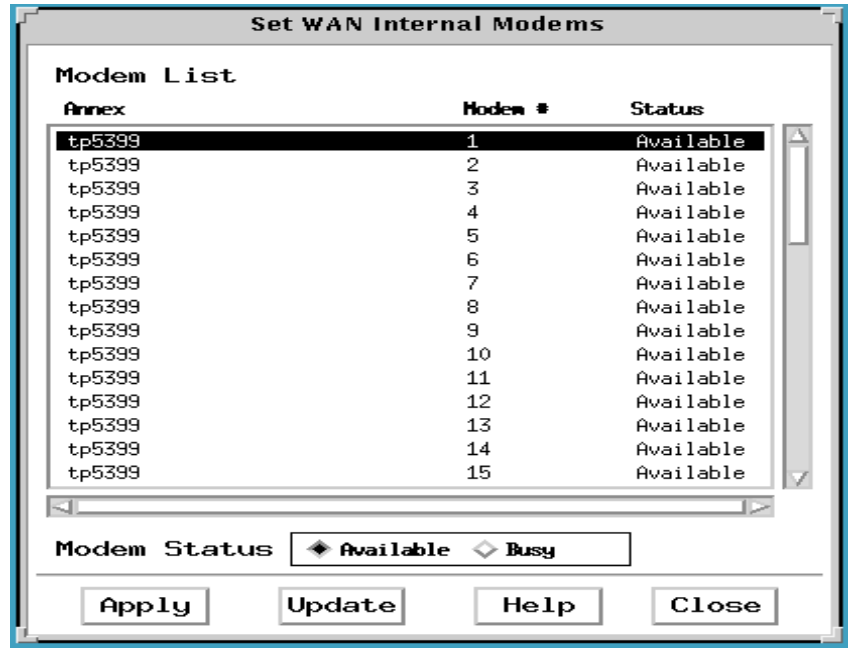
Figure 8-8. Set WAN Internal Modems Window

3. **Select one or more modems from the** *Modems List* **box.**

4. **Choose the** *Modem Status* **you need.**

   If you are setting modems to *Available* you can skip this step.

5. **Click** *Apply*.

   Annex Manager changes status for the modems you selected.

6. **Click** *Close* **to close the window.**

The Set WAN Internal Modems Window

You use the *Set WAN Internal Modems* window to view the current status of individual internal modems or to change the status of one or more modems. This window uses a list box and radio buttons.

Selecting Internal Modems

The *Modems List* box includes all internal modems for the ISDN Primary
Rate RACs you selected. You can select one or more RACs. This box
includes:

- The *Annex* name.

- The *Modem #* for each internal modem.

- The current *Status* for each modem:

    - *Available* indicates that the modem is in working order and is
      not being used.

    - *Busy* indicates that the modem is set to this status to make it
      unavailable.

    - *Used* indicates that the modem is handling a call.

    - *Failed* indicates that the modem is not working.

Changing Modem Status

The *Modem Status* button allows you to change the status of an internal
modem. You can select:

- *Available* to make a modem available when its current status is
  Busy or *Failed*. You cannot choose *Available* for modems that are
  in use.

- *Busy* to prevent a RAC from selecting a modem that may not be
  operating properly. If you select *Busy* for a modem with a *Used*
  status, the *Busy* status does not take effect until the current call
  terminates.

When you change a modem status, the *Modem List* box reflects your
changes immediately.

Chapter 9
Configuring SNMP Traps

T his chapter tells you how to enable, disable, and set threshold values for SNMP Traps. It also tells you how to set the maximum number of calls that the selected RAC keeps in its Call History table.

To configure SNMP traps for one or more RACs:

1. **Create a RAC list and select the RACs for which you want to configure SNMP traps (page 2-1).**

2. **On the** *Main* **window, select** *SNMP Settings* **from the** *Setup* **option button.**

    The *SNMP Settings* window displays (Figure 9-1). This window is described in *The SNMP Settings Window on page 9-2*.

3. **Configure the desired SNMP traps.**

4. **Optionally click** *Restore* **to clear your changes and return to the previous settings. (You cannot do this if you have clicked** *Apply.***)**

5. **Click** *Apply* **to set your changes.**

6. **Click** *Close* **to close the window.**
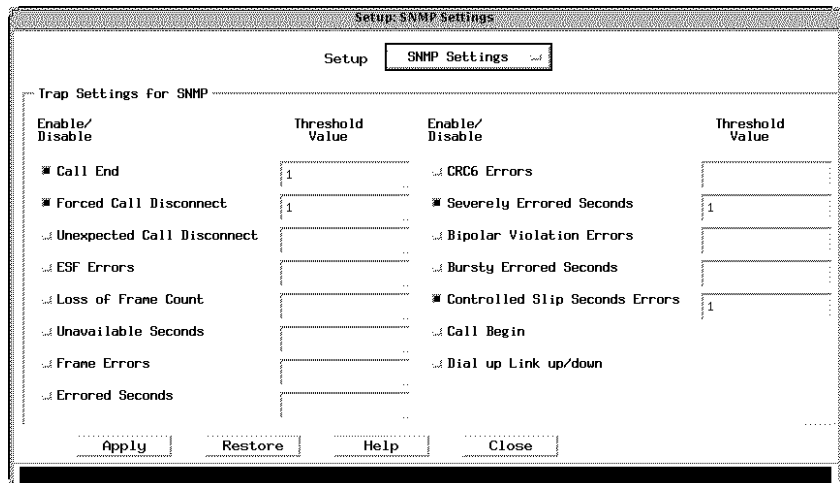
Figure 9-1. SNMP Settings Window

The SNMP Settings Window

The *SNMP Settings* window displays information in the *SNMP Settings* box.

Check the buttons in this window to set thresholds for SNMP traps. The default value is 0 (disabled). When you click the *Check* button of a trap to enable it, the threshold value in the corresponding field is set to the number 1. You can leave the threshold at one or set a higher threshold value for which you want the trap to be enabled.

Select:

- *Call Begin* to generate a trap when an incoming call is detected or an outbound call is generated by the RAC.

- *Call End* to generate a trap when a call terminates.

- *Unexpected Call disconnect* to generate a trap when a call disconnects unexpectedly.

- *Forced Call Disconnect* to generate a trap when a call is disconnected.

- *ESF errors* (Errored Second Format errors) to generate a trap on ESF errors.

- *Loss of Frame Count* to generate a trap on loss of frame count.

- *Unavailable seconds* to generate a trap on detection of unavailable seconds.

- *Frame Errors* to generate a trap on detection of frame errors.

- *Errored Seconds* to generate a trap on detection of errored seconds.

- *CRC6 Errors* to generate a trap on detection of CRC6 errors.

- *Severely Errored Seconds* to generate a trap on detection of severely errored seconds.

- *Bipolar Violation Errors* to generate a trap on detection of bipolar violation errors.

- *Bursty Errored Seconds* to generate a trap on detection of bursty errored seconds.

- *Controlled Slip Seconds Errors* to generate a trap on detection of controlled slip seconds errors.

- *Dial up Link up/down* to generate a trap on detection of a dial up link.

Appendix A
RAC Parameters

T his chapter lists all parameters eligible for configuring the Remote Access Concentrator (RAC) using Annex Manager. For each parameter the chapter provides:

- • A brief description of the parameter function.

- • An explanation of dependencies, if they occur, among parameters.

- • References to additional information in other RAC documentation.

- • A list containing the parameter type, allowable values, default value, and the Annex Manager lists in which the parameter appears.

> Each parameter description includes a default value. If you use the *Site Parameters* command to change default values in help messages, the values listed in this section do not agree with your help messages. Remember that *Site Parameters* changes help text only; if you do not enter a parameter value, the RAC continues to use the default values listed here.

a_router defines the Ethernet address that the RAC attempts to use as the AppleTalk router address. If the router does not respond, the RAC listens for an RTMP packet and uses the address in the packet as the new router address. You can enter *0* to direct the RAC to find the router.

Type	RAC
Values	0 to 253
Default	00-00-00-00-00-00
Lists	RAC Only, AppleTalk

acp_key defines the encryption key used to exchange messages between the RAC and the security server. You can use this parameter only when the enable_security parameter is set to *enabled* and a security server is defined. The security server maintains the encryption key for each RAC in the acp_keys file. For security reasons, Annex Manager displays only *set* or *unset* for the value of this parameter.

> The RAC and the security server can communicate only when the value of this parameter is the same as the value of the RAC in the security server *acp_keys* file.

Type	RAC
Values	16 characters
Default	unset
Lists	RAC Only, Security

alarmsyslog allows the RAC to generate a syslog at the warning level when it detects any alarm event. To use this feature you must enable syslogging on a RAC using the syslog_facility, syslog_host, and syslog_mask parameters.

Type	WAN Module
Values	enabled or disabled
Default	enabled
Lists	DS1 Line, T1_DS1

allow_broadcast permits an asynchronous port to receive administrative broadcast messages generated by the *Boot* and *Broadcast* commands.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port, Basic Async Port

allow_compression   allows a RAC to use TCP/IP header compression for SLIP or PPP modes. Header compression occurs only when the other side of the serial link initiates compression.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port, PPP, SLIP

anxpNetRemoteAddress   the Internet address for the host at the remote end of the point-to-point (SLIP, PPP) link.

Type	Async
Values	IP address
Default	0.0.0.0
Lists	Async Port, PPP, SLIP

anxt1ChanIpAddr   returns the IP address associated with the B channel. When needed, this IP address is used for calls over the B channel.

Type	RAC
Values	IP address
Default	0.0.0.0
Lists	DS0 Channel, Channel

anxt1ChanRing   specifies if RAC should provide the audible ring to the central office on incoming calls.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	DS0 Channel, T1_DS0

anxt1ChanSigProto　　　indicates the inbound and outbound signalling protocols supported by each DS0
T1 channel.

Type	T1 DS0
Values	wink_in, wink_out, wink_bi, loop_in, loop_out, loop_bi, ground_in, ground_out, ground_bi, immediate_in, immediate_out, immediate_bi
Default	loop_bi
Lists	DS0 Channel, T1_DS0

anxt1ds1LineBuildout　　contains the cable loss measurement, in decibels, between the last T1 signal
regenerator and your location. This measurement is supplied by the telephone
company at installation. You should adjust your buildout based on this
measurement.

Type	WAN Module
Values	0_db, 7.5_db, 15_db, 22.5_db
Default	0_db
Lists	DS1 Line, PRI_Line, T1_DS1

anxt1Dsx1LineType　　　indicates the variety of DS1line implementing this circuit. The type of circuit
affects the number of bits per second that the circuit can carry, as well as the
usage and error statistics.

Type	WAN Module
Values	ESF, D4, DDF, MFF_CRC4, MFF_CRC4-G706
Default	ESF
Lists	DS1 Line, PRI_Line, T1_DS1

anxt1SwitchType　　　　selects the switch type compatible with the PRI provider.

Type	WAN Module
Values	att5ESS, ni2, dms100, at9, ets, au1, kr2, ntt, ets-ncrc4, us_t1, hk_t1, tw_t1, gen_e1, at4, br_e1, ko_e1, sweip7, default, other.
Default	att5ESS
Lists	T1 Line, PRI_Line, T1_DS1

arap_v42bis   allows V.42bis compression during an AppleTalk session.

Type	Async
Values	enabled or disabled
Default	enabled
Lists	Async Port, AppleTalk

at_guest   allows guests to log into an AppleTalk session. If you choose *enabled* and a client requests guest access, the RAC asks ACP for username guest privileges.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port, AppleTalk

at_nodeid   specifies the Appletalk hint used by the RAC on a specific port. You can enter an ID in decimal or hexadecimal notation. Each ID has two parts separated by a dot:

- A network address ranges from 0 to 65534 (0x0000 to 0xFFFE).

- A node address ranges from 0 to 255 (0x00 to 0xFE).

For example, *191.253*, *0x00BF.253* and *191.0xFD* designate the same address.

Type	Async, AppleTalk
Values	0 to 65534.255
Default	0.0
Lists	Async Port, AppleTalk

at_security   turns on ACP service for an AppleTalk session. When you choose *enabled* for
                               this parameter and for enable_security, the RAC uses ACP to get security
                               information about the client, including authentication, logging, and zone access
                               information. If you choose *disabled*, the RAC uses only local security.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port, AppleTalk

attn_string   defines a control character sequence that returns users to the CLI prompt. Users
                               can define a Annex Managerrary control character sequence using the CLI *stty*
                               attn command.

Type	Async
Value	Ctrl + any character, up to 16 characters
Default	" " (null string) or Ctrl + A (for vcli connections)
Lists	Async Port, Command LIne Editing, Modem, Modem Internal

authoritative_agent   allows a RAC to send an ICMP Address Mask reply to a host that broadcasts a
                               subnet mask request.

Type	RAC
Values	enabled or disabled
Default	enabled
Lists	RAC Only, Basic RAC

authorized_groups   specifies the LAT protocol remote group codes that are accessible to users on a
                               RAC port. You can enter *all*, *none*, a series of numbers separated by commas
                               (e.g., *1*, *5*, *7*) or a range of numbers separated by dashes
                               (e.g., *1, 5, 200-255*).

Type	Async
Values	all, none, numbers between 0 and 255
Default	none
Lists	Async Port, LAT

autobaud   controls whether line speed is determined automatically when a connection is opened. If you choose *enabled*, the modem or terminal connecting to a RAC determines speed automatically. In this case the RAC sets the speed by analyzing the data pattern generated when you press ⟨Return⟩. If it cannot determine the speed within two minutes, the connection attempt fails.

> If you want to disable the autobaud feature, you must enter a value in the speed parameter before you choose *disabled* here.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port, Basic_Async_Port

backward_key   defines the character sequence that opens the next lower-numbered session established at a port. Bay Networks recommends that you use a sequence with ⟨Ctrl⟩ + a character. The key displays as ^. If you use more than one letter or number, Annex Manager separates characters with a slash (/). For example, ⟨Ctrl⟩ + *a* + *b*, displays as *^a/b*.

Type	Async
Values	0 to 16 characters
Default	" " (null string)
Lists	Async Port, vci interface

banner   controls whether the RAC banner and message-of-the-day are displayed on CLI ports.

Type	Async
Values	enabled or disabled
Default	enabled
Lists	Async Port, Basic Async Port

bidirectional_modem   allows you to transmit and receive data after connecting to an asynchronous port. When you choose *disabled*, you can connect to the port, but communication cannot occur until the Data Carrier Detect (DCD) modem signal is active. This parameter is obsolete in Release 10.1.A and in subsequent releases.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port, Flow Control, Modem

broadcast_addr   specifies the IP address for RAC broadcasts (network.255 or network.0).

Type	RAC
Values	IP Address
Default	0.0.0.0
Lists	RAC Only, Basic RAC

broadcast_direction   controls the direction in which a RAC sends an administrative broadcast message. When you choose *network*, the RAC sends a message from the network side of the connection. If you choose *port*, it sends a message from the port side. You can use this parameter only when the mode parameter is set to *slave*.

Type	Async
Values	port or network
Default	port
Lists	Async Port, Basic Async Port, Modem

bypass   removes the T1 engine from the network. You should enter *enabled* when you first install a RAC or when the T1 engine is not functioning properly.

Type	T1 DS1
Values	enabled or disabled
Default	disabled
Lists	DS1 Line, T1_DS1

**CallDef_allow_
broadcast**

permits a RAC or an ISDN Primary Rate RAC to send administrative broadcast messages generated by the *Boot* and *Broadcast* commands.

Type	RAC
Values	*enabled* or *disabled*
Default	*enabled*
Lists	*RAC Only, Basic Async Port, Call Defaults*

**CallDef_allow_
compression**

allows a RAC or an ISDN Primary Rate RAC to use TCP/IP header compression for SLIP or PPP modes. Header compression occurs only when the other side of the serial link initiates compression.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, Basic Async Port, PPP, SLIP, Call Defaults

CallDef_arap_v42bis

allows V.42bis compression during an AppleTalk session that was initiated through a call to a RAC or an ISDN Primary Rate RAC.

Type	RAC
Values	enabled or disabled
Default	enabled
Lists	RAC Only, Basic Async Port, AppleTalk, Call Defaults

CallDef_at_guest

allows guests to log into an AppleTalk session through a call to a RAC or an ISDN Primary Rate RAC. If you choose *enabled* and a client requests guest access, the ISDN Primary Rate RAC asks ACP for username guest privileges.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, AppleTalk,Call Defaults

CallDef_at_nodeid   specifies the Appletalk hint used by a RAC or an ISDN Primary Rate RAC . You can enter an ID in decimal or hexadecimal notation. Each ID has two parts separated by a dot:

- A network address ranges from 0 to 65534 (0x0000 to 0xFFFE).

- A node address ranges from 0 to 255 (0x00 to 0xFE).

For example, *191.253*, *0x00BF.253* and *191.0xFD* designate the same address.

Type	RAC
Values	0 to 65534.255
Default	0.0
Lists	RAC Only, AppleTalk, Call Defaults

CallDef_at_security   turns on ACP service for an AppleTalk session. When you choose *enabled* for this parameter and for enable_security, the ISDN Primary Rate RAC uses ACP to get security information about the client, including authentication, logging, and zone access information. If you choose *disabled*, the ISDN Primary Rate RAC uses only local security.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, AppleTalk, Call Defaults

CallDef_attn_string   defines a control character sequence that returns users to the CLI prompt. Users can define a Annex Managerrary control character sequence using the CLI *stty attn* command.

Type	RAC
Value	$\boxed{\text{Ctrl}}$ + any character, up to 16 characters
Default	" " (null string) or $\boxed{\text{Ctrl}}$ + $\boxed{\text{A}}$ (for vcli connections)
Lists	RAC Only, Cmd LIne Editing, Modem, Modem Internal, Call Defaults

**CallDef_authorized_
groups**

specifies the LAT protocol remote group codes that are accessible to users on a
RAC or an ISDN Primary Rate RAC. You can enter *all*, *none*, a series of numbers
separated by commas (e.g., *1*, *5*, *7*) or a range of numbers separated by dashes
(e.g., *1, 5, 200-255*).

Type	RAC
Values	all, none, numbers between 0 and 255
Default	none
Lists	RAC Only, LAT, Call Defaults

CallDef_backward_key

defines the character sequence that opens the next lower-numbered session
established through a call to a RAC or an ISDN Primary Rate RAC. Bay
Networks recommends that you use a sequence with $\boxed{\text{Ctrl}}$ + a character. The key
displays as ^. If you use more than one letter or number, Annex Manager
separates characters with a slash (/). For example,
$\boxed{\text{Ctrl}}$ + *a* + *b*, displays as *^a/b*.

Type	RAC
Values	0 to 16 characters
Default	" " (null string)
Lists	RAC Only, VCI Interface, Call Defaults

CallDef_banner

controls whether the ISDN Primary Rate RAC banner and message-of-the-
day are displayed on CLI connections.

Type	RAC
Values	enabled or disabled
Default	enabled
Lists	RAC Only, Basic Async Port, Call Defaults

**CallDef_broadcast_
direction**

controls the direction in which a RAC or an ISDN Primary Rate RAC sends an
administrative broadcast message. When you choose *network*, the ISDN Primary
Rate RAC sends a message from the network side of the connection. If you
choose *port*, it sends a message from the port side. You can use this parameter
only when the CallDef_mode parameter is set to *slave*.

Type	RAC
Values	port or network
Default	port
Lists	RAC Only, Basic Async Port, Modem, Call Defaults

CallDef_char_erase   allows a RAC or an ISDN Primary Rate RAC using CLI to display the character erase for a video terminal. When you choose *enabled*, a deleted character looks as if it was erased. If you choose *disabled*, the ISDN Primary Rate RAC echoes the erase characters for a hard-copy terminal. It displays a backslash (\), one or more deleted characters, and a slash (/). For example, typing *asdf* (Delete) (Delete) *g* displays as *asdf\fd/g*.

Type	RAC
Values	enabled or disabled
Default	enabled
Lists	RAC Only, Cmd Line Editing, Call Defaults

CallDef_cli_imask7   allows a RAC or an ISDN Primary Rate RAC to mask CLI input to seven bits. If you choose *disabled*, the ISDN Primary Rate RAC expects eight-bit ASCII input. You should not choose *enabled* unless the terminal can transmit only seven-bit characters.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, Basic Async Port, Call Defaults, Modem, Modem Internal

CallDef_cli_inactivity   specifies the number of minutes the ISDN Primary Rate RAC remains idle before disconnecting a CLI session. Entering *0* disables the timer; entering *255* causes the ISDN Primary Rate RAC to disconnect as soon as it exits from its last job. Unlike CallDef_inactivity_timer, this timer does not disconnect a CLI session with active jobs.

Type	RAC
Values	0 to 255 minutes
Default	0 minutes
Lists	RAC Only, Call Defaults, Idle Time, Modem, Modem Internal

CallDef_cli_interface   allows you to control the prompt that appears for VMS or UNIX environments. If you enter *uci*, this parameter provides a standard UNIX interface, with prompts defined by the CallDef_prompt parameter. If you enter *vci*, the standard VMS interface includes the *Local>* prompt followed by the *Username>* prompt.

Type	RAC
Values	vci or uci
Default	uci
Lists	RAC Only, Call Defaults

CallDef_cli_security   enables user authentication by the host-based ACP server for all CLI connections. If you choose *disabled*, you cannot use any ISDN Primary Rate RAC security mechanism other than the administrative password for CLI connections.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, Call Defaults, Security

CallDef_connect_ security   activates the host-based security policy for access from CLI to the network. If you choose *enabled*, the user must be authorized via the host-based ACP security server to connect to a network host. The security policy in the security server scans the /etc/acp_restrict file to authorize a connection to a host from the ISDN Primary Rate RAC.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, Call Defaults, Modem, Modem Internal, Security

CallDef_dedicated_ arguments   defines the command line arguments used for dedicated connections. This parameter works when CallDef_mode is set to *connect*, *rlogin*, *Telnet*, or *tn3270*.

Type	RAC
Values	1 to 100 characters
Default	" " (null string)
Lists	RAC Only, Call Defaults,Dedicated Port

CallDef_def_session_ mode

defines the default session mode when the DECServer command interface is configured (i.e., when CallDef_cli_interface is set to *vci*). For more information, refer to the *Annex Interface for VMS Environments Administrator's Guide*.

Type	RAC
Values	interactive, passthru, passall, transparent
Default	interactive
Lists	RAC Only, Call Defaults

CallDef_dialup_ address_origin

allows a RAC or an ISDN Primary Rate RAC to search the acp_dialup file for the user name of the remote client and to set local and remote addresses. This parameter applies only when the CallDef_mode parameter is set to *slip* or *ppp*.

- acp_dialup:

    – If the file contains a matching user name and:

        - The local and remote addresses exist in the acp_dialup file, the RAC uses those values.

        - The the acp_dialup file contains a remote address but not a local address, the RAC uses the remote address from the file and the RAC IP address for the local address.

    – If the file does not contain a matching user name, the RAC uses values from the local_address and remote_address parameters:

        - If both parameters contain addresses, the RAC uses these values.

        - If both parameters are set to *0.0.0.0*, the RAC negotiates for both addresses with the remote PPP client. The connection is denied for a remote SLIP client.

        - If local_address contains a value and remote_address is set to *0.0.0.0*, the RAC uses the local address and negotiates with the remote PPP client for the remote address. The connection is denied for a remote SLIP client.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, PPP, SLIP, Sync Call_Defaults

**CallDef_do_
compression**

starts TCP/IP header compression on a SLIP link. When you choose *enabled*, the ISDN Primary Rate RAC negotiates for TCP/IP compression for both sides of the connection.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, Call Defaults, PPP, SLIP

CallDef_echo

directs a RAC or an ISDN Primary Rate RAC to echo all characters as a user types. This parameter applies only to the CLI level.

Type	RAC
Values	enabled or disabled
Default	enabled
Lists	RAC Only, Call Defaults, Cmd Line Editing

CallDef_erase_char

uses a control character sequence to define the CLI erase character.

Type	RAC
Values	$\boxed{\text{Ctrl}}$ + any character
Default	$\boxed{\text{Ctrl}}$ + $\boxed{\text{Delete}}$ (displays as ^?)
Lists	RAC Only, Call Defaults, Cmd Line Editing

CallDef_erase_line

uses a control character sequence to define the CLI line erase character.

Type	RAC
Values	$\boxed{\text{Ctrl}}$ + any character
Default	$\boxed{\text{Ctrl}}$ + $\boxed{\text{U}}$ (displays as ^U)
Lists	RAC Only, Call Defaults, Cmd Line Editing

CallDef_erase_word   uses a control character sequence to define the CLI word erase character.

Type	RAC
Values	Ctrl + any character
Default	Ctrl + W (displays as ^W)
Lists	RAC Only, Call Defaults, Cmd Line Editing

CallDef_forward_key   defines the character sequence that opens the next higher-numbered session established through a call. Bay Networks recommends that you use a sequence with Ctrl + a character. The key displays as ^. If you use more than one letter or number, Annex Manager separates characters with a slash (/). For example, Ctrl + *a* + *b*, displays as *^a/b*.

Type	RAC
Values	0 to 16 characters
Default	" " (null string)
Lists	RAC Only, Call Defaults, vci_interface

CallDef_forwarding_ count   controls ISDN Primary Rate RAC behavior for received characters. If you enter a number other than *0*, the RAC does not forward characters until it receives the number of characters you entered. If you enter *0*, the RAC uses values in CallDef_forwarding_timer. If you use CallDef_forwarding_count and CallDef_forwarding_timer parameters, the RAC uses the value that occurs first.

Setting CallDef_forwarding_count to *1* or CallDef_forwarding_timer to *0* can have a severe effect on the network when heavy serial input occurs.

Type	RAC
Values	0 to 255
Default	0
Lists	RAC Only, Call Defaults, Idle Timer

CallDef_forwarding_ timer   sets the amount of time in ten millisecond intervals that can elapse before a RAC or an ISDN Primary Rate RAC forwards received data. If new data arrives before the timer expires, the RAC resets the timer. If you enter *0*, the RAC uses *5*, which is the Annex Manager default value.

> Setting CallDef_forwarding_count to *1* or CallDef_forwarding_timer to *0* can have a severe effect on the network when heavy serial input occurs.

Type	RAC
Values	0 to 255 tens of milliseconds
Default	5 (50 milliseconds)
Lists	RAC Only, Call Defaults, Idle Timer

CallDef_hardware_tabs   allows a RAC or an ISDN Primary Rate RAC to convert ASCII tab characters to the correct number of spaces when a terminal does not support hardware tabs. This parameter works only for CLI sessions.

Type	RAC
Values	enabled or disabled
Default	enabled
Lists	RAC Only, Call Defaults, Cmd Line Editing

CallDef_Imask_7bits   allows a RAC or an ISDN Primary Rate RAC to mask input to seven bits. If you choose *disabled*, the RAC expects eight-bit ASCII input.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, Basic Async Port, Call Defaults

CallDef_inactivity_timer specifies the number of minutes that a RAC or an ISDN Primary Rate RAC call can remain inactive. If the timer expires, the RAC terminates the call.   You can use CallDef_input_is_activity and CallDef_output_is_activity to define incoming call activity. If you set these parameters to *disabled*, the timer runs independent of activity. To reset a call regardless of any activity, enter a number of minutes here, set CallDef_input_is_activity and CallDef_output_is_activity to *disabled*.

Type	RAC
Values	0 to 255 minutes
Default	0 (timer disabled)
Lists	RAC Only, Call Defaults, Idle Timer, Modem, Modem Internal

CallDef_input_is_ activity defines activity as input. If you choose *enabled*, the ISDN Primary Rate RAC resets the inactivity timer to 0 when it receives input through an established call.

Type	RAC
Values	enabled or disabled
Default	enabled
Lists	RAC Only, Call Defaults, Dedicated Port, Idle Timer, Modem

CallDef_input_start_ char defines the control character sequence that restarts input if CallDef_port_input_flow_control is set to *xonXoff*.

Type	RAC
Value	Ctrl + any character
Default	Ctrl + Q (displays as ^Q)
Lists	RAC Only, Call Defaults, Flow Control

**CallDef_input_stop_
char**

defines the control character sequence that stops input if
CallDef_port_input_flow_control is set to *xonXoff*.

Type	RAC
Values	⌈Ctrl⌉ + any character
Default	⌈Ctrl⌉ + ⌈S⌉ (displays as ^S)
Lists	RAC Only, Call Defaults, Flow Control

CallDef_ipso_class

specifies the U.S. Department of Defense basic IP Security Option (IPSO)
classification level included in TCP packets generated on RAC CLI, dedicated,
or adaptive asynchronous connections. The option is not added to locally
generated ICMP messages, RIP updates, or other system packets. The RAC does
not check incoming packets for the presence of the IPSO.

Type	RAC
Values	none, secret, topsecret, confidential, unclassified
Default	none
Lists	RAC Only, Call Defaults, Security

CallDef_ipx_security

controls whether IPX security is enabled for incoming calls.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, Call Defaults, Security

**CallDef_ixany_flow_
control**

treats any input character as a start (XON) character if output was suspended by
a stop (XOFF) character.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, Call Defaults, Flow Control

CallDef_latb_enable   allows a RAC or an ISDN Primary Rate RAC to decode the LAT host data-b
packets, which change asynchronous call parameters. Refer to the documentation
of your LAT host.

> If you enter *enabled* and the LAT host sends a data-b slot message
> requesting that flow control (XON/XOFF) be turned off, the RAC
> turns off flow control and passes XON/XOFF characters to the host.
> This scenario can adversely affect XON/XOFF and the terminal
> cursor keys.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, Call Defaults, LAT

CallDef_line_erase   allows a RAC or an ISDN Primary Rate RAC using CLI to echo line erase for a
video terminal. If you choose *enabled*, the RAC erases all characters on the line
and moves the cursor back to the beginning of the line. If you choose *disabled*,
it echoes the line erase character for hard-copy terminals, making the deleted
line visible and positioning the print head at the beginning of the next line.

Type	RAC
Values	enabled or disabled
Default	enabled
Lists	RAC Only, Call Defaults, Cmd Line Editing

CallDef_local_address   defines the IP address for the connection on the ISDN Primary Rate RAC side
of the link. This IP address is used only when CallDef_mode is set to *slip*, *ppp,* or
autodetect.

Type	RAC
Values	IP address
Default	0.0.0.0
Lists	RAC Only, PPP, SLIP, Sync Call Defaults

CallDef_location   defines a location or description that displays at the CLI *who* command.

Type	RAC
Values	0 to 16 characters
Default	" " (null string)
Lists	RAC Only, Basic Async Port, Sync Call Defaults

ICallDef_long_break   allows a RAC or an ISDN Primary Rate RAC to return a user to the CLI prompt after receiving a break signal of more than two seconds. If you enter *disabled*, the RAC passes the break to the local application.

Type	RAC
Values	enabled or disabled
Default	enabled
Lists	RAC Defaults, Idle Timer

CallDef_map_to_upper   allows a RAC or an ISDN Primary Rate RAC to convert uppercase characters received from a terminal using CLI into lowercase characters. This parameter is used for older terminals that do not support lowercase characters.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, Call Defaults, Cmd Line Editing

CallDef_map_to_lower   allows a RAC or an ISDN Primary Rate RAC to convert lowercase characters sent to a terminal using CLI into uppercase characters. This parameter is used for older terminals that do not support lowercase characters.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	RAC Only, Call Defaults, Cmd Line Editing

CallDef_max_sessions specifies the maximum number of concurrent ISDN Primary Rate RAC connections. Entering *-1* indicates that there is no maximum set.

Type	RAC
Values	-1 to 16
Default	3
Lists	RAC Only, Basic Async Port, Call Defaults

CallDef_metric defines the hop count to the remote end of the connection when CallDef_mode is set to *slip* or *ppp*. You should modify this parameter only if you want the ISDN Primary Rate RAC to use a route other than the SLIP or PPP interfaces to the remote end.

Type	RAC
Values	1 to 15
Default	1
Lists	RAC Only, PPP, SLIP, Call Defaults

CallDef_mode sets the mode for access to a RAC or an ISDN Primary Rate RAC. For more information about modes, see the *Managing Remote Access Concentrators Using Command Line Interfaces*. You can enter:

- *cli* to allow a dialed terminal or incoming modem access to CLI. CLI provides access to the network and connections to other hosts via the *Telnet*, *connect*, *rlogin* and *tn3270* commands.

  The *tn3270* command is available only when option_key is set to an appropriate value.

- *slip* to specify that a connection can perform as a network interface using SLIP. IP packets are encapsulated by SLIP.

- *ppp* to specify that a connection can perform as a network interface using PPP. IP packets are encapsulated by PPP.

- *arap* to specify that a connection can perform as a network interface using ARAP.

- *auto-detect* to allow a RAC or an ISDN Primary Rate RAC to identify the protocol of the incoming packet as IPX, PPP, ARAP or CLI.

- *ipx* to allow dial-in Novell access.

- *connect* to allow a RAC or an ISDN Primary Rate RAC to communicate with a LAT host via the *connect* command. This option works with the CallDef_dedicated_arguments parameter.

- *rlogin* to allow a RAC or an ISDN Primary Rate RAC to communicate via the *rlogin* command. This option works with the CallDef_dedicated_arguments parameter.

- *Telnet* to allow a RAC or an ISDN Primary Rate RAC to communicate via the *Telnet* command. This option works with the CallDef_dedicated_arguments parameter.

- *tn3270* to allow a RAC or an ISDN Primary Rate RAC to communicate via the *tn3270* command. This option works with the CallDef_dedicated_arguments parameter.

Type	RAC
Values	cli, slip, ppp, arap, auto-detect, ipx, connect, rlogin, Telnet, tn3270
Default	cli
Lists	RAC Only, AppleTalk, Basic Async Port, Modem, PPP, SLIP, Call Defaults, Sync Call Defaults

CallDef_net_inactivity   defines the amount of time a RAC or an ISDN Primary Rate RAC call can remain inactive before it is terminated. The CallDef_net_inactivity_units parameter determines whether the number you enter here is in minutes or seconds.

Type	RAC
Values	0 to 255
Default	0
Lists	RAC Only, Idle Timer, PPP, SLIP, Call Defaults, Sync Call Defaults

CallDef_net_inactivity_ units

determines the unit of time used for the inactivity timer of a RAC or an ISDN Primary Rate RAC.

Type	RAC
Values	minutes or seconds
Default	minutes
Lists	RAC Only, PPP, SLIP, Idle Timer, Call Defaults, Sync Call Defaults

CallDef_newline_ terminal

interprets carriage returns and line feeds for CLI. When you enter *disabled*, a carriage return or a line feed terminates the input line and a carriage return followed by a line feed terminates output lines. When you enter *enabled*, a line feed terminates both the input and the output lines.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, Call Defaults, Cmd Line Editing

CallDef_output_flow_ control

defines the method that a device uses to start or stop output from a RAC or an ISDN Primary Rate RAC. You can choose:

- *none* to disable flow control.

- *start/stop* to designate flow control by recognizing xon and xoff characters.

- *eia* to indicate that flow control is delegated to a lower level.

Type	RAC
Values	none, XonXoff, hardware
Default	hardware
Lists	RAC Only, Flow Control, Modem, Call Defaults

CallDef_output_is_ activity
defines activity as output. If you enter *enabled*, the RAC resets the inactivity timer to *0* when it sends output.

Type	RAC
Values	enabled or disabled
Default	enabled
Lists	RAC Only, Idle Timer, Modem, Modem Internal, Call Defaults

CallDef_output_start_ char
defines the control character sequence that restarts output if CallDef_output_flow_control is set to *start/stop*.

Type	RAC
Value	Ctrl + any character
Default	Ctrl + Q (displays as ^Q)
Lists	RAC Only, Flow Control, Call Defaults

CallDef_output_stop_ char
defines the control character sequence that stops output if CallDef_output_flow_control is set to *start/stop*.

Type	RAC
Values	Ctrl + any character
Default	Ctrl + S (displays as ^S)
Lists	RAC Only, Flow Control, Call Defaults

CallDef_port

defines the CLI prompt for a RAC or an ISDN Primary Rate RAC. This parameter uses formatting codes consisting of the percent character and a single lowercase letter. You can combine these codes (e.g., *%a%c*) using up to 16 codes. In addition, you can enter text that appears in the prompt as long as your entire entry does not exceed 32 characters. You can enter:

- %a to display *RAC.*

- %c to display a colon and a space.

- %d to display the date and time (e.g., *Mon Mar 14 13:59:42 1996*).

- %i to display a RAC IP address.

- %j to display a new line.

- %l to display the location of the port. If no location is defined, the port number (e.g., *port 10*) appears.

- %n to display a RAC name or its IP address.

- %p to display the port number of a virtual CLI connection number preceded by *v.*

- %r to display *port.*

- %s to display a space.

- %t to display the current time in 24 hour format.

- %u to display the user name.

Type	RAC
Values	%a, %c, %d, %i, %j. %l, %n, %p, %r, %s, %t, %u
Default	%a%c
Lists	RAC Only, Basic RAC, Virtual CLI, Call Defaults

CallDef_port_input_flow_control

specifies the method of flow control for input received through a connection. You can enter:

- *none* to disable flow control.

- *xonXoff* to designate flow control by recognizing xon and xoff characters.

- *hardware* to indicate that flow control is delegated to a lower level.

Type	RAC
Values	none, xonXoff, hardware
Default	none
Lists	RAC Only, Flow Control, Modem, Call Defaults

CallDef_port_multisession

enables two active windows on the DEC TD/SMP-supported(VT420 or VT330) terminals that are dialed in to a RAC or an ISDN Primary Rate RAC. The feature is available to all calls on which the VCI interface is configured.

Type	RAC
Values	enabled or disabled
Default	enabled
Lists	RAC Only, Call Defaults

CallDef_port_password

defines a password for a RAC or an ISDN Primary Rate RAC call. You can use this password as a back-up for host-based security if the security servers do not respond, or as an additional line of security after you enter a user name and password. For security reasons, Annex Manager displays this value as *set* or *unset*.

If you use SecurID, set CallDef_port_password to a null string (" "). Refer to the *Remote Access Concentrator Software Reference* for more information about SecureID.

Type	RAC
Values	0 to 15 characters
Default	unset
Lists	RAC Only, Modem, Modem Internal, Call Defaults, Synch Call Defaults

CallDef_port_server_ security

enables a host-based security policy for access to a RAC or an ISDN Primary Rate RAC. If you enter *enabled*, only authorized users can access the RAC.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, Modem, Modem Internal, Security, Call Defaults

CallDef_port_user_ name

defines a default user name for this ISDN Primary Rate RAC.

Type	RAC
Values	0 to 16 characters
Default	" " (null string)
Lists	RAC Only, Security, Call Defaults, Sync Call Defaults

CallDef_ppp_acm

specifies which of the first 32 bytes (0x0 to 0x1F) of the ASCII character set can be sent as clear text and which should be protocol-escaped.

Type	RAC
Values	8 character hexadecimal
Default	00000000
Lists	RAC Only, PPP, Call Defaults

CallDef_ppp_mru

defines the maximum receive unit (MRU) that a RAC or an ISDN Primary Rate RAC requests as its local MRU.

Type	RAC
Values	64 to 1500
Default	1500
Lists	RAC Only, PPP, Call Defaults, Sync Call Defaults

CallDef_ppp_ncp
specifies the protocols that run on the interface. The ISDN Primary Rate RAC negotiates only for those protocols that are specified here. You can select a single protocol, all protocols, or a combination of two protocols from the following list:

- *all*
- *ipcp*
- *atcp*
- *ipxcp*
- *ipcp-atcp*
- *ipcp-ipxcp*
- *atcp-ipxcp*
- *ipcp-atcp-ipxcp*

Type	RAC
Values	all, ipcp, atcp, ipxcp, ipcp-atcp, ipcp-ipxcp, atcp-ipxcp, ipcp-atcp-ipxcp
Default	all
Lists	RAC Only, PPP, Call Defaults, Sync Call Defaults

**CallDef_ppp_
password_remote**
contains the password that a RAC or an ISDN Primary Rate RAC provides when the remote PPP peer asks for authentication. For security reasons, Annex Manager displays this parameter value as *set* or *unset*.

Type	RAC
Values	0 to 16 characters
Default	unset
Lists	RAC Only, PPP, Security, Call Defaults, Sync Call Defaults

CallDef_ppp_securty protocol

defines the security check for the peer that the ISDN Primary Rate RAC requires before it starts the network control protocol. If the RAC wants to use security and the peer refuses, the RAC closes the link. You can enter:

- *chap* to use challenge-handshake protocol.

- *pap* to use password authentication protocol.

- *chap/pap* to use both challenge-handshake protocol and password authentication protocol.

- *none*.

Type	RAC
Values	chap, pap, chap/pap, none
Default	none
Lists	RAC Only, PPP, Security, Call Defaults, Sync Call Defaults

CallDef_ppp_ username_remote

contains the username by which the ISDN Primary Rate RAC identifies itself when the remote PPP peer asks for authentication.

Type	RAC
Values	0 to 15 characters
Default	" " (null string)
Lists	RAC Only, PPP, Security, Call Defaults, Sync Call Defaults

CallDef_printer_host

specifies the IP address or fully qualified domain name of a machine running a Berkeley-style lpd server. The *tn3270* command uses this server for the print-screen function.

Type	RAC
Values	IP address or domain name
Default	0.0.0.0
Lists	RAC Only, Call Defaults

CallDef_printer_name
specifies the printer used by the print-screen function of the *tn3270* command. You must enter a name listed in the /etc/printcap file on the remote host by the CallDef_printer_host parameter. Refer to the *Remote Access Concentrator Software Reference* for more information.

Type	RAC
Values	Printer name from /etc/printcap file
Default	" " (null string)
Lists	RAC Only, Call Defaults

CallDef_prompt
defines the CLI prompt for a RAC or an ISDN Primary Rate RAC. This parameter uses formatting codes consisting of the percent character and a single lowercase letter. You can combine these codes (e.g., *%a%c*), using up to 16 codes. In addition, you can enter text that appears in the prompt as long as your entire entry does not exceed 32 characters. You can enter:

- %a to display *RAC.*

- %c to display a colon and a space.

- %d to display the date and time (e.g., *Mon Mar 14 13:59:42 1996*).

- %i to display a RAC IP address.

- %j to display a new line character.

- %l to display the port location. If no location is defined, the port number (e.g., *port 10*) appears.

- %n to display a RAC name or its IP address.

- %p to display the port number of a virtual CLI connection number preceded by *v.*

- %r to display *port.*

- %s to display a space.

- %t to display the current time.

- %u to display the user name of the port.

Type	RAC
Values	%a, %c, %d, %i, %j. %l, %n, %p, %s, %t, %u
Default	Value in cli_prompt parameter
Lists	RAC Only, Basic Async Port, Call Defaults

CallDef_redisplay_line   defines the reprint line character for CLI users.

Type	RAC
Values	Ctrl + any character
Default	Ctrl + R (displays as ^R)
Lists	RAC Only, Cmd Line Editing, Call Defaults

**CallDef_reset_idle_
time_on**   defines whether input or output resets the idle timer. The idle time is the time lapse between activity and inactivity at the device. This parameter works with the *who* command.

Type	RAC
Values	input or output
Default	input
Lists	RAC Only, Idle Timer, Call Defaults

**CallDef_resolve_
protocol**   defines the default host protocol that establishes a connection when the command does not specify a protocol. If you enter *any,* the system attempts a LAT (connect) first; if that fails, it attempts to establish a Telnet connection.

Type	RAC
Values	connect, Telnet, any
Default	connect
Lists	RAC Only, Call Defaults

**CallDef_rs232_async_
data_bits**   defines the number of data bits in a character. This value does not include the start, stop, or parity bits.

Type	RAC
Values	5, 6, 7, or 8
Default	8
Lists	RAC Only, Basic Async Port, Modem, Modem Internal, Call Defaults

**CallDef_rs232_async_
parity**

defines the parity type for asynchronous connections.

Type	RAC
Values	none, odd, even
Default	none
Lists	RAC Only, Basic Async Port, Modem, Modem Internal, Call Defaults

**CallDef_rs232_async_
stop_bits**

specifies the number of stop bits for an asynchronous connection.

Type	RAC
Values	one, two, one-and-half
Default	one
Lists	RAC Only, Basic Async Port, Modem, Modem Internal, Call Defaults

**CallDef_rs232_sync_
clock_source**

defines the source of the bit rate clock for the connection. *Split* indicates that the transmit clock is internal and the receive clock is external.

Type	RAC
Values	clk56, clk64, clk112, clk128, external, split
Default	clk56
Lists	RAC Only, Call Defaults

CallDef_short_break

allows a RAC or an ISDN Primary Rate RAC to return a user to the CLI prompt after receiving a break of less than two seconds.

Type	RAC
Values	enabled or disabled
Default	enabled
Lists	RAC Only, Idle Timer, Call Defaults

CallDef_slip_mtu_size   sets the maximum transmission unit (MTU) size for a PPP SLIP/CSLIP connection to a RAC or an ISDN Primary Rate RAC. This parameter forces the SLIP interface to use large (1006) or small (256) MTUs.

Type	RAC
Values	large or small
Default	small
Lists	RAC Only, SLIP, Call Defaults

CallDef_slip_no_icmp   discards ICMP packets directed to the SLIP link. This parameter allows the ISDN Primary Rate RAC to reduce unnecessary traffic and messages over the SLIP link.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, SLIP, Call Defaults

CallDef_slip_ppp_ security   controls dial-up SLIP/PPP access to a RAC or an ISDN Primary Rate RAC. When enable_security and CallDef_slip_ppp_security are set to *enabled*, SLIP and PPP calls use the ACP security server. The RAC determines whether CLI users are authorized to execute SLIP or PPP commands.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, PPP, SLIP, Security, Call Defaults, Sync Call Defaults

CallDef_slip_subnet_ mask   contains the PRI RAC IP subnet mask for a SLIP interface. The subnet mask defines which portion of the IP address is the network, subnet, and host. The parameter default is based on the network portion of the RAC IP address. Setting this parameter incorrectly can cause routing problems.

Type	RAC
Values	IP address
Default	0.0.0.0
Lists	RAC Only, SLIP, Call Defaults, Sync Call Defaults

CallDef_slip_tos   allows a RAC or an ISDN Primary Rate RAC to send interactive traffic (such as *Telnet*, *rlogin*, and *ftp* control sessions) before it sends other traffic. This parameter provides a type-of-service based SLIP queuing.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, SLIP, Call Defaults

CallDef_tcp_keepalive   specifies the length of time a RAC or an ISDN Primary Rate RAC connection must be idle before sending keep-alive messages. A keep-alive message contains no data, but solicits an acknowledgment from the other end of a connection to determine whether the connection is still active. If the recipient does not acknowledge the message after eight retries, the RAC drops the connection. You can use *0* (the Annex Manager default value) to set the keep-alive time to 120 minutes, or you can enter *255* to disable the keep-alive mechanism.

Type	RAC
Values	0 to 255 minutes
Default	0 minutes
Lists	RAC Only, Basic RAC, Call Defaults

CallDef_Telnet_crlf   converts a carriage return in a Telnet session to a carriage return followed by a line feed. If you enter *disabled*, a carriage return translates to a carriage return followed by a null string.

Type	RAC
Values	enabled or disabled
Default	disabled
LIsts	RAC Only, Cmd Line Editing, Call Defaults

CallDef_Telnet_escape   defines the character that returns a CLI user to the *Telnet* prompt. You can press ⎡Ctrl⎤ and enter *U* to disable the *Telnet* escape character.

Type	RAC
Values	⎡Ctrl⎤ + any character
Default	⎡Ctrl⎤ + ⎡] ⎤ (displays as ^])
Lists	RAC Only, Cmd Line Editing, Call Defaults

CallDef_term_var   identifies the type of terminal dialed in to a RAC or an ISDN Primary Rate RAC via a CLI connection. You must enter a valid terminal type for the host. The RAC passes the terminal type setting to the host.

Type	RAC
Values	0 to 16 characters
Default	" " (null string)
Lists	RAC Only, Basic Async Port, Call Defaults

CallDef_toggle_output   defines the character that flushes the output buffer for CLI users calling a RAC or an ISDN Primary Rate RAC.

Type	RAC
Values	Ctrl + any character
Default	Ctrl + O (displays as ^O)
Lists	RAC Only, Cmd Line Editing, Call Defaults

CallDef_v120_mru   defines the maximum receive unit (MRU) that the ISDN Primary Rate RAC requests as its local MRU.

Type	RAC
Values	30 to 260
Default	256
Lists	RAC Only, Call Defaults

CallDef_vci_login_port_ password   enables the ISDN Primary Rate RAC password when the DECServer command interface is configured (i.e., when CallDef_cli_interface is set to *vci*). For more information, Refer to the *Remote Access Concentrator Software Reference*.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, Call Defaults, VCI Interface

**CallDef_vci_login_
timeout**
enables a login timer when the DECServer command interface is configured (i.e.,
when CallDef_cli_interface is set to *vci*). For more information, refer to the *Remote
Access Concentrator Software Reference*.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, Call Defaults, VCI Interface

chap_auth_name
contains the character string that appears in the *Name* field when a RAC issues
a CHAP challenge over a PPP link.

Type	RAC
Values	1 to 16 characters
Default	chap
Lists	RAC Only, Security

char_erase
allows a RAC using CLI to display the character erase for a video terminal. When
you choose *enabled*, a deleted character looks as if it was erased. If you choose
disabled, the RAC echoes the erase characters for a hard-copy terminal. It
displays a backslash (\), one or more deleted characters, and a slash (/). For
example, typing *asdf* (Delete) (Delete) *g* displays as *asdf\fd/g*.

Type	Async
Values	enabled or disabled
Default	enabled
Lists	Async Port, Command Line Editing

circuit_timer
indicates the time interval in tens of milliseconds between the transmission
of LAT packets. For example, if you enter *9*, the time interval is 90
milliseconds.

Type	RAC
Values	1 to 100 tens of milliseconds
Default	8 (80 milliseconds)
Lists	RAC Only, LAT

cli_imask7

allows a RAC to mask CLI input to seven bits. If you choose *disabled*, the RAC expects eight-bit ASCII input. You should not choose *enabled* unless the terminal attached to the port can transmit only seven-bit characters.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port, Basic Async Port, Modem, Modem Internal

cli_inactivity

specifies the amount of time in minutes that the RAC remains idle before disconnecting a CLI session from a port. Entering *0* disables the timer; entering *255* causes the RAC to disconnect as soon as it exits from its last job. Unlike inactivity_timer, this timer does not disconnect a CLI session with active jobs.

Type	Async
Values	0 to 255 minutes
Default	0 minutes
Lists	Async Port, Idle Time, Modem, Modem Internal

cli_interface

allows you to control the prompt that appears for VMS or UNIX environments. If you enter *uci*, this parameter provides a standard UNIX interface, with prompts defined by the cli_prompt and prompt parameters. If you enter *vci*, the standard VMS interface includes the *Local>* prompt followed by the *Username>* prompt.

Type	Async
Values	vci or uci
Default	uci
Lists	Async Port

cli_prompt   defines the RAC prompt for all CLI users. This parameter uses formatting codes consisting of the percent character and a single lowercase letter. You can combine these codes (e.g., *%a%c*) using up to 16 codes. In addition, you can enter text that appears in the prompt as long as your entire entry does not exceed 32 characters. You can enter:

- %a to display *RAC.*

- %c to display a colon and a space.

- %d to display the date and time (e.g., *Mon Mar 14 13:59:42 1996).*

- %i to display a RAC IP address.

- %j to display a new line.

- %l to display the location of the port. If no location is defined, the port number (e.g., *port 10)* appears.

- %n to display a RAC name or its IP address.

- %p to display the port number of a virtual CLI connection number preceded by *v.*

- %r to display *port.*

- %s to display a space.

- %t to display the current time in 24 hour format.

- %u to display the user name of the port.

Type	RAC
Values	%a, %c, %d, %i, %j. %l, %n, %p, %r, %s, %t, %u
Default	%a%c
Lists	RAC Only, Basic RAC, Virtual CLI

cli_security
enables user authentication by the host-based ACP server for all CLI connections. If you choose *disabled*, you cannot use any RAC security mechanism other than the administrative password for CLI ports.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port, Security

config_file
defines a name for the configuration file maintained on the load host. The file contains information about gateways, rotaries, macros, and services. It must reside in the /usr/spool/erpcd/bfs directory.

Type	RAC
Values	0 to 16 characters
Default	config.RAC
Lists	RAC Only, Basic RAC

connect_security
activates the host-based security policy for access from CLI to the network. If you choose *enabled*, the user must be authorized via the host-based ACP security server to connect to a network host. The security policy in the security server scans the /etc/acp_restrict file to authorize a connection to a host from the RAC.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port, Modem, Modem Internal, Security

control_lines   defines the type of hardware control lines used on this port. You can enter:

- *both* to allow flow and modem control.

- *flow_control* to allow flow control (RTS/CTS) only.

- *modem_control* to allow modem control using only DTR/DCD/ DSR handshaking.

- *none* to disable flow and modem control.

Type	Async
Values	both, flow_control, modem_control, none
Default	none
Lists	Async Port, Flow Control, Modem, Modem Internal

data_bits   defines the number of data bits in a character. This value does not include the start, stop, or parity bits.

Type	RAC
Values	5, 6, 7, or 8
Default	8
Lists	RAC Only, Basic Async Port, Modem

daylight_savings   allows the RAC to adjust for daylight savings time in your geographic location.

Type	RAC
Values	us, australian, british, canadian, east_european, mid_european, west_european, none
Default	us
Lists	RAC only

dedicated_address   defines one host and one TCP port to which this port can connect. To use this parameter, set the Mode parameter to *dedicated*.

Type	Async
Values	IP address
Default	0.0.0.0
Lists	Async Port, Dedicated_Port

dedicated_arguments   defines the command line arguments used for dedicated ports. This parameter
                           works when mode is set to *call, connect*, *rlogin*, *Telnet*, or *tn3270*.

Type	Async
Values	0 to 100 characters
Default	" " (null string)
Lists	Async Port, Dedicated Port

dedicated_port   selects the application name or TCP port number to which a RAC port can
                      connect. You can enter:

- *Telnet*, *rlogin*, or *call*.

- One of the following numbers:

  - *0* or *23* for *Telnet*.

  - *513* for *rlogin*.

  - *1027* for *call*.

- A number between 0 and 65535.

This parameter is obsolete in RAC software Release 10.1 and in subsequent
releases. Please use the dedicated_arguments parameter.

Type	Async
Values	Telnet, rlogin, call or a TCP/IP port number.
Default	Telnet
Lists	Dedicated Port

def_session_mode   defines the default session mode when the DECServer command interface is
                        configured (i.e., when cli_interface is set to *vci*). For more information, refer to the
                        RAC Interface for VMS Environments Administrator's Guide.

Type	Async
Values	interactive, passthru, passall, transparent
Default	interactive
Lists	Async Port

default_image_name   contains the name of the image file that is loaded by default when the RAC is booted.

Type	RAC
Values	0 to 100 characters
Default	" " (null string)
Lists	RAC Only, Basic RAC

default_zone_list   contains the zone list that is sent to AppleTalk clients in case of an ACP failure. You must use spaces to separate zone names (e.g., *general engineering lab*). To escape embedded spaces within a zone name, use the backslash (\). If you do not set this parameter, the RAC provides the network zone list.

Type	RAC
Values	1 to 100 characters
Default	" " (null string)
Lists	RAC Only, AppleTalk

demand_dial   allows a port to use demand dialing. You cannot use this parameter unless the option_key parameter enables demand dialing.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port, PPP, SLIP

DHCP_broadcast   determines whether or not a RAC broadcasts for DHCP services if the preferred DHCP servers are not available.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only

dialup_address_origin   allows a RAC to search the acp_dialup file for the user name of the remote client and set local and remote addresses. This parameter applies only when the mode parameter is set to *slip*, *ppp*, or *autodetect*.

- acp_dialup:

  - If the file contains a matching user name and:

    - The local and remote addresses exist in the acp_dialup file, the RAC uses those values.

    - The the acp_dialup file contains a remote address but not a local address, the RAC uses the remote address from the file and the RAC IP address for the local address.

  - If the file does not contain a matching user name, the RAC uses values from the local_address and remote_address parameters:

    - If both parameters contain addresses, the RAC uses these values.

    - If both parameters are set to *0.0.0.0*, the RAC negotiates for both addresses with the remote PPP client. The connection is denied for a remote SLIP client.

    - If local_address contains a value and remote_address is set to *0.0.0.0*, the RAC uses the local address and negotiates with the remote PPP client for the remote address. The connection is denied for a remote SLIP client.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port, PPP, SLIP

disabled_modules   allows you to disable individual modules to free memory space. If you enter more than one module, separate module names using commas. You can enter *admin*, *edit*, *fingerd*, *ftpd*, *lat*, *nameserver*, *ppp*, *slip*, *snmp*, *vci*, *all*, or *none*.

> Disabling snmp prevents access to the RAC from Annex Manager. Disabling admin and snmp can cause problems if host-based na is not available. To change parameters in this case, you must return to monitor mode, erase the parameters in non-volatile memory, and reconfigure the RAC.

Type	RAC
Values	admin, edit, fingerd, ftpd, lat, nameserver, ppp, slip, snmp, vci, all, none
Default	vci
Lists	RAC Only, Basic RAC

do_compression   starts TCP/IP header compression on a SLIP link. When you choose *enabled*, the RAC negotiates for TCP/IP compression for both sides of the connection.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port, PPP, SLIP

dsx1fdl   describes the facilities data link use. This allows the telephone company to read the statistics maintained by a RAC and to perform diagnostic tests.

Type	WAN Module
Values	ANSI, ATT
Default	ATT
Lists	DS1 Line, T1_DS1, PRI _Line

dsx1LineCoding   selects the line code format used on the T1/E1 network interface. Must match the codes supplied by the telephone company.

Type	WAN Module
Values	B8ZS, AMI
Default	B8ZS
Lists	DS1 Line, T1_DS1

dtr_signal   controls the DTR (Data Terminal Ready) signal for the port. Entering a value for
                                  an idle port causes an error condition.

                                  If you change this value and then reset a port or reboot a RAC, this
                                  parameter returns to its original default values. Therefore, you must
                                  choose ⬚ Cancel ⬚ in the *Reset Parameters* window to prevent the reset
                                  process and to use the parameter value you entered.

Type	Async
Values	unknown, high, low
Default	unknown
Lists	Async Port

echo   directs a RAC to echo all characters as a user types. This parameter applies only
                                  to the CLI level.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port, Command Line Editing

enable_security   allows you to activate the security system.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, AppleTalk, IPX, PPP, SLIP, Security, Virtual CLI

erase_char   uses a control character sequence to define the CLI erase character.

Type	Async
Values	$\boxed{\text{Ctrl}}$ + any character
Default	$\boxed{\text{Ctrl}}$ + $\boxed{\text{Delete}}$ (displays as ^?)
Lists	Async Port, Command Line Editing

erase_line   uses a control character sequence to define the CLI line erase character.

Type	Async
Values	$\boxed{\text{Ctrl}}$ + any character
Default	$\boxed{\text{Ctrl}}$ + $\boxed{\text{U}}$ (displays as ^U)
Lists	Async Port, Command Line Editing

erase_word   uses a control character sequence to define the CLI word erase character.

Type	Async
Values	$\boxed{\text{Ctrl}}$ + any character
Default	$\boxed{\text{Ctrl}}$ + $\boxed{\text{W}}$ (displays as ^W)
Lists	Async Port, Command Line Editing

facility_num   identifies a LAT host using a number.

Type	RAC
Values	0 through 32767
Default	0
Lists	RAC Only, LAT

forward_key   defines the character sequence that opens the next higher-numbered session established at a port. Bay Networks recommends that you use a sequence with $\boxed{\text{Ctrl}}$ + a character. The key displays as ^. If you use more than one letter or number, Annex Manager separates characters with a slash (/). For example, $\boxed{\text{Ctrl}}$ + *a* + *b*, displays as *^a/b*.

Type	Async
Values	0 to 16 characters
Default	" " (null string)
Lists	Async Port, vci_interface

forwarding_count   controls RAC port behavior for received characters. If you enter a number other than *0*, the port does not forward characters until it receives the number of characters you entered. If you enter *0*, the port uses values in forwarding_timer. If you use forwarding_count and forwarding_timer parameters, the RAC uses the value that occurs first.

> Setting forwarding_count to *1* or forwarding_timer to *0* can have a severe effect on the network when heavy serial input occurs.

Type	Async
Values	0 to 255
Default	0
Lists	Async Port, Idle Timer

forwarding_timer   sets the amount of time in ten millisecond intervals that can elapse before a RAC forwards received data. If new data arrives before the timer expires, the RAC resets the timer. If you enter *0*, the RAC uses *5*, which is the Annex Manager default value.

> Setting forwarding_count to *1* or forwarding_timer to *0* can have a severe effect on the network when heavy serial input occurs.

Type	Async
Values	0 to 255 tens of milliseconds
Default	5 (50 milliseconds)
Lists	Async Port, Idle Timer

group_value   specifies the LAT protocol remote group codes that can access local services offered by a RAC. To access these services, the RAC must have at least one enabled group code that matches the group codes of the service. You can enter *all*, *none*, a series of numbers separated by commas, (e.g., *1*, *5*, *7*) or a range of numbers separated by dashes (e.g., *1, 5, 200-255*).

Type	RAC
Values	all, none, or numbers from 0 to 255
Default	none
Lists	RAC Only, LAT

hardware_tabs   allows the RAC to convert ASCII tab characters to the correct number of spaces when a terminal does not support hardware tabs. This parameter works only for CLI sessions.

Type	Async
Values	enabled or disabled
Default	enabled
Lists	Async Port, Command Line Editing

host_table_size   defines the number of entries allowed in the host table. Entering *255* allows an unlimited number of entries. Entering *254* indicates that there is no host table. In this case, the RAC requires a name server to resolve every host name.

Type	RAC
Values	0 to 255
Default	64
Lists	RAC Only, Modem

image_name   provides the file name for the operational code that loads by default when you boot a RAC. You can enter a name using up to 100 characters.

Type	RAC
Values	1 to 100 characters
Default	" " (null string)
Lists	RAC only

imask_7bits   allows a RAC to mask input to seven bits. If you choose *disabled*, the RAC expects eight-bit ASCII input.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port, Basic Async Port

inactivity_timer   specifies the number of minutes that a port can remain inactive. If the timer
                                  expires, the RAC terminates all sessions and resets the port. You can use
                                  input_is_activity and output_is_activity to define activity as input to the port or output
                                  from the port. If you set these parameters to *disabled*, the timer runs independent
                                  of activity. To reset a port regardless of any activity, enter a number of minutes
                                  here, set input_is_activity and output_is_activity to *disabled* and set port_type to *dialin*.

Type	Async
Values	0 to 255 minutes
Default	0 (timer disabled)
Lists	Async Port, Idle Timer, Modem, Modem Internal

inet_addr   defines the RAC IP address. This 32-bit address contains four 8-bit fields
                                  separated by periods. Each field contains a number ranging from 0 to 255 or a
                                  hexadecimal number. The IP address always displays in decimal notation.

Type	RAC
Values	For each field: 0 to 255 or hexadecimal
Default	n/a
Lists	RAC Only, Basic RAC

input_buffer_size   provides the number of 256-byte blocks allocated to receive input characters for
                                  a port.

Type	Async
Values	1 to 255
Default	1
Lists	Async Port, Flow Control

input_flow_control   specifies the method of flow control for input received from a device connected to a serial port. You can enter:

- *none* to disable flow control.

- *start/stop* to designate flow control by recognizing xon and xoff characters.

- *eia* to indicate that flow control is delegated to a lower level (e.g., a parallel port).

Type	Async
Values	none, start/stop, eia
Default	none
Lists	Async Port, Printer Port, Flow Control, Modem

input_is_activity   defines activity as input. If you choose *enabled*, the RAC sets the inactivity timer when it receives input at the port.

Type	Async
Values	enabled or disabled
Default	enabled
Lists	Async Port, Dedicated Port, Idle Timer, Modem

input_start_char   defines the control character sequence that restarts input if input_flow_control is set to *start/stop*.

Type	Async
Value	Ctrl + any character
Default	Ctrl + Q (displays as ^Q)
Lists	Async Port, Flow Control

input_stop_char   defines the control character sequence that stops input if input_flow_control is set to *stop/start*.

Type	Async
Values	[Ctrl] + any character
Default	[Ctrl] + [S] (displays as ^S)
Lists	Async Port, Flow Control

ip_forward_broadcast   allows a RAC to broadcast a packet to the SLIP or PPP interfaces. When a RAC receives a packet sent to a broadcast address (except 0.0.0.0 and 255.255.255.255), it scans the interface list for SLIP or PPP and matches the broadcast address against the remote address of the interface using a subnet or net mask. If these addresses match, the RAC copies the packet to that interface. If you enter *disabled*, the RAC does not scan the interface list and does not copy broadcast packets.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, Basic RAC

ipencap_type   indicates whether the RAC LAN interface encapsulates IP packets in Ethernet Version 2 format or IEEE 802.3 Data Link Layer format.

Type	RAC
Values	ethernet or ieee802
Default	ethernet
Lists	RAC Only, Basic RAC

ipso_class   specifies the U.S. Department of Defense basic IP Security Option (IPSO) classification level included in TCP packets generated on RAC CLI, dedicated, or adaptive asynchronous ports. The option is not added to locally generated ICMP messages, RIP updates, or other system packets. The RAC does not check incoming packets for the presence of the IPSO.

Type	Async
Values	none, secret, topsecret, confidential, unclassified
Default	none
Lists	Async Ports, Security

ipx_do_checksum   controls the IPX checksum feature, which is supported only on Netware version
                             3.12 and 4.xx.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, IPX

ipx_dump_password   contains a user password for logging on to the Novell file server before the RAC
                             sends a dump file to the server. Annex Manager displays *set* or *unset*.

Type	RAC
Values	0 to 16 characters
Default	unset
Lists	RAC Only, IPX

ipx_dump_path   specifies the full pathname that stores the uploaded RAC dump image on the
                             Novell file server.

Type	RAC
Values	0 to 100 characters
Default	n/a
Lists	RAC Only, IPX

ipx_dump_username   provides user name for logging on to the Novell file server before the RAC sends
                             a dump file to the server.

Type	RAC
Values	0 to 48 characters
Default	n/a
Lists	RAC Only, IPX

ipx_file_server   contains the name of the Novell file server from which a RAC boots.

Type	RAC
Values	0 to 48 characters
Default	n/a
Lists	RAC Only, IPX

ipx_frame_type   defines framing used for IPX packets on the Ethernet interface.

Type	RAC
Values	raw802_3, ethernetII, ccitt802, ccitt802snap
Default	raw802_3
Lists	RAC Only, IPX

ipx_security   controls whether IPX security is enabled on the port.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port, IPX, Security

ixany_flow_control   treats any input character as a start (XON) character if output was suspended by a stop (XOFF) character.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Ports, Flow Control

keep_alive_timer   specifies the number of seconds that can elapse between the transmission of identification packets during times of network inactivity. This parameter works only for the LAT protocol. The packets serve only as notices to remote nodes that the host services are available.

Type	RAC
Values	0 to 255 seconds
Default	20 seconds
Lists	RAC Only, LAT

lat_key   restricts access to LAT-specific RAC commands, parameters, functions, and the LAT protocol within the RAC. Each RAC requires a unique key value. You must contact your supplier to obtain a LAT key. After you set the key, your system administrator must reboot the RAC.

Type	RAC
Values	obtained from your supplier
Default	n/a
Lists	RAC Only, LAT

lat_multicast_timer   defines the number of seconds that can elapse between service announcement transmissions for the LAT protocol.

Type	RAC
Values	10 through 180 seconds
Default	30 seconds
Lists	RAC Only, LAT

lat_sys_location   supplies host location or identification information for the LAT protocol.

Type	RAC
Values	0 to 32 characters
Default	" "
Lists	RAC Only, LAT

lat_queue_max   limits the number of HIC (Host Initiated Connection) requests that a RAC can queue.

Type	RAC
Values	1 to 255
Default	4
Lists	RAC Only, LAT

latb_enable   allows a RAC to decode the LAT host data-b packets, which change asynchronous port parameters. Refer to your LAT host documentation for details.

> If you enter *enabled* and the LAT host sends a data-b slot message requesting that flow control (XON/XOFF) be turned off, the RAC turns off flow control and passes XON/XOFF characters to the host. This scenario can adversely affect XON/XOFF and the terminal cursor keys.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Ports, LAT

line_erase   allows a RAC using CLI to echo line erase for a video terminal. If you choose *enabled*, the RAC erases all characters on the line and moves the cursor back to the beginning of the line. If you choose *disabled*, it echoes the line erase character for hard-copy terminals, making the deleted line visible and positioning the print head at the beginning of the next line.

Type	Async
Values	enabled or disabled
Default	enabled
Lists	Async Port, Command Line Editing

load_broadcast   defines, during a boot, whether the RAC requests the configuration or message-of-the-day files from other hosts. This parameter works only if the files are not available on the preferred load host.

Type	RAC
Values	enabled or disabled
Default	enabled
Lists	RAC Only, Basic_RAC

load_dump_gateway   specifies the gateway IP address. A gateway is required if the preferred load or dump host is on a different network or subnet than the RAC.

Type	RAC
Values	IP address
Default	0.0.0.0 (no gateway)
Lists	RAC Only, Basic RAC

load_dump_sequence   specifies available network interfaces and the order in which they are used for a down-line load or an up-line dump. You can list more than one interface by using commas to separate interface names. You can enter:

- *net* to specify a local area network.

- *sl + port number* (e.g., *sl2*) to specify a SLIP line. If you enter *sl* and a port number, you must enter an address in the slip_load_dump_host parameter.

- *self* to instruct a RAC to boot its image from the Flash ROMs. Since the RAC cannot dump back to itself, you should include a secondary interface here by entering *self, net* or *self,sl+port number.*

Type	RAC
Value	net, sl+ port number, self
Default	net
Lists	RAC Only, Basic RAC

local_address   defines the IP address for the port on the RAC side of the link. This IP address is used only when mode is set to *slip*, *ppp,* or *autodetect*.

Type	Async
Values	IP address
Default	0.0.0.0
Lists	Async Port, PPP, SLIP

location   defines a port location or description that displays at the CLI who command.

Type	Async
Values	0 to 16 characters
Default	" " (null string)
Lists	Async Port, Basic Async Port

lock_enable   allows any port to use the DECServer LOCK command.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, Security

long_break   allows a RAC to return a user to the CLI prompt after receiving a break signal
                                  of more than two seconds. If you enter *disabled*, the RAC passes the break to the
                                  local application.

Type	Async
Values	enabled or disabled
Default	enabled
Lists	Async Ports, Idle Timer

loose_source_route   controls the Loose Source Routing protocol, which defines a sequence of IP
                                  addresses that a datagram must follow. You can select *enabled* or *disabled*. When
                                  you select enable, the RAC:

- Forwards IP packets that have the *Loose Source Routing and Record* option set.

- Forwards packets with the *Strict Source Routing and Record* option only if it can reach the next routing address directly.

- Drops packets that do not have either setting and sends an ICMP *Destination Unreachable* message with a *Source Route Failed* code.

If you enter *disabled*, the RAC accepts packets with *Loose Source Routing and Record* or *Strict Source Routing and Record* only when the RAC itself is the destination. If it is not the destination, it drops these packets and sends the same ICMP type message and code.

Loose source routing can be a security problem if you use filters on your network router. If you are concerned with security, you should set this parameter to *disabled*.

Type	RAC
Values	enabled or disabled
Default	enabled
Lists	RAC Only, Security

map   controls mapping of DS0s between the T1 Network Interface and the T1 Drop
                           and Insert Interface, as well as mapping of modems to the T1 Drop and Insert
                           Interface and the T1 Network Interface.

                           You can enter a 4-digit number consisting of two parts. The right-hand two digits
                           control the type of mapping. The left-hand two digits identify the destination
                           modem, if any, and must be 00 if there is no destination modem. You can enter:

- *01* to mark a DS0 as unused. When you use *01*, the next two
  digits must be *00*.

- *02* to mark a T1 Network Interface DS0 as mapped to modem
  number *nn*, where *nn* represents the two digits that follow.

- *03* to mark a T1 Drop and Insert Interface DS0 as mapped to
  modem number *nn*, where *nn* represents the two digits that
  follow.

- *04* to mark a T1 Network Interface DS0 as mapped in voice
  mode directly to the Drop and Insert Interface. When you use
  04, the next two digits must be *00.*

- *05* to mark a T1 Network Interface DS0 as mapped in data
  mode directly to the Drop and Insert Interface. When you use
  05, the next two digits must be *00.*

Type	T1 DS0
Values	4-digit number (see combinations above)
Default	02 + a two-digit number equal to the DS0.
Lists	T1_DS0

map_to_lower   allows a RAC to convert uppercase characters sent from a terminal using CLI
                           into lowercase characters. This parameter is used for older terminals that do not
                           support lowercase characters.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port, Command Line Editing

map_to_upper   allows a RAC to convert lowercase characters sent to a terminal using CLI into uppercase characters. This parameter is used for older terminals that do not support lowercase characters.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port, Command Line Editing

max_chap_chall_ interval   specifies the maximum value for the random CHAP re-challenge interval.

Type	RAC
Values	0 to 65535
Default	0 (Off)
Lists	RAC Only, Security

max_modem_calls   indicates the number of modem calls for which the RAC keeps accounting information. You can use this parameter only for RA6100, Cabletron CSMIM-T1, and Cabletron MODMIM products.

Type	RAC
Values	0 to 255
Default	255
Lists	RAC Only, Basic RAC, Virtual CLI

max_vcli   determines the maximum number of virtual CLI connections the RAC can create at a time. Entering *255* allows a number of connections limited only by the available memory of the RAC.

Type	RAC
Values	0 to 255
Default	255
Lists	RAC Only, Basic RAC, Virtual CLI

metric   defines the hop count to the remote end of the serial line when mode is set to *slip* or *ppp*. Modify this parameter only if you want the RAC to use a route other than the SLIP or PPP interfaces to the remote end.

Type	Async
Values	1 to 15
Default	1
Lists	Async Port, PPP, SLIP

min_unique_hostnames   specifies whether you can identify a host in the host table by entering a minimal string rather than the full host name.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, Modem

mode   sets the mode for access to an asynchronous port. You can enter:

   • *cli* to allow a port connected to a terminal or incoming modem access to CLI. CLI provides access to the network and connections to other hosts via the *Telnet*, *connect*, *rlogin* and *tn3270* commands.

   > The *tn3270* command is available only when option_key is set to an appropriate value.

   • *slave* to indicate that a port provides access to modems, serial line printers, and other serial devices attached to an outgoing port. It does not provide access to the CLI.

   • *adaptive* to allow slave and CLI capabilities. If a connection is initiated via a RAC, the port enters CLI mode. If a connection is initiated via a port server, the port enters slave mode.

- *unused* to indicate that a port has no connection. You should enter *unused* if a port is not connected to a device.

- *slip* to specify that a port can perform as a network interface using SLIP. IP packets are encapsulated by SLIP.

- *dedicated* to allow a port to communicate only with the host defined in the dedicated_port parameter. The port can communicate via *Telnet* or *rlogin*, but not via *tn3270* or *connect*.

- *ppp* to specify that a port can perform as a network interface. PPP IP packets are encapsulated by PPP.

- *arap* to specify that a port can perform as a network interface using ARAP.

- *auto-detect* to allow a port to identify the incoming protocol of a packet and to convert to IPX, PPP, ARAP or CLI.

- *auto-adapt* to allow a port to detect whether packets are incoming or outgoing. For incoming packets, the port behaves as if it were in *auto-detect* mode. For outgoing packets, it operates in *slave* mode.

- *ndp* to allow Novell dial-in, dial-out, and routing.

- *ipx* to allow dial-in Novell access.

- *connect* to allow a port to communicate with a LAT host via the *connect* command. This option works with the dedicated_arguments parameter.

- *rlogin* to allow a port to communicate via the *rlogin* command. This option works with the dedicated_arguments parameter.

- *Telnet* to allow a port to communicate via the *Telnet* command. This option works with the dedicated_arguments parameter.

- *tn3270* to allow a port to communicate via the *tn3270* command. This option works with the dedicated_arguments parameter.

Type	Async
Values	cli, slave, adaptive, unused, slip, call, dedicated, ppp, arap, auto-detect, auto-adapt, ndp, ipx, connect, rlogin, Telnet, tn3270
Default	cli
Lists	Async Port, AppleTalk, Basic Async Port, Dedicated Port, IPX, Modem, PPP, SLIP, TN3270

modem_type

specifies the type of modem attached to the asynchronous port. If you enter a type that does not match the *type_of_modem* field in the configuration file that was read most recently, the RAC logs a warning message. For more information about the configuration file modem management, see *Managing Remote Annex Concentrators Using CLI Interfaces*.

Type	Async
Values	0 to 16 characters
Default	n/a
Lists	Async Port, Modem

mop_login_password

specifies the password for all ports using a VMS interface. This parameter works only when cli_interface is set to *vci* and vci_login_port_password is set to *enabled*. For security reasons, Annex Manager displays values as *set* or *unset*.

Type	RAC
Values	0 to 16 characters
Default	unset
Lists	RAC Only, MOP

mop_login_prompt

defines the prompt that appears for all ports using a VMS interface. This parameter works only when cli_interface is set to *vci*.

Type	RAC
Values	0 to 16 characters
Default	#
Lists	RAC Only, MOP

mop_login_timer   specifies the number of minutes a port using a VMS interface can remain inactive. This parameter works only when cli_interface is set to *vci*. Entering *0* sets the timer to 30 minutes (the Annex Manager default value).

Type	RAC
Values	0 through 60 minutes
Default	30 minutes
Lists	RAC Only, MOP

mop_password   contains the MOP maintenance password. This is an 8-byte password, where each byte consists of two hexadecimal digits. For security reasons, Annex Manager displays values as *set* or *unset*.

Type	RAC
Values	0 to 16 characters
Default	unset
Lists	RAC Only, MOP

mop_pref_host   contains the Ethernet address of the preferred MOP load or dump host. This address consists of six parts separated by dashes. Each part contains a hexadecimal value.

Type	RAC
Values	Ethernet address
Default	00-00-00-00-00-00
Lists	RAC Only, MOP

motd_file   contains the message-of-the-day file name that is maintained on the load host. This file resides in the directory you choose during the host installation process (typically /usr/spool/erpcd/bfs).

Type	RAC
Values	0 to 16 characters
Default	motd
Lists	RAC Only, Basic RAC

multisession   allows terminals (i.e., VT420 and VT 330) supporting the DEC Terminal Device/ Session Management Protocol (TD/SMP) to display two active windows simultaneously. Entering *enabled* here makes this feature available to all ports on which the VCI command interface is configured.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, VCI_Interface

name_server_1   defines the type of name service used with the primary name server. This parameter works only when you specify a host in pref_name1_addr.

Type	RAC
Values	dns, ien_116, none
Default	none
Lists	RAC Only, Nameserver

name_server_2   defines the type of name service used with the secondary name server. The RAC uses this service when the service specified in name_server_1 is not available. This parameter works only when you specify a host in pref_name2_addr.

Type	RAC
Values	dns, ien_116, none
Default	none
Lists	RAC Only, Nameserver

nameserver_broadcast   defines whether the RAC broadcasts a name server request if the preferred name servers do not respond.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, Modem

need_dsr

allows a RAC to use the DSR (Data Set Ready) signal to determine whether a device is attached to the corresponding asynchronous line. The RAC does not allow connection to a slave line port and does not activate CLI until the DSR signal is active. If DSR is deactivated, the connection to a slave line is terminated and CLI is deactivated.

If you choose *disabled*, the DSR signal is not required to connect to a slave line, and is not required to activate a CLI line. DSR is always considered active on ports that do not have a DSR signal (ports with partial modem control lines).

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port, Flow Control, Modem

net_inactivity

defines the amount of time an asynchronous interface port can remain inactive before the port is reset. The net_inactivity_units parameter determines whether the number you enter here is in minutes or seconds.

Type	Async
Values	0 to 255
Default	0
Lists	Async Ports, Idle Timer, PPP, SLIP

net_inactivity_units

determines the unit of time used for the serial protocol inactivity timer of the port.

Type	Async
Values	minutes or seconds
Default	minutes
Lists	Async Port, PPP, SLIP

net_inactivity_units

determines the unit of time used for the serial protocol inactivity timer of the port.

Type	Async
Values	minutes or seconds
Default	minutes
Lists	Async Port, PPP, SLIP

network_turnaround   controls the number of seconds that a RAC waits for a response from a security server. An algorithm defines the actual time, which is usually longer than the number of seconds in this parameter. This parameter works only when enable_security is set to *enabled*.

> You should not enter a high number here unless you need a long timeout for contacting a slow host or for waiting for a response to a security request from a slow host.

Type	RAC
Values	1 to 255 seconds
Default	2 seconds
Lists	RAC Only, Security

newline_terminal   interprets carriage returns and line feeds for CLI. When you enter *disabled*, a carriage return or a line feed terminates the input line and a carriage return followed by a line feed terminates output lines. When you enter *enabled*, a line feed terminates both the input and the output lines.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	Async Port, Command Line Editing

node_id   contains the address a RAC tries to acquire at the start of an AppleTalk session. If the address you enter here is in use, the RAC must acquire a new node ID. This new ID is stored in non-volatile RAM. Each ID has two parts, separated by a dot.

Type	RAC
Values	0 to 65534.255
Default	0.0
Lists	RAC Only, AppleTalk

option_key
enables AppleTalk-specific functions and parameters, the CLI *tn3270* command, active RIP, dial-out routing, filtering, and IPX. These features are available separately or in any combination. Each RAC requires a unique key value for the features you choose. You must contact your supplier to obtain the key value.

Lists	RAC
Values	option key value from your supplier
Default	n/a
Lists	RAC Only, Basic RAC, AppleTalk, IPX

output_flow_control
defines the method that a device uses to start or stop output from a RAC. You can choose:

- *none* to disable flow control.

- *start/stop* to designate flow control by recognizing xon and xoff characters.

- *eia* to indicate that flow control is delegated to a lower level (e.g., a parallel port).

Type	Async
Values	none, start/stop, eia
Default	none
Lists	Async Port, Printer Port, Flow Control, Modem

output_is_activity
defines activity as output. If you enter *enabled*, the RAC sets the inactivity timer when it sends output from the port.

Type	Async
Values	enabled or disabled
Default	enabled
Lists	Async Port, Dedicated Port, Idle Timer, Modem, Modem Internal

output_start_char   defines the control character sequence that restarts output if output_flow_control is set to *start/stop*.

Type | Async
Value | (Ctrl) + any character
Default | (Ctrl) + (Q) (displays as ^Q)
Lists | Async Port, Flow Control

output_stop_char   defines the control character sequence that stops output if output_flow_control is set to *start/stop*.

Type | Async
Values | (Ctrl) + any character
Default | (Ctrl) + (S) (displays as ^S)
Lists | Async Port, Flow Control

output_ttl   sets the time-to-live (TTL) for packets the RAC generates for RIP updates. TTL is a field in IP packets that limits their lifetime on the network. Each time a packet crosses a router, the router decrements the packet TTL by 1. When the value reaches 0, the packet is discarded.

Type | RAC
Values | 1 to 255
Default | 64
Lists | RAC Only, Routing

parity   defines the type of parity that the asynchronous port uses.

Type | Async
Values | none, odd, even
Default | none
Lists | Async Port, Basic Async Port, Modem, Modem Internal

password	modifies the RAC administrative password used for access to the superuser CLI commands and for administrative access to a RAC. This password overrides the CLI lock and virtual CLI passwords. For security reasons, Annex Manager displays this value as *set* or *unset*.

Type	RAC
Values	0 to 15 characters
Default	unset
Lists	RAC Only, Security

password_limit	defines the maximum number of times a user can attempt to enter a password before a RAC resets the port. Entering *0* sets the limit to 3 (the Annex Manager default value).

Type	RAC
Values	0 through 10
Default	3
Lists	RAC Only

phone_number	defines the default phone number used with demand dialing on the port. The number you enter must be compatible with the modem connected to the port.

Type	Async
Values	0 to 32
Default	" " (null string)
Lists	Async Port, PPP, SLIP

port_encoding	has two settings:

1) Device - When the parameter is set to this value (which is also the default) the NAS-Port attribute in conjunction with the NAS-Port-Type attribute defines the port being used for that session.

2) Physical Port (corresponds to a hardware device)

NAS-Port-Type	NAS-Port
Async	1-46(T1)
	1-48(Channelized T1)
	1-62(E1)
	1-64(Channelized E1)

Sync   1-46(T1)

1-48(Channelized T1)

1-62(E1)

1-64(Channelized E1)

V120/V110/X75   1-46(T1)

1-48(Channelized T1)

1-62(E1)

1-64(Channelized E1)

Virtual Port (logical devices)

NAS-Port-Type	NAS-Port
Virtual (Connections from the Network)	2000+
Virtual (Dialouts initiated)	3000+
Virtual (Ethernet connections)	4000+
Virtual (Tunnel on the LNS)	5000+
Virtual (MP bundles)	6000+

2) Channel - When set to channel the physical and virtual ports are
encoded as follows:

Physical Port (corresponds to a hardware device)

The NAS-Port attribute is encoded as *wllcc*

Where:

w - is set to 1 for digital calls and 2 for analog calls

ll - is the WAN number on which the call was received (currently 1 or 2)

cc - is the B channel for the particular WAN that the call was received on

e.g., NAS-Port = 20124 is an async call on WAN 01 and channel 24

<u>Virtual Port (logical devices)</u>

NAS-Port-Type	NAS-Port
Virtual (Connections from the Network)	200+
Virtual (Dialouts initiated)	300+
Virtual (Ethernet connections)	400+
Virtual (Tunnel on the LNS)	500+
Virtual (MP bundles)	600+

port_modem_config sets other parameters for a specific modem configuration. Each value you choose here sets values in the mode, port_type, speed, control_lines, input_flow_control, output_flow_control, need_dsr, bidirectional_modem, and broadcast parameters. The *dialinautobaud* and *dialinoutautobaud* selections set the autobaud parameter in addition to those listed above. The following list includes the parameter values that are set.

You can use this parameter only for RA6100, Cabletron CSMIM-T1, and Cabletron MODMIM products.*None* sets mode to *cli*, port_type to *hardwired*, speed to *115200*, control_lines to *none*, input_flow_control to *none*, output_flow_control to *start/stop*, need_dsr to *disabled*, bidirectional_modem to *disabled*, and broadcast_direction to *port*.

• *Dialinautobaud* sets mode to *cli*, port_type to *dialin*, autobaud to *enabled*, speed to *115200* (or the highest speed that the hardware supports), control_lines to *both*, input_flow_control to *eia*, output_flow_control to *eia*, need_dsr to *enabled*, bidirectional_modem to *disabled*, and broadcast_direction to *port*.

• *Dialin* sets mode to *cli*, port_type to *dialin*, speed to *115200* (or the highest speed that the hardware supports), control_lines to *both*, input_flow_control to *eia*, output_flow_control to *eia*, need_dsr to *enabled*, bidirectional_modem to *disabled*, and broadcast_direction to *port*.

• *Dialinoutautobaud* sets mode to *adaptive,* autobaud to *enabled*, port_type to *dialin*, speed to *115200* (or the highest speed that the hardware supports), control_lines to *both*, input_flow_control to *eia*, output_flow_control to *eia*, need_dsr to *disabled*, bidirectional_modem to *enabled*, and broadcast_direction to *port*.

•   *Dialinout* sets mode to *adaptive,* port_type to *dialin*, speed to *115200*
    (or the highest speed that the hardware supports), control_lines to
    both, input_flow_control to *eia*, output_flow_control to *eia*, need_dsr to
    disabled, bidirectional_modem to *enabled*, and broadcast_direction to
    port.

•   *Dialout* sets mode to *slave,* port_type to *dialin*, speed to *115200* (or the
    highest speed that the hardware supports), control_lines to *both*,
    input_flow_control to *eia*, output_flow_control to *eia*, need_dsr to
    disabled, bidirectional_modem to *enabled*, and broadcast_direction to
    network.

•   *Autodetect* sets mode to *auto_detect*, port_type to *dialin*, autobaud to
    enabled, speed to *115200* (or the highest speed that the hardware
    supports), control_lines to *both*, input_flow_control to *eia*,
    output_flow_control to *eia*, need_dsr to *enabled*, bidirectional_modem to
    enabled, and broadcast_direction to *port*.

•   *Autoadapt* sets mode to *auto_adapt*, port_type to *dialin*, autobaud to
    enabled, speed to *115200* (or the highest speed that the hardware
    supports), control_lines to *both*, input_flow_control to *eia*,
    output_flow_control to *eia*, need_dsr to *enabled*, bidirectional_modem to
    disabled, and broadcast_direction to *port*.

•   *Ipx* sets mode to *ipx*, port_type to *dialin*, autobaud to *enabled*, speed to
    115200 (or the highest speed that the hardware supports),
    control_lines to *both*, input_flow_control to *eia*, output_flow_control to
    eia, need_dsr to *enabled*, bidirectional_modem to *disabled*, and
    broadcast_direction to *port*.

You can set any parameter included in port_modem_config separately.
For example, you can choose *dialin* and then change the speed
parameter to *57600*. This change affects port_modem_config in the
following way:

Each time you use a command that reads the port_modem_config value,
the RAC tries to match the individual parameter values to existing
port_modem_config settings. If parameter values match, Annex
Manager displays the appropriate value for port_modem_config. If you
changed one or more parameter values so that they do not match
port_modem_config values, Annex Manager displays *unknown*.
Unknown appears only under this circumstance. You cannot choose
unknown for port_modem_config.

Type	Async
Values	none, dialinautobaud, dialin, dialinoutautobaud, dialinout,
	dialout, autodetect, autoadapt, ipx
Default	none
Lists	Async Port, Modem, Modem Internal

port_multisession   allows you to select ports that display two active windows. You can use this parameter only for ports on which the VCI command interface is configured.

To use the multisession feature, you must:

- Have a valid LAT key.

- Enter *enabled* for the multisession parameter.

- Enter *enabled* for the multisession_port parameter.

- Reset a RAC if you change values for the multisession parameters.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	VCI_Interface

port_password   defines a port password for local password protection. You can use this password as a back-up for host-based security if the security servers do not respond, or as an additional line of security after you enter a username and password. For security reasons, Annex Manager displays this value as *set* or *unset*.

If you use SecurID, set port_password to a null string (" ").

Type	Async
Values	0 to 15 characters
Default	unset
Lists	Async Port, Modem, Modem Internal

port_server_security   enables a host-based security policy for access to the port through the port server. If you enter *enabled*, only authorized users can access the port.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port, Modem, Modem Internal, Security

port_tcp_keepalive   overrides tcp_keepalive for connections to the host from adaptive, CLI, and dedicated ports, and for connections from the host to slave and adaptive ports. You can use *0* (the Annex Manager default value) to specify that the keep-alive time is the value set in the tcp_keepalive parameter, or *255* to disable the keep-alive mechanism for the port.

Type	Async
Values	0 to 255 minutes
Default	0 minutes
Lists	Async Port, Command Line Editing

port_type   defines the type of device attached to a port.

Type	Async
Values	hardwired, dialin, x25, tn3270, pc, terminal, printer, modem
Default	hardwired
Lists	Async Port, Command Line Editing, Dedicated Port, Modem

port_user_name   defines a default user name for this port.

Type	Async
Values	0 to 16 characters
Default	" " (null string)
Lists	Async Port, Security

ppp_acm   specifies which of the first 32 bytes (0x0 to 0x1F) of the ASCII character set can
                               be sent as clear text and which should be protocol-escaped.

Type	Async
Values	8 character hexadecimal
Default	00000000
Lists	Async Port, PPP

ppp_ipx_network   defines a unique network number for an IPX PPP connection assigned to a
                               specific port. The number is negotiated when the IPX PPP connection is
                               established. If the number at one end is zero (0), the number at the other end is
                               used. You can enter an 8-digit hexadecimal number here.

Type	Async
Values	0x00000001 to 0xFFFFFFFF
Default	00000000
Lists	Async Port, PPP

ppp_ipx_node   defines a unique node number for an IPX PPP connection assigned to a specific
                               port. You can enter a 12-digit hexadecimal number here, using dashes to separate
                               sets of two numbers (e.g., 00-00-00-00-00-00). You cannot use a number that
                               has 1 in the last bit of the first octet, since these numbers are reserved for multicast
                               addresses, or 0xFF-FF-FF-FF-FF-FF, which is reserved as a broadcast node
                               address.

Type	Async
Values	0x00-00-00-00-00-00 to 0xFF-FF-FF-FF-FF-FE
Default	00-00-00-00-00-00
Lists	Async Port, PPP

ppp_mru   defines the maximum receive unit (MRU) that the RAC requests as its local MRU.

Type	Async
Values	64 to 1500
Default	1500
Lists	Async Port, PPP

ppp_ncp   specifies the protocols that run on the interface. The RAC negotiates only for
                        those protocols that are specified here. You can select a single protocol, all
                        protocols, or a combination of two protocols from the following list:

- *all*

- *ipcp*

- *atcp*

- *ipxcp*

- *ipcp-atcp*

- *ipcp-ipxcp*

- *atcp-ipxcp*

Type	Async
Values	all, ipcp, atcp, ipxcp, ipcp-atcp, ipcp-ipxcp, atcp-ipxcp
Default	ipcp
Lists	Async Port, PPP

ppp_password_remote defines a PPP port user password. For security reasons, Annex Manager displays
                        this value as *set* or *unset*.

Type	Async
Values	0 to 16 characters
Default	unset
Lists	Async Port, PPP, Security

ppp_security_protocol defines the security check for the peer that the RAC requires before it starts the
                        network control protocol. If the RAC wants to use security and the peer refuses,
                        the RAC closes the link. You can enter:

- *chap* to use challenge-handshake protocol.

- *pap* to use password authentication protocol.

- *chap/pap* to use both challenge-handshake protocol and
  password authentication protocol.

- *none*.

Type	Async
Values	chap, pap, chap/pap, none
Default	none
Lists	Async Port, PPP, Security

ppp_username_remote   contains the username by which the RAC identifies itself when the remote PPP peer asks for authentication.

Type	Async
Values	0 to 15 characters
Default	" " (null string)
Lists	Async Port, Basic RAC, PPP, Security

pref_DHCP1_addr   contains the IP address of the DHCP server that the client attempts to use as the primary source for DHCP services. When enabled, the client broadcasts DHCP messages.

Type	RAC
Values	IP Address
Default	n/a
Lists	RAC Only

pref_DHCP2_addr   contains the IP address of the DHCP server that the client attempts to use as the backup source for DHCP services when the primary DHCP server does not respond. When enabled, the client broadcasts DHCP messages.

Type	RAC
Values	IP Address
Default	n/a
Lists	RAC Only

pref_dump_addr   contains an IP address for the preferred dump host. This is the host to which the
                            RAC first tries to dump.

Type	RAC
Value	IP address
Default	0.0.0.0
Lists	RAC Only, Basic RAC

pref_load_addr   specifies the IP address for the preferred load host. This is the host from which
                            the RAC first requests a load of its operational code. You should set this address
                            to the IP address of the boot host.

Type	RAC
Values	IP address
Default	0.0.0.0
Lists	RAC Only, Basic RAC

pref_name1_addr   contains the IP address of the host specified in the name_server_1 parameter.

Type	RAC
Values	IP address
Default	0.0.0.0
Lists	RAC Only, Modem

pref_name2_addr   contains the IP address of the host listed in the name_server_2 parameter or the
                            address of a back-up host that serves if name_server_2 is set to *none*.

Type	RAC
Values	IP address
Default	0.0.0.0
Lists	RAC Only, Modem

pref_secure1_host   contains the IP address of the security server to which the RAC first sends security
                               requests. This parameter works only if the enable_security parameter is set to
                               enabled.

Type	RAC
Values	IP address
Default	0.0.0.0
Lists	RAC Only, Security

pri_analog_encoding   defines the coding type of an incoming analog (modem) call. If you choose *auto*,
                               the ISDN Primary Rate RAC sets the coding type to *mu_law* (US) or *a_law*
                               (Europe).

Type	RAC
Values	auto, mu_law, a_law
Default	auto
Lists	DS1 Line, PRI_Line

pri_block_in_calls   facilitates ISDN Primary Rate RAC shutdown by automating incoming call
                               attrition. If you choose *enabled*, existing calls are allowed to terminate but new
                               incoming calls are blocked.

Type	RAC
Values	enabled or disabled
Default	disable
Lists	DS1 Line, PRI_Line

pri_block_out_calls   facilitates ISDN Primary Rate RAC shutdown by automating outgoing call
                               attrition. If you choose *enabled*, existing calls are allowed to terminate but new
                               outgoing calls are blocked.

Type	RAC
Values	enabled or disabled
Default	disable
Lists	DS1 Line, PRI_Line

pri_dsx1_line_length   defines the length, in meters, of the line from a RAC or an ISDN Primary Rate RAC to an external CSU. The value is used when a dsx1 line driver is configured. Use the default value for a RAC with an internal CSU.

Type	RAC
Values	r0-25, r26-65, r66-100, r101-135, r136-165, r166-185, r186-210
Default	r0-25
Lists	DS1 Line, PRI_Line

pri_ipx_network   defines a unique network number for an IPX PPP connection to a RAC or an ISDN Primary Rate RAC. The number is negotiated when the IPX PPP connection is established. If the number at one end is zero (0), the number at the other end is used. You can enter an 8-digit hexadecimal number here.

Type	RAC
Values	0x 00000001to 0xFFFFFFFF
Default	00000000
Lists	DS0 Channel, Channel

pri_ipx_node   defines a unique node number for an IPX PPP connection to a RAC or an ISDN Primary Rate RAC. You can enter a 12 digit hexadecimal number here, using dashes to separate sets of two numbers (e.g., 00-00-00-00-00-00). You cannot use a number that has 1 in the last bit of the first octet, since these numbers are reserved for multicast addresses, or
0xFF-FF_FF_FF_FF_FF, which is reserved as a broadcast node address.

Type	RAC
Values	0x00-00-00-00-00-00 to 0xFF-FF-FF-FF-FF-FE
Default	00-00-00-00-00-00
Lists	DS0 Channel, Channel

printer_crlf   converts a carriage return to a carriage return followed by a line feed before it is sent to the printer. If you enter *disabled*, a carriage return translates to a carriage return followed by a null string.

Type	Printer
Values	enabled or disabled
Default	disabled
LIsts	Printer Port

printer_hardware_tabs controls whether the RAC sends tab characters to a printer. If you enter *disabled*, the RAC converts a tab character to the corresponding number of spaces.

Type	Printer
Value	enabled or disabled
Default	disabled
Lists	Printer Port

printer_host   specifies the IP address or fully qualified domain name of a machine running a Berkeley-style lpd server. The *tn3270* command uses this server for the print-screen function.

Type	Async
Values	IP address or domain name
Default	0.0.0.0
Lists	Async Port, TN3270

printer_map_to_upper   allows a RAC to convert lowercase characters to uppercase before it transmits characters to a printer. This parameter is used for older printers that do not support lowercase characters.

Type	Printer
Values	enabled or disabled
Default	disabled
Lists	Printer Port

printer_name   specifies the printer used by the print-screen function of the *tn3270* command. You must enter a name listed in the /etc/printcap file on the remote host by the printer_host parameter.

Type	Async
Values	Printer name from /etc/printcap file
Default	" " (null string)
Lists	Async Port, TN3270

printer_tcp_keepalive   overrides tcp_keepalive for connections from applications such as *aprint* or *rTelnet* to one or more printer ports. If you use *0* (the Annex Manager default value), the keep-alive timer uses the value set by the tcp_keepalive parameter. You can enter *255* to disable the keep-alive mechanism for the printer port.

Type	Printer
Values	0 to 255 minutes
Default	0 minutes
Lists	Printer Port, Command Line Editing

printer_type   specifies the type of printer attached to the port.

Type	Printer
Values	centronics or dataproducts
Default	centronics
Lists	Printer Port, Command Line Editing

printer_width   sets the maximum number of characters per line. If you enter *0*, the RAC does
                                      not insert a new line into the data stream.

Type	Printer
Values	0 to 132 characters
Default	0
Lists	Printer Port, PPP

prompt   defines the CLI prompt for a specific port. This parameter uses formatting codes
                                     consisting of the percent character and a single lowercase letter. You can combine
                                     these codes (e.g., *%a%c*), using up to 16 codes. In addition, you can enter text
                                     that appears in the prompt as long as your entire entry does not exceed 32
                                     characters. You can enter:

- %a to display *RAC.*

- % c to display a colon and a space.

- %d to display the date and time (e.g., *Mon Mar 14 13:59:42 1996*).

- %i to display a RAC IP address.

- %j to display a new line character.

- %l to display the port location. If no location is defined, the
  port number (e.g., *port 10*) appears.

- %n to display a RAC name or its IP address.

- %p to display the port number of a virtual CLI connection
  number preceded by *v.*

- %r to display *port.*

- %s to display a space.

- %t to display the current time.

- %u to display the user name of the port.

Type	RAC
Values	%a, %c, %d, %i, %j. %l, %n, %p, %s, %t, %u
Default	Value in cli_prompt parameter
Lists	RAC Only, Basic Async Port

ps_history_buffer   is used with the *Telnet* command to indicate how much incoming data a slave port keeps in a buffer. Incoming data is buffered continuously before, during, and after the Telnet session. Reset the port after changing this parameter value.

Type	Async
Values	0 to 32767
Default	0
Lists	Async Ports, Basic Async Port

redisplay_line   defines the reprint line character for CLI users.

Type	Async
Values	Ctrl + any character
Default	Ctrl + R (displays as ^R)
Lists	Async Port, Command_Line_Editing

remote_address   contains the IP address for a host at the other end of the serial line. This parameter works only when the mode parameter is set to *autodetect*, *slip* or *ppp*.

Type	Async
Values	IP address
Default	0.0.0.0
Lists	Async Port, PPP, SLIP

reset_idle_time_on   defines whether input or output resets the idle timer. The idle time is the time lapse between activity and inactivity at the device. This parameter works with the *who* command.

Type	Async
Values	input or output
Default	input
Lists	Async Port, Idle Timer

retrans_limit indicates the number of times a RAC retransmits a packet before it notifies a user about a network failure. This parameter works only for the LAT protocol.

Type	RAC
Values	4 to 120
Default	8
Lists	RAC Only, LAT

rip_accept defines the networks for which the RAC accepts advertised routes. You can enter *all*, *none*, or a list of one to eight IP addresses in decimal format, preceded by *include* or *exclude*.

Type	Interface
Values	all, none, or one to eight IP addresses preceded by include or exclude
Default	n/a
Lists	Enet Port, Async Port, Routing

rip_advertise defines the networks for which the RAC advertises routes. You can enter *all*, *none*, or a list of one to eight IP addresses in decimal format, preceded by *include* or *exclude*.

Type	Interface
Values	all, none, or one to eight IP addresses preceded by include or exclude
Default	all
Lists	Enet Port, Async Port, Routing

rip_auth contains the password that controls authentication for RIP 2 packets.

Type	RAC
Value	0 to 16 characters
Default	" " (null string)
Lists	RAC Only, Routing

rupiahs   contains the password that controls authentication for RIP packets. Annex
                               Manager displays this parameter value as *set* if you enter the password here, or
                               as *unset* if you enter a null string. *Unset* indicates that authentication is turned
                               off and that all RIP packets are accepted.

Type	RAC
Value	16 characters
Default	" " (null string)
Lists	RAC Only, Routing

rip_default_route   allows a RAC to advertise that it is the default router. You can enter a number
                               from 1 to 15 to indicate the hop count that is advertised. Entering *0* turns off the
                               advertisement.

Type	Interface
Values	0 through 15
Default	0
Lists	Enet Port, Async Port, Routing

rip_horizon   controls the split horizon algorithm for RIP. You can enter:

- *off* to disable split horizon.

- *split* to enable split horizon without poison. Split horizon
  prevents a route from being advertised over the interface on
  which it was learned.

- *poison* to enable split horizon with poison reverse. Poison
  reverse advertises the route over the interface on which it was
  learned, but sets the hop count to 16.

Type	Interface
Values	off, split, poison
Default	poison
Lists	Enet Port, Async Port, Routing

rip_next_hop   specifies whether the next hop value is included in RIP version 2 advertisements.

Type	Interface
Values	never, needed, always
Default	needed
Lists	Enet Port, Async Port, Routing

rip_recv_version

controls the RIP versions that a RAC accepts. You can enter:

- *1* to accept version 1 packets only.

- *2* to accept version 2 packets only.

- *both* to accept version 1 and 2 packets.

Type	Interface
Values	1, 2, both
Default	both
Lists	Enet Port, Async Port, Routing

rip_routers

lets you force RIP to send periodic updates to a router list instead of broadcasting updates. You can enter the IP addresses of one to eight directly reachable routers, or you can enter *all* to restore broadcasting. The RAC ignores any address that is not on an attached subnet.

Type	RAC
Values	IP address, all
Default	all
Lists	RAC Only, Routing

rip_send_version

controls the RIP versions that a RAC sends over IP interfaces. You can choose:

- *rip-1* to send version 1 packets to the broadcast address.

- *rip-2* to send version 2 packets to the RIP multicast address.

- *compatibility* to send version 2 packets to the broadcast address.

Type	Interface
Values	1, 2, compatibility
Default	compatibility
Lists	Enet Port, Async Port, Routing

rip_sub_accept

controls whether subnet routes are accepted over the SLIP, PPP, and Ethernet interfaces. You can enter *enabled* to accept subnet routes or *disabled* to reject them.

Type	Interface
Values	enabled or disabled
Default	enabled
Lists	Enet Port, Async Port, Routing

rip_sub_advertise   controls whether the RAC advertises subnet routes over the SLIP, PPP, and Ethernet interfaces.

Type	Interface
Values	enabled or disabled
Default	disabled
Lists	Enet Port, Async Port, Routing

routed   determines whether the RIP routing daemon is enabled. When you enter *enabled*, the RAC performs active RIP routing only if option_key is set to the correct value. If option_key is not set correctly, the RAC performs passive RIP routing when the daemon is enabled. If you enter *disabled*, no RIP routing occurs.

> If you disable the RIP routing daemon and the RAC does not reside on the same subnetwork as the Annex Manager host, you cannot contact the RAC after you reboot the RAC or after you reset the routing subsystem.

Type	RAC
Values	enabled or disabled
Default	enabled
Lists	RAC Only, Basic RAC, Routing

rts_signal   controls the RTS (Request to Send) signal for the port. Entering a value for an idle port produces an error condition.

> If you change the value for this parameter and then reset a port or reboot a RAC, the parameter returns to its original default value. Therefore, you must choose ⌐ Cancel ⌐ in the *Reset Parameters* window to prevent the reset process and to use the parameter values you entered.

Type	Async
Values	unknown, high, low
Default	unknown
Lists	Async Port

rwhod   determines whether the RAC listens for RWHO broadcasts when it builds the
                             host table.

Type	RAC
Values	enabled or disabled
Default	enabled
Lists	RAC Only, Modem

security_broadcast   determines whether a RAC broadcasts for security validation if the preferred
                             security servers are not available.

Type	RAC
Values	enabled or disabled
Default	enabled
Lists	RAC Only, Security

server_capability   defines a RAC as a file server host. You can enter:

- *all* to define the RAC as a file server for the configuration,
  operational image, and message-of-the-day files.

- *config* to define the RAC as a file server for configuration files.

- *image* to define the RAC as a file server for RAC operational
  code.

- *motd* to define the RAC as a file server for the message-of-the-
  day file.

- *none* to indicate that the RAC is not a file server.

Type	RAC
Values	all, config, image, motd, none
Default	none
Lists	RAC Only, Basic RAC

server_name   names the RAC in the LAT protocol. The name you enter should match the VMS
                           host node name used in the HIC configuration file. The Annex Manager default
                           value is *LAT* followed by the physical ethernet address (for example,
                           LAT_080002BF0020).

Type	RAC
Values	1 to 16 characters
Default	LAT + physical ethernet address
Lists	RAC Only, LAT

service_limit   indicates the maximum number of services that a RAC can maintain in its local
                           service table. When the table is full, the RAC removes the service that is idle the
                           longest. If all services are busy and the table is full, the RAC discards a new
                           service.

Type	RAC
Values	16 to 2048
Default	256
Lists	RAC Only, LAT

session_limit_RAC   specifies the maximum number of active sessions the RAC allows at one time.

Type	RAC
Values	1 to 1152
Default	1152
Lists	RAC Only, LAT

session_limit_port   specifies the maximum number of active sessions the RAC allows on a port at
                           one time. You can enter *-1* to indicate that there is no maximum set.

Type	Async
Values	-1 to 16
Default	3s
Lists	Async Port, Basic Async Port,

short_break   allows a RAC to return a user to the CLI prompt after receiving a break of less than two seconds.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port, Idle Timer

slip_allow_dump   enables a RAC to dump its operational code across a SLIP link.

Type	Async Port
Values	enabled or disabled
Default	enabled
Lists	Async Port, SLIP

slip_load_dump_host   contains the IP address of the host from which a RAC receives a load or to which it sends dumps over the SLIP interface. If you entered *sl* and a number in load_dump_sequence, you must enter a valid address here. This parameter value overrides values in pref_load_addr and pref_dump_addr.

Type	Async
Values	IP address
Default	0.0.0.0
Lists	Async Port, SLIP

slip_mtu_size   sets the maximum transmission unit (MTU) size on a SLIP/CSLIP port. This parameter forces the SLIP interface to use large (1006) or small (256) MTUs.

Type	Async
Values	large or small
Default	small
Lists	Async Port, SLIP

slip_no_icmp   discards ICMP packets directed to the SLIP link. This parameter allows the RAC
                                to reduce unnecessary traffic and messages over the SLIP link.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port, SLIP

slip_ppp_security   controls dial-up SLIP/PPP access. When enable_security and slip_ppp_security are
                                set to *enabled*, ports configured for SLIP and PPP use the ACP security server.
                                The RAC determines whether CLI users are authorized to execute SLIP or PPP
                                commands.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port, PPP, SLIP, Security

slip_subnet_mask   contains the RAC IP subnet mask for a SLIP interface. The subnet mask defines
                                which portion of the IP address is the network, subnet, and host. The parameter
                                default is based on the network portion of the RAC IP address. Setting this
                                parameter incorrectly can cause routing problems.

Type	Async
Values	IP address
Default	0.0.0.0
Lists	Async Port, SLIP

slip_tos   allows a RAC to send interactive traffic (such as *Telnet*, *rlogin*, and *ftp* control
                                sessions) before it sends other traffic. This parameter provides a type-of-service
                                based SLIP queuing.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port, SLIP

speed   defines the baud rate of the asynchronous line between a device and a RAC. The
                                value you enter must match the device baud rate. If you want line speed to be
                                determined automatically, use the autobaud parameter.

                                If you enter *disabled* in the autobaud parameter, you must enter a
                                value here.

                                Not all RACs support all port speeds. Refer to your RAC hardware
                                guides for detailed information.

Type	Async
Values	2000, 2400, 3600, 4800, 7200, 9600, 19200, 38400, 57600, 115,200, and others
Default	9600
Lists	Async Port, Basic Async Port, Modem

stop_bits   specifies the number of stop bits for a port.

Type	Async
Values	one, two, one-and-half, dynamic
Default	one
Lists	Async Port, Basic Async Port, Modem, Modem Internal

subnet_mask   contains the RAC IP subnet mask. The subnet mask defines which portion of the
                                IP address is the network, subnet, and host. The parameter default is based on
                                the network portion of the RAC IP address. Setting this parameter incorrectly
                                can cause routing problems.

Type	RAC Only
Values	IP address
Default	0.0.0.0
Lists	RAC Only, Basic RAC

sysContact   identifies the contact person for this managed node, including information on
                                how to contact this person.

Type	RAC
Default	n/a
Values	0 to 255 characters
Lists	RAC Only

sysLocation   identifies the physical location of this node (e.g., third floor lab).

Type	RAC
Default	n/a
Values	0 to 255 characters
Lists	RAC Only

sysName   contains the fully-qualified domain name of this node.

Type	RAC
Default	n/a
Values	0 to 255 characters
Lists	RAC Only

sys_location   supplies host location or identification information for the LAT protocol.

Type	RAC
Values	0 to 32 characters
Default	" " (null string)
Lists	RAC Only, LAT

syslog_facility   defines the local facility to which the UNIX *syslogd* daemon sends RAC syslog messages. Refer to the *Managing Remote Access Concentrators Using CLI Interfaces* for a detailed syslog configuration description, and to your UNIX system documentation.

Type	RAC
Values	log_local0 to log_local7
Default	log_local7
Lists	RAC Only, Syslog

syslog_host   contains the IP address of the host that logs RAC messages. If you use the Annex Manager default setting (*0.0.0.0*), the RAC broadcasts its log messages.

Type	RAC
Values	IP Address
Default	0.0.0.0
Lists	RAC Only, SysLog

syslog_mask   determines the priority levels that the RAC logs. You can enter *all*, *none*, a single option from the list below, or a combination of options separated by commas (e.g., *emergency, alert*). The following list includes options in priority order. You can enter:

- *emergency* to log hardware failures.

- *alert* to log all RAC reboots.

- *critical* to log configuration and initialization problems such as configuration file format errors or lack of memory.

- *error* to log all line initialization errors, including CLI errors.

- *warning* to log minor problems.

- *notice* to log time server queries and information about responses.

- *info* to start and end CLI sessions and RAC jobs created by *rlogin*, *Telnet*, *connect, ping* and *tap* commands.

- *debug* to start and end any RAC process.

Type	RAC
Values	emergency, alert, critical, error, warning, notice, info, debug, all, none
Default	none (disables logging)
Lists	RAC Only, SysLog

syslog_port   routes syslog messages to an asynchronous port where messages are time and date stamped. You can enter *0* for syslogging to take place over the network, or a number to indicate the port to which syslog messages are sent.

Type	RAC
Values	0 or a port number
Default	0
Lists	RAC Only, SysLog

t1_info   contains information about the T1 line supplied by the telephone company.

Type	T1 DS1
Values	0 to 16 characters
Default	n/a
Lists	DS1 Line, T1_DS1

tcp_keepalive   specifies the length of time a TCP connection must be idle before a RAC sends
                               keep-alive messages. A keep-alive message contains no data, but solicits an
                               acknowledgment from the other end of a connection to determine whether the
                               connection is still active. If the recipient does not acknowledge the message after
                               eight retries, the RAC drops the connection. You can use *0* (the Annex Manager
                               default value) to set the keep-alive time to 120 minutes, or you can enter *255* to
                               disable the keep-alive mechanism. The port_tcp_keepalive and printer_tcp_keepalive
                               parameters override values in this parameter for those individual ports.

Type	RAC
Values	0 to 255 minutes
Default	0 minutes
Lists	RAC Only, Basic RAC

tdi_distance   indicates the length of the cable that runs between the equipment and the Drop
                               and Insert Interface.

Type	T1 DS1
Values	1 to 655 feet
Default	1 foot
Lists	DS1 Line, T1_DS1

tdi_framing   selects the superframe format used on the T1 Drop and Insert Interface. If there
                               is terminal equipment on this interface, your selection must match the format of
                               the terminal equipment.

Type	T1 DS1
Values	esf, d4
Default	esf
Lists	DS1 Line, T1_DS1

tdi_line_code   selects the line code format used on the T1 Drop and Insert Interface. Your selection must match the codes assigned to the terminal equipment.

Type	T1DS1
Values	b8zs, ami
Default	b8zs
Lists	DS1 Line, T1_DS1

Telnet_crlf   converts a carriage return in a Telnet session to a carriage return followed by a line feed. If you enter *disabled*, a carriage return translates to a carriage return followed by a null string.

Type	Async
Values	enabled or disabled
Default	disabled
LIsts	Async Port, Command Line Editing

Telnet_escape   defines the character that returns a CLI user to the *Telnet* prompt. You can press ⌷Ctrl⌷ and enter *U* to disable the *Telnet* escape character.

Type	Async
Values	⌷Ctrl⌷ + any character
Default	⌷Ctrl⌷ + ⌷]⌷ (displays as ^])
Lists	Async Port, Command Line Editing

term_var   identifies the type of terminal using the CLI connection. You must enter a valid terminal type for the host. The RAC passes the terminal type setting to the host.

Type	Async
Values	0 to 16 characters
Default	" " (null string)
Lists	Async Port, Basic Async

tftp_dump_name   provides the file name used to dump a RAC core image via *tftp* if the RAC operational image and *erpcd* fail. This parameter must include the entire path of the dump file, including parent directories. The file you enter must exist with read/write permissions.

Type	RAC
Values	path and file name
Default	n/a
Lists	RAC Only, Basic RAC

tftp_load_dir   contains the string that precedes all files (e.g., image name, configuration**,** and motd files) when you boot a RAC via *tftp*. The string value is determined by the system serving the *tftp* requests. It does not precede the tftp_dump_name.

Type	RAC
Values	provided by tftp system
Default	n/a
Lists	RAC Only, Basic RAC

time_broadcast   defines whether the RAC broadcasts for the current time if the preferred load host is not available or does not provide a time server.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, Time of Day

time_server_addr   lists the IP address that a RAC queries for time service. You can enter:

- A loopback address (127.0.0.1) to disable time service queries.

- A host address to send queries to a specific host.

- A broadcast address to send queries to a specific network or networks instead of sending a general broadcast to all networks.

- *0.0.0.0* to direct the RAC to query the boot host.

Type	RAC
Values	loopback address, host address, broadcast address, 0.0.0.0
Default	0.0.0.0
Lists	RAC Only, Time of Day

timezone_minuteswest   defines the time zone in which the RAC resides. You can enter a positive number of minutes for time zones west of Greenwich Mean Time (GMT) or a negative number for time zones east of GMT. For example, you would enter *300* for U.S. Eastern Standard Time, which is five hours west of GMT, or -60 for Paris, which is one hour east of GMT.

Type	RAC
Values	positive or negative number of minutes
Default	300
Lists	RAC Only, Time of Day

tmux_delay   provides the maximum number of milliseconds during which small packets can accumulate to form larger packets. When the time expires, the multiplexed packet is sent. Entering *0* sets this parameter to 20 (the Annex Manager default value).

Type	RAC
Values	0 through 255
Default	20
Lists	RAC Only, TMux

tmux_enable   controls whether a RAC uses TMux to multiplex small TCP or UDP packets into a single IP packet. The host must support TMux. If you choose *enabled* and the host does not support TMux, the RAC does not support multiplexing.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, TMux

tmux_max_host   specifies the maximum number of host addresses allowed in the TMux address table. If the number of host addresses exceeds the number you enter here, the RAC discards the oldest entry.

Type	RAC
Values	10 through 255
Default	64
Lists	RAC Only, TMux

tmux_max_mpx   specifies the largest user packet that can be placed in a TMux packet. The RAC does not multiplex larger packets, but passes them directly to the IP layer.

Type	RAC
Values	5 through 65535
Default	700
Lists	RAC Only, TMux

tni_circuit_id   contains the transmission vendor's circuit identifier used for customer service calls.

Type	T1 DS1
Values	0 to 128 characters
Default	" "
Lists	DS1 Line, T1_DS1

tni_clock defines the transmit clock for the T1 Network Interface. You can select:

- *looptiming* to use the recovered receive clock at the transmit clock.

- *localtiming* to use the local clock as the transmit clock.

- *throughtiming* to use the recovered receive clock from the other interface as the transmit clock.

Type	T1 DS1
Values	looptiming, localtiming, throughtiming
Default	looptiming
Lists	DS1 Line, T1_DS1

tni_loop_bak_config defines the DS1 interface loopback configuration. Users cannot access T1 lines when you change this parameter value. You can select:

- *noloop* to prevent the signal from looping through the T1 engine.

- *payloadloop* to allow the incoming signal to be looped through the T1 engine after it passes through the framing function.

- *lineloop* to cause the incoming signal to loop to the network without passing through the T1 engine.

- *localloop* to cause the T1 engine outgoing signal to loop back to the incoming side.

> T1 lines are available to users only when you choose *noloop*.

Type	T1 DS1
Values	noloop, payloadloop, lineloop, localloop
Default	noloop
Lists	DS1 Line, T1_DS1

tni_ones_density   disables the T1 engine built-in-ones density monitor. When you select *enabled*, this monitor provides the network with the correct number of pulses. You should select enabled here when you set the tni_line_code parameter to *ami*.

Type	T1 DS1
Values	enabled or disabled
Default	disabled
Lists	DS1 Line

toggle_output   defines the character that flushes the output buffer for CLI users.

Type	Async
Values	$\boxed{\text{Ctrl}}$ + any character
Default	$\boxed{\text{Ctrl}}$ + O (displays as ^O)
Lists	Async Port, Command Line Editing

vci_autobaud   indicates whether the RAC automatically detects line speed when a connection is opened and whether it sets matching terminal port characteristics on the next login. This parameter works only when the DECServer command interface is configured (i.e., when cli_interface is set to *vci*). For more information, refer to the *Annex Interface for VMS Environments Administrator's Guide*.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port

vci_login_port_
password

enables the port password when the DECServer command interface is configured (i.e., when cli_interface is set to *vci*). For more information, refer to the *Annex Interface for VMS Environments Administrator's Guide*.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port

vci_login_timeout

enables a login timer when the DECServer command interface is configured (i.e., when cli_interface is set to *vci*). For more information, refer to the *Annex Interface for VMS Environments Administrator's Guide*.

Type	Async
Values	enabled or disabled
Default	disabled
Lists	Async Port

vcli_groups

specifies which remote group code is assigned to virtual CLI users. All virtual CLI users have the same group code. You can enter *all* to enable all groups, *none* to disable all groups, a series of numbers separated by commas (e.g., *1*, *5*, *7*), or a range of numbers separated by dashes (e.g., *1, 5, 200-255*).

Type	RAC
Values	all, none, numbers between 0 and 255
Default	none
Lists	RAC Only, LAT

vcli_password

defines a password required for virtual CLI connections to the RAC and as a backup to host-based security. This parameter serves as host-based security backup: the RAC requests a password on a virtual CLI connection if the security server does not respond. For local password protection, you can set enable_security to *enabled*, choose *disabled* for vcli_security, and enter a password here.

Type	RAC
Values	0 to 15 characters
Default	unset
Lists	RAC Only, Security, Virtual CLI

vcli_security

controls user validation on virtual CLI connections to and from a RAC. If you choose *enabled*, the RAC enables connection security for all virtual CLI

connections and executes the same user validation, including user name and password, that it uses with CLI security on asynchronous ports. This parameter works with host-based security only if you set enable_security to *enabled*.

Type	RAC
Values	enabled or disabled
Default	disabled
Lists	RAC Only, Security, Virtual CLI

zone

provides the AppleTalk zone name that the RAC uses at start-up. You must use spaces to separate zone names (e.g., *general engineering lab*). To escape embedded spaces, use the backslash (\).

Type	RAC
Values	0 to 32 characters
Default	" " (null string)
Lists	RAC Only, AppleTalk

Appendix B
Configuring and Editing Scripts

*S*_{cript} commands allow you to create a set of parameter values, store them as a script, and apply the parameter values of the script to one or more RACs.

A script is a text file. Each line in the file defines a RAC parameter value. You can use Annex Manager to create a script by capturing the RAC parameter values, or you can create a script using any standard text editor. After you store a script in a file, you can use it to configure a new RAC, to save RAC parameter values for backup, or to apply a special configuration.

This appendix describes the *Script* commands. It includes:

- *Viewing Script Contents*

- *Creating New Scripts*

- *Changing RAC Values Using Scripts*

Annex Manager provides predefined scripts that reset RAC parameters to their factory default values. *View Script* displays the contents of predefined or site-specific scripts. *Execute Script* allows you to reset RAC parameters to their factory default values when you use one of the predefined scripts.

> If you want to use site-specific default values for any script, you should copy the script file and then edit it.
>
> Some scripts contain lines that begin with the comment symbol (#). If you remove this symbol when you edit the file, the script uses these parameters.

View Script and *Execute Script* provide the following pre-defined scripts:

- *AppleTalk* contains RAC port and AppleTalk parameters.

- *Basic_Annex* contains basic RAC parameters. If you want to use parameters marked with the comment symbol (#), you should copy the script file, remove the symbol, and enter your own site-specific defaults, since factory default values may not be appropriate.

- *Basic_Async_Port* contains basic asynchronous port parameters.

- *Cmd_Line_Editing* contains the terminal port editing parameters. If you use framed protocols (PPP, IPX, etc.), you may want to leave these parameters at their default settings.

- *Dedicated_Port* contains port parameters for dedicated port mode.

- *Modem* contains port modem configuration parameters.

- *Modem_Internal* contains port modem configuration parameters for the CSMIM-MODMIM product and other products with internal modems.

- *Nameserver* contains nameserver parameters.

- *PPP* contains port parameters for PPP.

- *Printer_Port* contains port parameters for a parallel printer. Some RACs do not have parallel printer ports.

- *Routing* contains RAC and port parameters for routing.

- *SLIP* contains RAC and port parameters for SLIP.

- *Security* contains RAC and port security parameters.

- *SysLog* contains RAC syslog parameters.

- *TMux* contains TMux protocol parameters.

- *TN3270* contains port parameters for tn3270.

- *Time_of_Day* contains RAC timeserver parameters.

- *VCIInterface* contains the DecServer user interface parameters of the port. If you do not use the DecServer interface, you should leave these parameters at their default settings.

- *Virtual_CLI* contains virtual CLI parameters.

Viewing Script Contents

To view a script:

1.   On the *Main* **window, select a single RAC.**

2.   Select *View Script* **from the Commands menu.**

The *View Script* window appears (). This window is described .
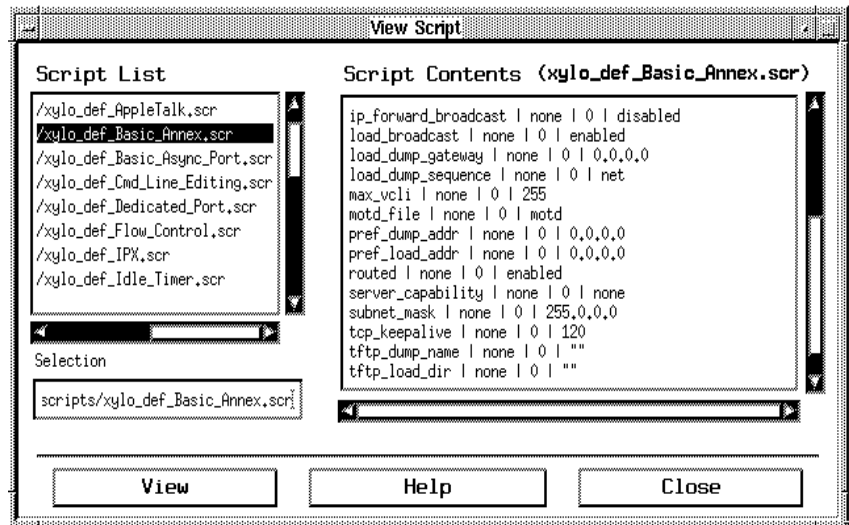
Figure B-1. View Script Window

3.   Select a single script from the *Script List* **box.**

The field below this box displays your selection. You can enter a path in the field to see a script stored in another directory. In this case, the *Script List* box does not change.

4.   Click *View*.

The script listed in the text field appears in the *Script Contents* box.

If you need to display more than one script, repeat steps 2 and 3. The *Script Contents* box does not save previous selections.

5.   Click *Close* **to close the window.**

To verify the contents of a script when you use the *Create Script* or *Execute Script* commands, do not close the *View Script* window. You can return to this window to verify your work.

The View Script Window

This window uses list and message boxes and a text field.

- The *Script List* box displays all files in the Annex Manager default script directory, which stores the scripts delivered with Annex Manager. You can select any script displayed here. This directory is the default for the scripts you create, but you can store new scripts in any directory.

  Although *View Script* lets you display scripts stored in another directory, the *Script List* box does not change when you enter the path of another directory.

- The *Selection* field below the *Script List* box displays the default script directory. When you choose a script from the list box, this field changes to display your selection. If you need to display a script stored in another directory you can enter a path here.

- The *Script Contents* box displays the script listed in the text field, with the name of the script in parentheses above the box. This box displays one script at a time: if you display one script and then select a second script, this box contains only the most recent selection.

Every script file includes the:

- Parameter name.

- Port or channel type or *none* if the parameter does not use port or channel information.

- Port or channel number, zero (*0*) if the port or channel type is *none*, or an asterisk (*) if the value is a wildcard indicator.

- Parameter value.

Creating New Scripts

You can create new scripts based on the current values of a RAC. Once you create a script, you can edit it using any standard text editor.

> For security reasons, you can create a script for any RAC parameters except the Internet address (inet_addr), the administrative password (password), the port password (port_password), the access control protocol key (acp_key), the Local Area Transport key (lat_key), the option key (option_key), and the virtual CLI password (vcli_password) parameters.

You can use *Create Script* to select the parameters and values you want to save in a script.

> If you leave the *View Script* window open as you create a script, you can check your work easily.

To create a script:

1. **In the** *Main* **window, select a reachable RAC.**

2. **Select** *Create Script* **from the File menu.**

    The *Create Script* window appears (Figure B-2, . *Create Script Window*). This window is described .

> You can select *Create Script* from the menu first, and then return to the *Main* window to select a RAC. The order in which you perform these steps does not affect processing.

3. **Select the** *Create Script Options* **you need.**
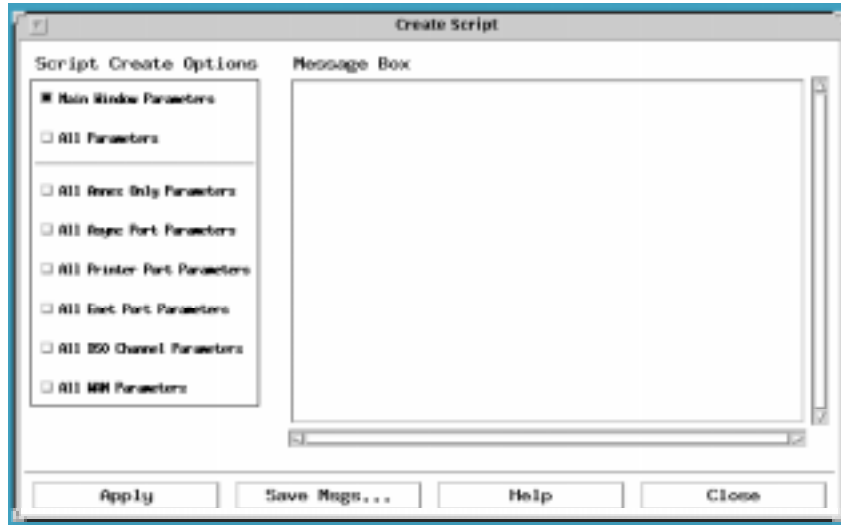
Figure B-2. Create Script Window

4. **Click** *Apply*.

    The RAC you select and the options you choose determine the next windows that appear:

    • The *Script Port Entry* window appears if you selected:

        – Any combination of the *All Async Port Parameters*, *All Printer Port Parameters*, *All DS0 Channel Parameters, All WAN Module Parameters*, and *All Enet Parameters* options.

        – The *Main Windows Parameters* option and a *Main* window parameter option that includes one or more port or channel parameters.

        – The *All Parameters* option.

    • If you selected *All Annex Only Parameters*, or non-port parameters from the *Main* window, the *Script File Selection* window displays. The *Script Port Entry* window does not display in this case.

5. **When the** *Script Port Entry* **window (Figure B-3) appears, enter port or channel information and click** *Apply*.

Figure B-3. Script Port Entry Window

This window allows you to specify one or more port or channel numbers that Annex Manager uses to create a script. The *Script Port Entry* window includes:

- All port or channel types and a port or channel number field for each type. Annex Manager highlights one or more port or channel types based on the RAC and options you selected. You can enter one or more port or channel numbers or a range of numbers for any highlighted type. For example, if the configuration has no printer ports, the *Printer Port(s)* field does not accept port numbers.

- Buttons that allow you to define wildcard characters. If you entered a single port or channel number in all fields above, you can create a script with wildcard indicators:

    – *Use the specified port number* uses only the port or channel numbers you entered as part of the new script. This button is the default.

    – *Create wildcard port entries* enters an asterisk (*) as the script port or channel number and allows you to use the script for any port number you enter in the *Execute Script* command.

Click *Cancel* to return to the *Create Script* window. When you click *Apply* the *File Selection* window displays.

6.   When the *Script File Selection* **window (Figure B-4) displays enter a script file name for the new script and click** *OK*.
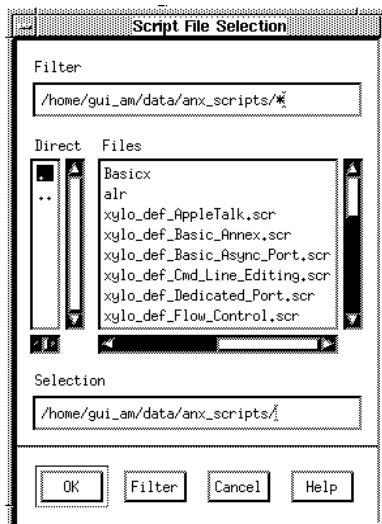
Figure B-4. Script File Selection Window

The *Script File Selection* window displays the default script directory. It allows you to:

• Overwrite an existing script that you created previously by selecting its name. When you select an existing script name, a window appears that allows you to verify your choice. You cannot overwrite a script that someone else created.

• Enter a new script name.

When you click *OK* Annex Manager creates a new script with the name you specified.

7.   *Save Msgs* displays the standard *File Selection* window, which includes the default text directory.

You can enter a file name in the *Selection* field and click *OK* to store the contents of the *Create Script* window message box, or click *Cancel* to return to the *Create Script* window.

8.   Click *Close* **to close the window.**

The Create Script Window

The *Create Script* window lets you select parameters for a new script. It includes an option box containing check buttons, a message box, and push buttons.

Choosing Create Script Options

The *Create Script Option* box includes check buttons that categorize the parameters of the new script:

- *Main Window Parameters* creates a script using the RAC parameters as well as parameters you choose in the *Main* window. For example, if you chose the *Basic_Annex* group, each parameter in the group and the values for the RAC you select become the new script.

- *All Parameters* creates a script from all parameters of the RAC you selected, including port and channel parameters.

- *All Annex Only Parameters* creates a script from the RAC parameters, excluding port and channel parameters.

- *All Async Port Parameters* creates a script from the RAC asynchronous port parameters.

- *All Printer Port Parameters* creates a script from the RAC printer port parameters.

- *All Enet Port Parameters* creates a script from the RAC Ethernet parameters.

- *All DS0 Channel Parameters* creates a script from the RAC T1 DS0 Channel parameters.

- *All WAN Module Parameters* creates a script from the WAN Module parameters.

You can select any combination of *All Annex Only Parameters*, *All Async Port Parameters*, *All Printer Port Parameters*, *All Enet Parameters*, *All DS0 Channel Parameters*, and *All WAN Module Parameters*. If you select *Main Window Parameters* or *All Parameters*, you cannot use other check buttons.

Message Box

The *Create Script* window message box includes the status and error messages that result from the script creation process. After you complete the port entry window and/or the file selection window, this message box monitors the Annex Manager script creation process. The box displays:

- The *Creating script...* status message, indicating that processing is active.

- The *Script creation complete* message, indicating that the process completed.

- Error messages. If your selections contain parameters that are not eligible for scripts, or that do not exist, the message box informs you about error conditions. For more information, see *Identifying Errors* on page B-16.

Editing Script Files

You can use an ASCII editor to change saved script files. Annex Manager verifies each file according to its first four lines. When you edit these files you *must* use Annex Manager conventions.

Script files always begin with:

> *#*
> *# DB_VERSION: V1.0*
> *# FORMAT: Parameter Name | Port Type | Port Number | Value*
> *#*

For example, you might enter *lock_enable| none | 0 | enabled*. Script files accept:

- *0* in the *Port/Channel Number* field when you select non-port parameters.

- A port or channel number or an asterisk (to specify a wildcard port) in the *Port/Channel Number* field.

- *Asy*, *ptr*, *eth*, *2* (for DS1 ports) or *none* (for *All Annex Only* parameters) in the *Port/Channel Type* field.

- Comment lines as long as each line begins with *#*. Annex Manager processing ignores these lines.

Changing Annex Values Using Scripts

You can use any existing script to reconfigure one or more RACs. The *Execute Script* command applies the script values to the RACs you select.

You can use *Execute Script* to apply the parameter values of a script to one or more RACs.

To execute a script:

1. **Select one or more reachable RACs in the** *Main* **window.**

2. **Select** *Execute Script* **from the Configure menu.**

   The *Execute Script* window appears (). This window is described .

   You can select *Execute Script* from the menu and then return to the *Main* window to select a RAC. The order in which you perform these steps does not affect processing.
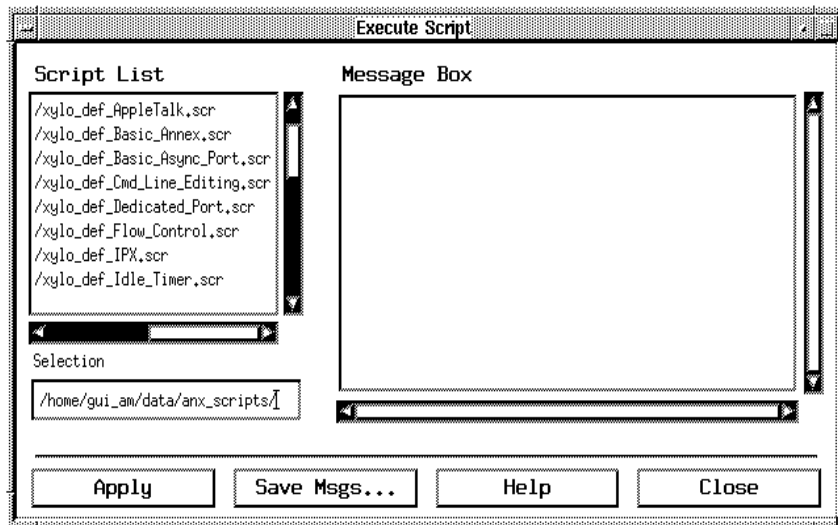
Figure B-5. Execute Script Window

3.   Select the script name you need.

You can select a script from the *Script List* box or enter a file name or a path and file name in the text field below this box.

4.   Click *Apply.*

If you selected a script with one or more wildcard indicators, the *Script Port Entry* window appears (Figure B-6).

Figure B-6. Script Port Entry Window

This window allows you to enter one or more port or channel numbers that Annex Manager uses in place of the script wildcard indicator.

The window highlights only the port or channel types that need numbers. You can:

- Enter one or more port or channel numbers, a range of numbers, or *all* for any highlighted type.

- Click *Cancel* to return to the *Execute Script* window.

- Click *Apply* to execute the script.

  If you select a script with wildcard indicators and do not enter a port or channel number here, Annex Manager executes the script but does not use wildcard parameters. Error messages identify these parameters.

A window displays to confirm script execution for the RACs you selected (Figure B-7).
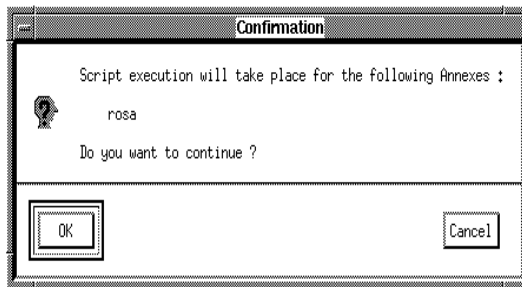
Figure B-7. Execute Script Confirmation Window

Click *OK* to execute the script or *Cancel* to return to the *Execute Script* window.

• The *Reset Parameters* window ([Figure B-8](#)) appears if you selected the *Confirm Auto Reset* option from the pull-down menu and if the parameters changed by the script require Annex Manager to reset RACs. If you did not select *Confirm Auto Reset*, Annex Manager resets RACs without notifying you.
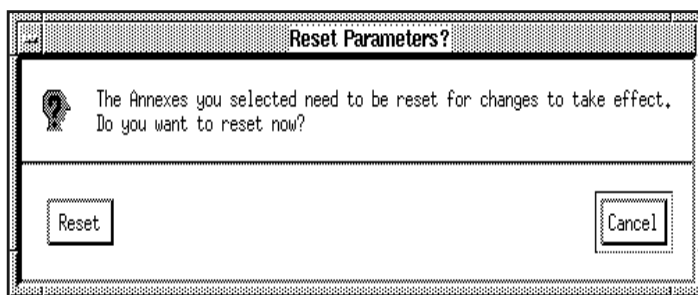
Figure B-8. Execute Script Reset Parameters Window

5.   Click *Save Msgs* **to save the messages.**

6.   Click *Close* **to close the window.**

The Execute Script Window

The *Execute Script* window allows you to choose an existing script and to apply its parameter values to RACs you selected in the *Main* window.

List Box and Text Field

This window uses a list box, text field, and a message box:

- The *Script List* box displays all files in the Annex Manager default script directory. You can select any script displayed here.

- The text field below the *Script List* box initially displays the default script directory. When you choose a script from the list box, this field changes to display your selection. If you need to execute a script stored in another directory, you can enter a path and file name here.

Message Box

The *Execute Script* window message box includes status and error messages. It displays:

- The *Executing script...* status message, indicating that processing is taking place.

- The *Script execution complete* message, indicating that the process completed without errors.

- Error messages. If the script you are executing contains port or channel parameters that are not applicable for the RAC you selected, if you enter integers or an IP address in an incorrect format, or if processing times out, the message box informs you about error conditions. For more information, see *Identifying Errors* on page B-16.

Identifying Errors

Script commands notify you about error conditions by displaying warning windows and by listing errors in message boxes. You can encounter errors based on *Main* window selections or on parameter value limitations. This section includes:

- *Create Script Command Errors*

- *Execute Script Command Errors*

Create Script Command Errors

Create Script displays warning windows if you:

- Use the *Main Window Parameters* option for a list with more than one RAC, and do not select a RAC and a *Main* window parameter option.

- Select an option that does not match the RAC or parameters you select in the *Main* window. For example, a warning appears if you select the *All Sync Port Parameters* option and a RAC that does not have synchronous port parameters.

- Use the *Main Window Parameters* option and do not enter port or channel information for parameters that require this information.

- Attempt to replace an existing script created by someone else with a new script you created.

- Select a port or channel type that does not match one or more parameter types. For example, a warning window appears if you choose *Printer* ports and the *Basic_Async_Port* group, or if you enter a port or channel number that does not exist in a selected RAC.

The message box includes error information when:

- Annex Manager cannot read or find values for one or more parameters.

- Communication with the RACs you selected times out.

- The *Create Script* operation does not use one or more parameters, or finds specified parameters that are not eligible for scripts. In this case, the *Script creation complete with errors* message appears.

Execute Script Command Errors

The *Execute Script* command displays warning windows when you:

- Do not select a script from the list.

- Do not select a RAC when the list contains more than one RAC.

The message box includes error information when:

- Annex Manager cannot find the value of one or more parameters.

- The *Execute Script* operation does not use one or more parameters, or finds specified parameters that are not eligible for scripts. In this case, the *Script execution complete with errors* message appears.

Annex Manager does not execute a script if you enter an incorrect format for an IP address or for an integer.

Appendix C
Windows Tutorial

Annex Manager provides window-based methods for entering information. This appendix provides a tutorial in windows basics:

- *Window Elements* describes the components that make up Annex Manager windows.

- *Mouse and Keyboard Techniques* explains mouse operations and corresponding keyboard commands.

- *Controlling the Window Display* provides instructions for changing the size of a window, moving a window, reducing a window to an icon, using scroll bars, and using the control menu.

- *Fields, Buttons, and Boxes* describes each type of Annex Manager field, button, and box and gives instructions for selecting and entering information.

> This book describes window conventions for the Motif™ window manager. If you use another window manager, the methods you use may be different.

Window Basics

Window Elements

Annex Manager uses Motif elements such as title, menu and scroll bars, list boxes, and help windows. The Annex Manager *Main* window (Figure C-1) serves as an example, since it uses most available elements.

Control menu button   Title bar   Menu bar   Minimize button
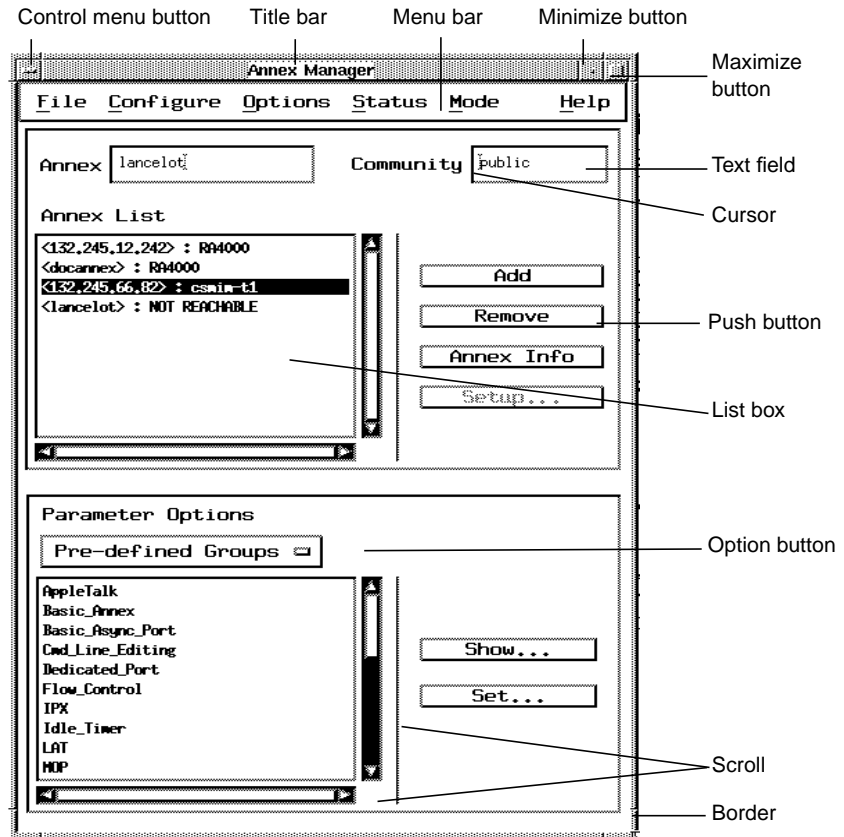
Figure C-1. Window Elements

If you are familiar with windows applications, you recognize many elements in the main window.

The elements listed below can appear in any Annex Manager window:

- *Title bar* labels each window.

- *Borders* allow you to change the size of a window using a mouse.

- C*ontrol menu button* displays a menu for moving, sizing, and closing a window.

- *Mouse pointer* shows you the mouse location in a window. When you move the mouse, the pointer moves accordingly.

- *Cursor*, sometimes called an "insertion point," appears in a text field when you can enter or change the value in the field. You can type only when you see the cursor blinking.

- *Scroll bars* allow you to move through a list box when information is too long or too wide for the box. You can use the scroll bars to view all available text.

- *Minimize button* converts all open Annex Manager windows to an icon on your desktop.

- *Maximize button* toggles the size of the main window, enlarging it from the standard size to fill the terminal screen or restoring it to its original size.

- *Text fields* display specific pieces of information. You can type new values or change existing values in some text fields.

- *List boxes* display items you can select for Annex Manager processing. The mouse can select one or more items and can display help information about a parameter.

- *Message and output boxes* display information about the actions you take and about Annex Manager operations. Message boxes monitor action, while output boxes show the results of an action. Both boxes can include warning or status messages.

- *Option buttons*, marked with a small rectangle (⌑), provide several selections automatically. You can hold the mouse button to display all options and to select the one you need.

- *Push buttons* are large rectangular buttons that instruct the system to take action. When an ellipsis (...) follows the label of a push button, the button displays an additional window.

- *Radio buttons*, marked with a diamond-shape (◇), turn a selection on or off. These buttons appear in sets of two or more; you can select only one button in each set.

- *Check buttons*, marked with a square (▫), turn a selection on or off. You can select one or more buttons in the set.

The pull-down menu appears only in the main window.

•   The *menu bar* stores the pull-down menus you can use for
     Annex Manager commands and for help facilities. Some menu
     selections duplicate Annex Manager buttons; other operations
     appear only in these menus.

Mouse and Keyboard Techniques

Annex Manager allows you to navigate in windows and enter information
using a mouse, keyboard commands, or a combination of both methods.
This section tells you how the mouse works and explains the keyboard
commands that can substitute for the mouse.

Using the Mouse

Annex Manager uses a mouse to display windows, select text fields, lists,
and buttons, and respond to warning and help windows. You use the same
"point and click" mouse techniques found in other interfaces. The
following table lists terms, actions, and results that occur when you use
the mouse.

Term	If you:	The mouse:
Click	Press and release the mouse button	Selects a window, box, text field, button, or list item
Double click	Press and release the mouse button twice, quickly	Displays help when cursor is on a RAC parameter or parameter group
Drag	Hold the mouse button and move the mouse	Moves a window, scrolls through information in a box, selects text, or selects a range of list items
Point	Move the mouse pointer to an item	Relocates the mouse pointer

Annex Manager does not use the right or center mouse buttons.

Using Keyboard Commands

You can substitute the following keyboard shortcuts for clicking or dragging the mouse pointer.

If you press:	Annex Manager:
Tab	Places the cursor in the next field, box, or button
Shift+Tab	Places the cursor in the previous field, box, or button
Space bar	Selects an item from a list or menu
Space bar + Return	Displays information about an Annex list item
⬆, ⬇, ➡, or ⬅	Moves the pointer through a list or a menu
Shift + ➡ or ⬅	Selects text in a field
Return	Acknowledges file selection windows, warning boxes, and help messages
⌫ or *Delete*	Deletes a character to the right or left of the cursor, based on your keyboard configuration.
Help or *F1*	Displays a help message for a list item, a field, or a button
F10	Places the cursor in the menu bar
Ctrl + *Tab*	moves the cursor to the next field
Shift + *Ctrl* + *Tab*	moves the cursor to the previous field

Clicking the mouse button produces the same result as using *Tab*, *Shift* + *Tab*, the *space bar*, or *Return*. Dragging the pointer produces the same result as using arrow keys or *Shift* + arrow keys.

Controlling the Window Display

Annex Manager allows you to arrange your desktop to suit your own work style. You can reduce the Annex Manager application to an icon, change the size of a window, move a window, and scroll through lists and text

areas. This section gives you instructions for these operations and for using the control menu.

Changing the Size of a Window

Annex Manager displays windows in a default size. You can change the size of a window by using the maximize button (▦), which expands the window to fill your desktop, or by using the mouse, which lets you choose any size for the window.

To change the size of a window using the mouse:

1. **Place the mouse pointer in the border of the window.**

    To size the entire window, place the pointer in the corner of the window; its shape changes to ↖.

    To size only the horizontal or vertical dimensions, place the pointer in the border; its shape changes to ⇐.

2. **Hold the left mouse button and drag the pointer.**

    The border of the window becomes an outline as you move the pointer.

3. **Release the mouse button when the border reaches the size you need.**

To change the size of a window using the maximize button:

1. **Move the cursor to the maximize (▦) button in the upper right corner of the window.**

2. **Click the left mouse button.**

    The window expands to fill your desktop.

To restore the window to its original size after you use the maximize button, click the ▦ button again.

> You can also use the *Size* option of the *Control* menu to alter the size of a window.

Using Annex Manager Icons

If you need room on your desktop for other applications, you can reduce any open Annex Manager window to an icon. When you restore an icon, the window opens in the size and location that displayed before you reduced it.

To reduce a window to an icon:

1. **Move the mouse pointer to the minimize (▨) button in the upper right corner of the window.**

2. **Click the mouse button.**

    The window icon appears on your screen.

To restore a window to its original size and location:

1. **Move the pointer over the icon.**

2. **Click the mouse button to display the icon menu.**

    The icon menu offers the same selections as the control menu.

3. **Move the pointer to** *Restore* **and click the left mouse button again.**

    You can skip steps 2 and 3 by double clicking on the icon.

Moving Windows And Icons

You can move a window or the Annex Manager icon to a more convenient location on your desktop. Since you may use certain Annex Manager windows more often than others, you can position these windows to suit your needs.

To move a window:

1. **Place the pointer in the title bar of the window.**

2. **Drag the pointer.**

    The border of the window becomes an outline as you move the pointer.

3. **Release the mouse button when the border reaches the new location.**

If one window on your desktop partially covers another, clicking the mouse on the covered window brings it forward.

If you arranged your desktop so that an icon is covered by another window, use the *Lower* option and then move the icon using the steps listed above.

Using Scroll Bars

When a box is too small to display all available information, scroll bars let you view complete lists or messages. Figure C-2 shows a sample list box with scroll bars.

```
Parameter Options
  Pre-defined Groups  ⊑

AppleTalk                              scroll box in an
Basic_Annex                            active scroll bar
Basic_Async_Port
Cmd_Line_Editing
Dedicated_Port
Flow_Control
IPX
Idle_Timer                             scroll box in an
LAT                                    inactive scroll bar
```
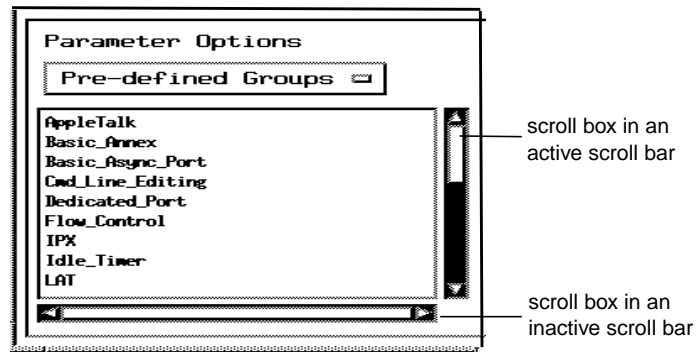
Figure C-2. List Box with Scroll Bars

Scroll bars are horizontal or vertical areas that contain scroll boxes. In the example above, scroll boxes are the white area. These boxes indicate whether the scroll bar is active: scroll boxes change size to reflect the proportion of material that the window displays. The example above shows active and inactive scroll bars:

•   The vertical scroll bar is active. The scroll box fills about one third of the available space, indicating that there is more information.

•   The horizontal scroll bar is inactive. The scroll box fills the bar, indicating that complete information is displayed.

When scroll bars are active, you can click the mouse button to move the display one line at a time or one page (the size of the box) at a time. You

can view information from any position in the list by dragging the mouse pointer.

To view one line at a time:

1.   Move the pointer to the arrow at the top or bottom of the scroll bar.

2.   Click the mouse button.

From the top arrow, the display moves up one line. From the bottom arrow, it moves down one line.

To view one page at a time:

1.   Move the pointer to the scroll bar above or below the vertical scroll box or to the left or right of the horizontal scroll box.

2.   Click the mouse button.

The list displays according to the location of the pointer. For example, if you place the pointer below the vertical scroll box, the display moves down one page.

To scroll through the display:

1.   Move the pointer to the scroll box.

2.   Hold the left mouse button.

The list moves as long as you hold the mouse button.

3.   Release the mouse button when you reach the position you want.

You can use the ⬆ or ⬇ arrow keys to scroll through a list or message box. If you click an arrow key, the display moves one line at a time. If you hold an arrow key, the display scrolls.

Using the Control Menu

The control menu appears in every Annex Manager window. It allows you to move and size a window, to change the window to and from an icon, and to control the display of the window in relation to other windows on your desktop. This section gives you directions for using each control menu option.

> The *Close* option appears in Annex Manager running the Motif™ window manager only in the main window. Other window managers may vary. You should always use the *Close* buttons provided on Annex Manager screens.

The control menu uses standard window features:

- Active options appear in black type and inactive options appear in gray.

- The key sequence for each option appears next to the option. If your keyboard does not have a key labeled *Alt*, consult your hardware documentation to find the corresponding key.

- The first letter of each option is underlined. When you display the control menu, you can select an option by typing the underlined letter on your keyboard.

Displaying the Control Menu Window

To display a control menu option:

   1. Move the pointer to the menu control button in the upper left corner of the window.

   2. Click the mouse button or hold it down to display the menu.

   3. Click the mouse button on the option you need, or drag the pointer to the option and release the button.

   You can also type the underlined letter.

Using Control Menu Options

The *Maximize*, *Minimize,* and *Restore* options allow you to change a window to and from an icon.

- The *Maximize* option enlarges a window to the size of your desktop.

- The *Minimize* option shrinks a window to an icon.

- The *Restore* option returns all open Annex Manager windows to their original sizes.

Maximize and *Minimize* have the same effect on a window as the buttons in the upper right corner of the window.

To alter the position of a window on your desktop:

1.   Select *Move* **and click the mouse button.**

The pointer changes to ✛ and the border of the window becomes an outline as you move the pointer.

2.   Release the mouse button when the border reaches the new location.

The window appears in its new location and the pointer returns to ↖.

You can move a window by following these steps or by using the directions on page C-7.

The *Size* option lets you shrink or stretch a window. To change the size of a window:

1.   Select *Size* **and click the mouse button.**

The pointer changes to ✛.

2.   Move the pointer to the border.

The pointer changes to |←.

3.   Continue to move the pointer to reach the size you need.

The border becomes an outline as you move the pointer.

4.   Release the mouse button when the border reaches the new size.

The window displays in its new size and the pointer returns to ↖.

You can change the size of a window by using this option.

The *Lower* option moves any Annex Manager window to the back of your desktop. When you use this option on overlapping windows, the window in the foreground moves, revealing the window that was covered.

To change the display:

1.   Select the window you want to move.

2.   Select *Lower* **and click the mouse button.**

If you position a window so that it is partially visible, you can click anywhere on its border to bring it to the foreground.

The *Close* option appears only in the Annex Manager main window. This option allows you to exit Annex Manager software. While this option is available, you should always use the Annex Manager *Exit* entry in the main menu.

Using Fields, Buttons, and Boxes

Text fields, buttons, and boxes allow you to select or enter information in an Annex Manager window. This section explains how you can recognize these elements and gives you directions for using each one.

Using Text Fields

A text field contains a single piece of information displayed in a box. For example, the main window provides text fields for RAC names, passwords, and port numbers. Some text fields allow you to enter or change values; others simply display information.

The cursor appears in a text field when you can enter or change the value of the field. To use a text field:

1. **Place the pointer in the field and click the mouse button.**

   The border of the field is highlighted and the cursor blinks.

2. **Type new information or edit the value that displays.**

   You can use the arrow keys to move the cursor or the *Shift* and arrow keys to select text when you are editing existing text.

   If you edit a text field that uses more than one line, you must press *Ctrl + Tab* to move to the next field, or *Shift + Ctrl + Tab* to move to the previous field.

When you complete your work in the window, Annex Manager uses the new value for processing.

Using Buttons

Annex Manager provides several types of buttons that allow you to select information. Buttons control list box contents, window displays, and

Annex Manager processing. This section describes each button type and gives you directions for using buttons.

An option button appears as a box with a small rectangle (⬛) following the text. These buttons display a menu: you can select one item and place it in the box.

To use an option button:

    1. Move the pointer inside the button and click or hold the mouse button.

        The menu appears.

    2. Move the mouse to highlight the item you want and click or release the mouse button.

        Your selection appears in the box.

Push buttons instruct the system to begin a process or display a new window. For example, a push button can add a RAC to a list or show parameter values. These buttons display as boxes with text inside (*Help*).

To use a push button:

    1. Move the pointer inside the button.

    2. Click the mouse button.

An ellipsis (...) following a push button label indicates that clicking the button displays another window.

Radio buttons allow you to turn a selection on or off. These buttons are marked with a diamond shape (◇) that the window manager fills in when you select a button. Radio buttons always appear in a box in sets of two or more. You can select only one button in each set.

To use a radio button:

    1. Move the pointer to the diamond shape (◇).

    2. Click the mouse button.

        When you select a radio button, the center of the diamond is highlighted. If you select another button in the set, the highlighting of the first button disappears.

Figure C-3 shows the radio buttons in the *Boot* command.
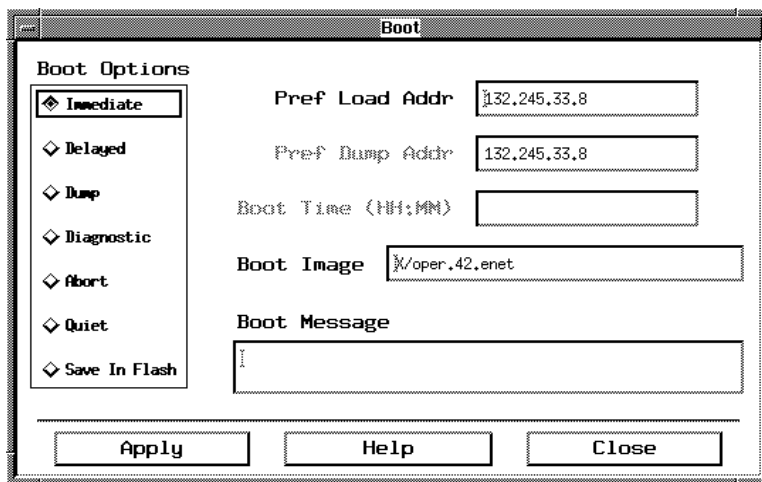
Figure C-3. Radio Buttons

Check buttons are marked with a small square (▢) that precedes a label. They allow you to turn a selection on or off. You can select one or more check buttons.

To use check buttons:

1. **Move the pointer to the square shape (▢).**

2. **Click the mouse button.**

   When you turn a selection on, the center of the square is highlighted. When you turn a selection off, the center of the square is empty.

3. **Move the pointer to the next check button you want to select and repeat steps 1 and 2.**

   When you select more than one button, the previously selected buttons remain highlighted.

Figure C-4 shows the check buttons in the *Create Script* command. The *Main Window Parameters* button is turned on.
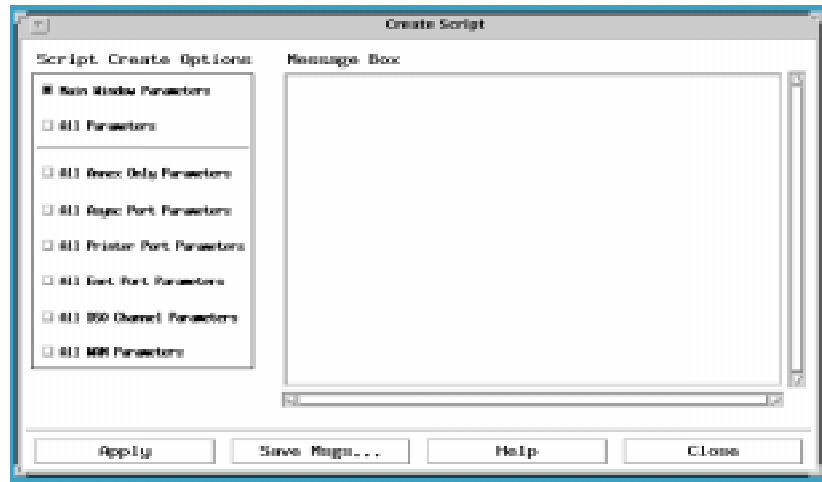
Figure C-4. Check Buttons

List Boxes

Annex Manager uses several types of boxes:

- • List boxes display items you can select for Annex Manager processing. When complete information cannot fit into a box, horizontal and vertical scroll bars allow you to view the complete list.

- • Message boxes monitor Annex Manager operations. These boxes can include status and error messages.

- • Output boxes display the results of Annex Manager processing.

List boxes store information about RACs, parameters, and files. These boxes, which always include an identifying label, allow you to select items for Annex Manager processing. Figure C-5 shows an Annex List box.
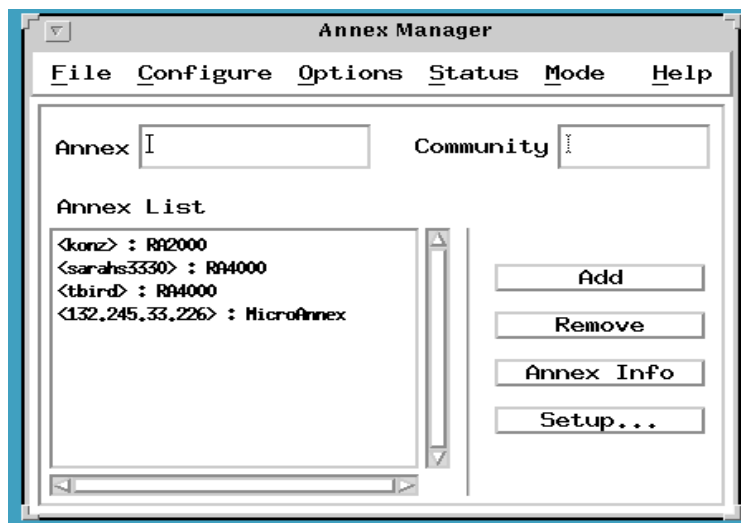
Figure C-5. Annex List Box

Annex Manager provides several methods for selecting and deselecting items from a list box. You can combine these methods in any list box that permits you to select more than one item. Selected items are always highlighted.

Some lists permit you to select only one item in a list box. To select one item:

1.   Move the pointer to the item you want to select.

2.   Click the mouse button.

Annex Manager highlights the item, indicating that it is selected.

You can search through a list by selecting one item and typing the beginning letters of the item you want to find. The list scrolls automatically to the item that matches your entry.

In many lists, you can select more than one item. To select items one at a time:

1.   Move the pointer to the first item you want to select and click the mouse button.

The item appears highlighted, indicating that it is selected.

2.   Move the pointer to the next item you want to select.

3.   Hold *Ctrl* **and click the mouse button.**

The item is selected in addition to any items you selected previously. You can repeat this step to select as many items as you need.

Annex Manager provides two ways to select a range of items, depending on your previous selections. To select a range of items when you have not selected items:

1.   Move the pointer to the first item you want to select and hold the mouse button.

Annex Manager highlights the first item.

2.   Drag the pointer through all items you want to select.

Each item is highlighted as the pointer moves past.

3.   Release the mouse button on the last item you want in the range.

Annex Manager highlights all items to indicate that they are selected.

You can skip steps 2 and 3 by selecting the first item in the range, moving the pointer to the last item you want to select, pressing *Shift*, and clicking the mouse.

To select a range when you already selected items or ranges:

1.   Move the pointer to the first item you want to select, hold *Ctrl*, **and hold the mouse button.**

Annex Manager highlights the first item.

2.   Drag the pointer through all items you want to select.

Each item is highlighted as the pointer moves past.

3.   Release the mouse button on the last item you want in the range.

Annex Manager highlights all items, indicating that they are selected.

> You can skip steps 2 and 3 by selecting the first item in the range, moving the pointer to the last item you want to select, pressing *Shift*, and clicking the mouse.

You can deselect single items or a range of items in a list box. In addition, you can deselect all your previous selections.

To deselect a list item:

1.   Move the pointer to any selected item.

2.   Hold *Ctrl* and click the mouse button.

The highlighting disappears, indicating that the item is deselected.

To deselect a range of items:

1.   Move the pointer to the first item you want to deselect, hold *Ctrl*, and hold the mouse button.

2.   Drag the pointer through all items you want to deselect.

The highlighting of each item disappears as the pointer moves past.

3.   Release the mouse button on the last item you want to deselect.

Annex Manager removes highlighting from the range of items, indicating that they are no longer selected.

To deselect all items in a list box:

1.   Move the pointer to any item in the list box.

2.   Click the mouse button.

Highlighting disappears from all items except the one on which you placed the pointer.

3.   Keep the pointer on the remaining selected item, hold *Ctrl*, and click the mouse button.

Annex Manager removes highlighting from the item. The list box does not contain selected items.

Message and Output Boxes

Message and output boxes display details about Annex Manager
processing: their contents report on the operations you use and can include
error and status messages. You cannot enter information in these boxes.

Message boxes monitor Annex Manager operations by displaying status
and error information. Figure C-6 shows the *Set Window* message box.
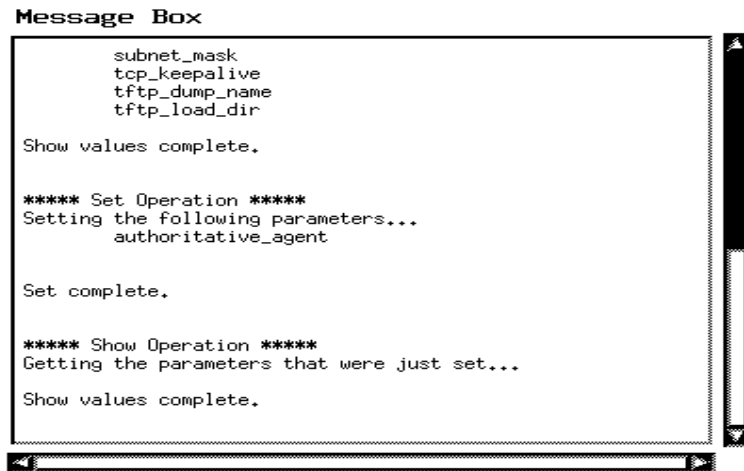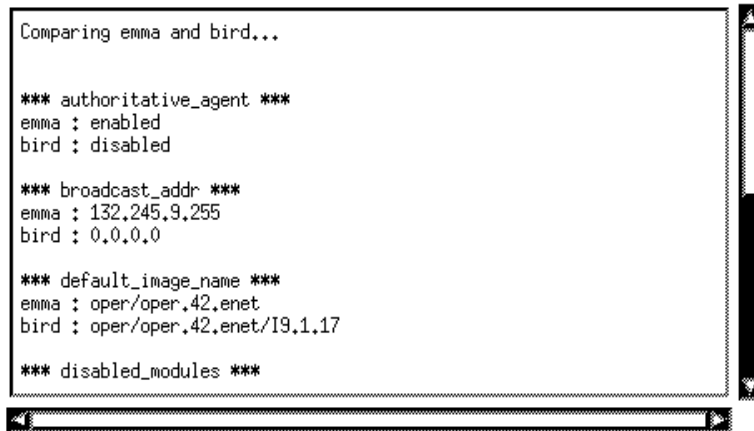
Figure C-6. Set Window Message Box

This message box summarizes the *Show Values* command. The *Show Values*
command lists each parameter and notifies you that Annex Manager
completed the *Show Values* request.

Output boxes show the results of Annex Manager commands. Like
message boxes, output boxes can include error and status messages.
Figure C-7 shows the *Compare* output box for two RACs.

Comparison Output

```
Comparing emma and bird...


*** authoritative_agent ***
emma : enabled
bird : disabled

*** broadcast_addr ***
emma : 132.245.9.255
bird : 0.0.0.0

*** default_image_name ***
emma : oper/oper.42.enet
bird : oper/oper.42.enet/I9.1.17

*** disabled_modules ***
```

Figure C-7. Compare Window Output Box

In this example, the output box displays the differences in parameter
values between RACs. The box lists each parameter and includes the
values for each RAC.

Appendix D
Help Reference

This appendix describes how to use help windows. It includes:

- *Displaying Help Windows*

- *The Help Window Format*

- *Saving Help Window Contents*

The on-line help facility provides information about the commands, boxes, fields, buttons, parameter groups and parameters you use to configure a RAC. Annex Manager offers three types of on-line help:

- Information about Customize mode fields, commands and parameters appears in a standard Annex Manager window. You can save this information in a text file.

- Information about all Setup mode fields, single fields in Customize mode, and all boxes and buttons appears in a small window labelled *Window Item Help*. You cannot save the contents of these windows.

- Brief descriptions of Setup mode fields appear automatically at the bottom of every *Setup Mode* window.

Displaying Help Windows

You can use keyboard commands to display information about fields, boxes, and buttons. Mouse commands display information about command windows and about parameters.

Displaying Window Item Help

To display help about a field, box, or button:

1.   Move the cursor to any field, box, or button.

You can use the mouse or *Tab* to move the cursor. Make sure that the item you are selecting is highlighted.

2.   Press *F1* **or click** *Help*.

The *Window Item Help* window appears (Figure E-1).

Figure E-1 shows a help message for the *Add* button in the *Main* window.
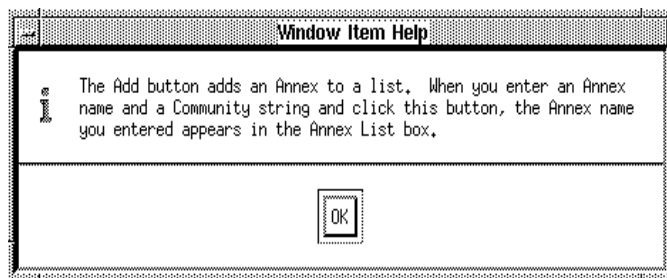
Figure E-1. Window Item Help

Acknowledging Help Windows

You can acknowledge this help window at any time:

1.   Move the pointer to *OK*.

2.   Click the mouse button or press *Return*.

The help window closes.

You cannot save information directly from *Window Item Help*. However, the help windows that appear include information on each window element and allow you to save window contents.

Displaying Command and Parameter Help

Information about command windows and parameters appears in a large window that includes a box and push buttons. You can leave this window on your desktop, use it for any command or parameter, and save the contents of the box in a file.

To display information about a command:

1.   Display any command window or the main window.

2.   Click *Help*.

The *Help* window appears.

From the main window, use the *Help* entry from the pull-down menu and select *Main Window*. The *Help* entry also includes a help message that describes the main menu bar.

To display information about a parameter group or a single parameter:

1.   Display any command window that includes parameter groups or single parameter names.

2.   Double click the mouse button on the parameter name or the parameter group name.

The *Help* window appears.

Figure E-2 shows the *Help* window for the *Set* command.
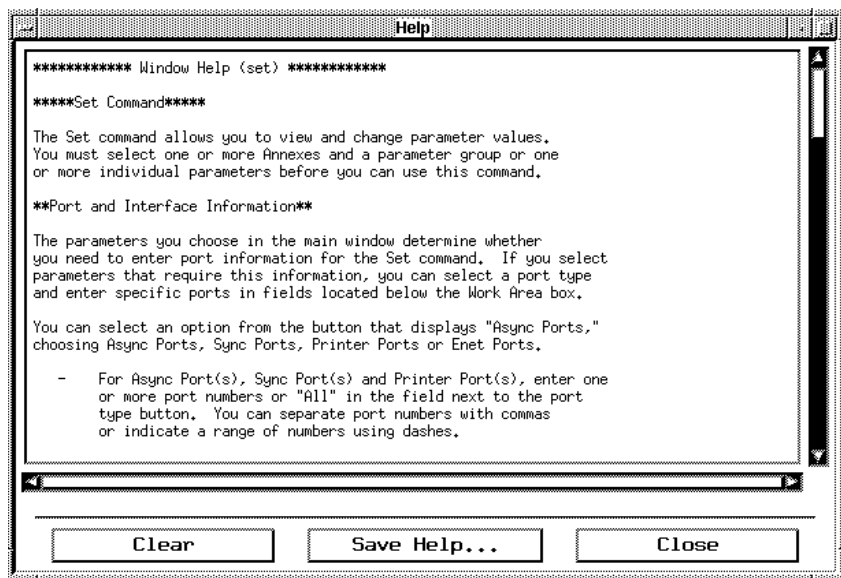
Figure E-2. Help Window

You can leave this help window on your desktop as you use Annex Manager. Each time you select command help or help on parameters, Annex Manager adds help text to the window.

The Help Window Format

The *Help* window that stores command and parameter help uses a box and push buttons. If you keep this window open on your desktop, you can use it to display one or more help messages at any time.

Reading the Help Window Box

The *Help* window displays information in a single box. They include:

- An overview of each command.

- Information about the format of the command window.

- Descriptions of the fields, buttons, and boxes that comprise the command window.

- Special notes or warnings about using the command.

- Short descriptions of each parameter eligible for Annex Manager processing.

You can save help messages that appear in this box, but you cannot edit them or delete portions of their text.

The *Help* window uses the following push buttons:

- *Clear* removes all existing text from the window.

- *Save Help* displays the standard *File Selection* window, which allows you to save the contents of the window in a file.

- *Close* removes the *Help* window from your display.

Saving Help Window Contents

You can leave the *Help* window on your desktop and add information to it as you use Annex Manager. The *Help* window allows you to save its contents in a file at any time.

> You can include parameter help in *Help* windows by highlighting a parameter or an input area and pressing *F1* or clicking *Help*.

To save help messages:

1. Display the *Help* **window.**

You can display this window by clicking the *Help* button of any command or by clicking twice on a parameter name or parameter group.

2. Click *Save Help*.

The *Save Output/File Selection* window appears (Figure E-3).
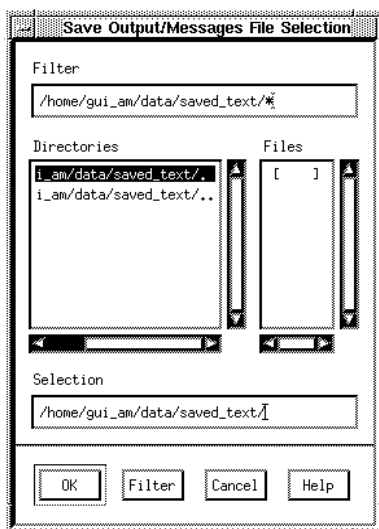
Figure E-3. Save Output/Messages File Selection Window

The *Save Output/Messages File Selection* window displays the default text directory. It allows you to:

- Overwrite an existing file that you created by selecting its name. When you choose an existing file, a confirmation window lets you verify your selection. You cannot overwrite a file that someone else created.

- Enter a new file name.

3. Click *OK*. Annex Manager stores the contents of the *Help* window in the file you specified**.**