CHAPTER 5

Diagnostic Report

The Diagnostic Report contains the results of syntactical and global semantic checking performed on the router configuration files used to create the current baseline. The information contained in the report is displayed via the Report window. You can display the Report window by clicking on the **Report** button in the Connectivity Tools window. The components of the Report window are described in the following sections.

The following windows are described in this chapter:

- Report
- Suppress Entries
- Report Summary
- Print Options

A tutorial on how to generate a Diagnostic Report and then fix the reported problems is provided in Chapter 5 in the *Enterprise/Solver Connectivity Tools User's Guide*.

Note We *strongly* recommend that you dismiss the Report window when you are through using it to resolve the reported problems as the report can be quite large and therefore could be using up a lot of your system's available memory.

General Window Components

The following buttons are present in several windows described in this chapter. For brevity, they are described once here.

- **OK** Button

  Click on the **OK** button to apply the changes you have made in the current configuration window and dismiss the window.

- **Cancel** Button

  Click on the **Cancel** button to dismiss the window and cancel the actions that have taken place since the window was displayed or the **OK** button was clicked.

- **Close** Button

  Click on the **Close** button to dismiss the current window.

- **Help**

Provided you have access to a Mosaic™ or Netscape™ HTML browser, clicking on the **Help** button displays documentation about the corresponding window. The HTML browser specified by the ECSP_HELPVIEWER environment variable is used for this purpose.

Report Window

Once a baseline has been opened and loaded, the initial Report window, partially shown in Figure 5-1, is displayed when you click on the **Report** button in the Connectivity Tools window. Initially the reports displayed in this window are sorted by their severity with high priority reports listed first. You are able to change the way the list of problems is sorted by clicking on a column header.

To receive a summary of the number and types of problems reported in the Diagnostic Report, click on the **Summary** button. See “Report Summary Window” for a detailed description of the Report Summary window components.

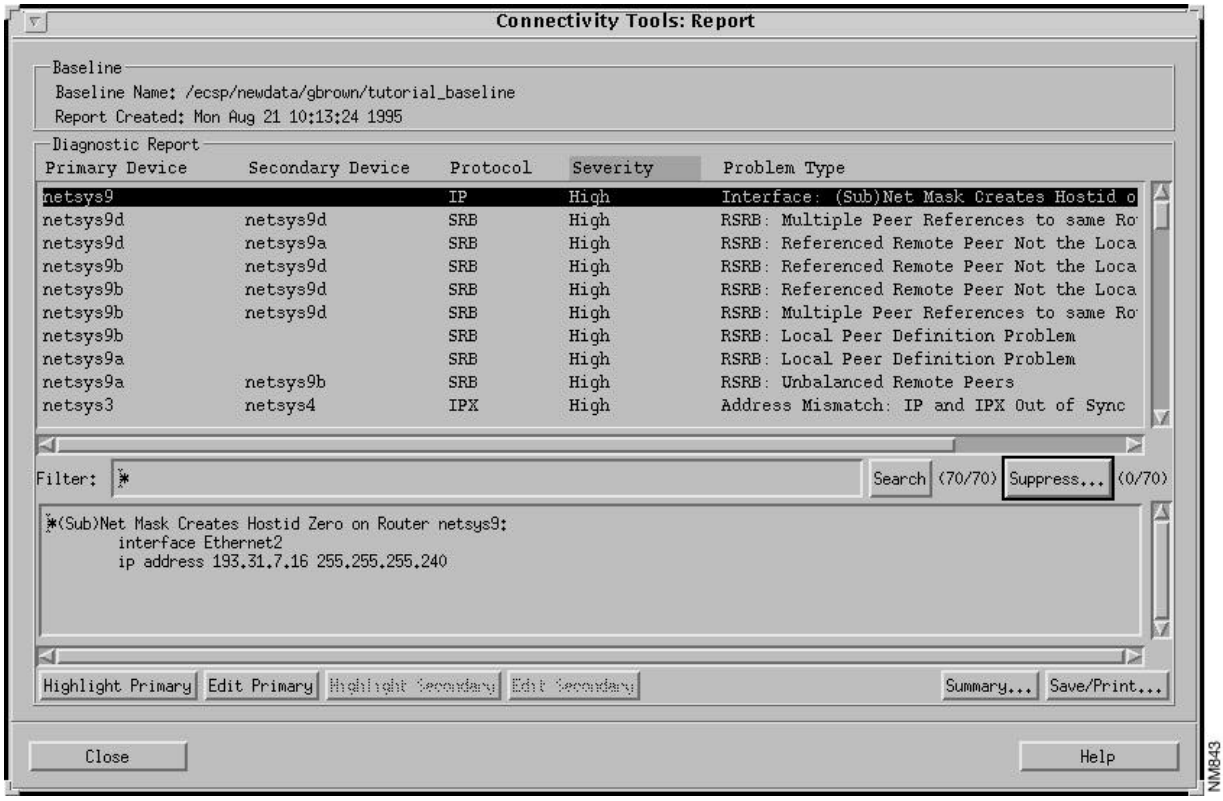

Figure 5-1 Report Window

Report Window Components

This window’s components are described in the following sections. See “General Window Components” for a description of the **Close** and **Help** buttons.

Baseline

The Baseline pane displays the location and name of the baseline the Diagnostic Report was created against, as well as the date and time the report was created.

Diagnostic Report

The Diagnostic Report pane lists the errors that were detected when the baseline router configuration files were parsed. When the Diagnostic Report is initially displayed, the report entries are sorted by Severity (high, followed by warning, followed by configuration file warnings/errors.) Each entry provides the following information:

- the name of the primary router whose router configuration file contained the problem
- the name of the secondary router (if applicable) the problem affects
- the protocol violated (IP, IPX, SRB, APPLE)
- the problem's severity (high, warning, or user related errors/warnings)
- a high level description of the type of problem

Selecting an entry in this list provides a more detailed description of the problem in the pane below the **Filter** field.

Clicking on a column header in the Diagnostic Report pane sorts the information displayed in the report according to the contents of that column. For example, when you click on the **Primary Device** column header, the information displayed in the Diagnostic Report pane is sorted alphabetically by the primary device names.

Clicking on an entry highlights the primary router's icon in the Topology window if it is displayed. Double-clicking on an entry opens the Router Configuration window of the router listed in the Primary Device column.

Diagnostic Report - Primary Device

The name of the primary router this problem is associated with is displayed in this column.

Diagnostic Report - Secondary Device

The name of the secondary router (if applicable) this problem is associated with is displayed in this column. This column has an entry only when the problem corresponds to two routers.

Diagnostic Report - Protocol

The protocol (IP, IPX, or SRB) this problem is related to is displayed in this column.

Diagnostic Report - Severity

The problem's severity (high, warning, or config file warnings/errors) is displayed in this column. Problems are assigned a severity of high priority, warning-level, or router configuration file related user warnings/errors.

Diagnostic Report - Problem Type

A synopsis of the problem is displayed in this column. A more complete description of the problem is displayed in the pane below the **Filter** field.

Diagnostic Report - Filter

You are able to use the **Filter** field to specify a specific device, protocol, severity, or key word to search for within the Diagnostic Report. Clicking on the **Search** button initiates the search using the filter you have specified. The results of the search are then displayed in the Diagnostic Report pane. For example, if you specify **`High`** in the **Filter** field then click on the **Search** button, a list of only the high priority problems are displayed in the Diagnostic Report pane. This feature also enables you to gather specific information and then subsequently save it to a file and/or print it to a PostScript™ printer if you desire.

Special characters are available for your use. The backslash character is used as a means to escape special characters. The wild card character (an asterisk) is used to match any character. For example, if you specified **`*Serial*`** in the **Filter** field and then pressed **Return** or clicked on the **Search** button, a list of entries containing `Serial` is displayed in the Diagnostics Report pane. When the **Filter** field contains only an asterisk (the default search mode) all Diagnostic Report entries are displayed in the Diagnostic Report pane.

The question mark is used to denote any one character. For example, if you specify **`*netsys?*`** in the **Filter** field, all Diagnostic Report entries containing the string `netsys` and ending with any character are displayed in the list of Diagnostic Report entries.

The negation operator (a tilde) is used to denote the characters *not* to match on within the Diagnostic Report. It is only allowed as the first character in the **Filter** field. For example, if you did not want to display the warning-level problems, you would specify **`~*Warn*`** in the **Filter** field and press **Return** or click on the **Search** button. All entries *not* containing the string `Warn` are then displayed in the Diagnostic Report pane.

Compound searches are also permitted. For example, if you only wanted to display High Priority IPX problems, you would enter **`*IPX*High*`** in the **Filter** field and then press **Return** or click on the **Search** button.

Diagnostic Report - Search Button

Click on this button to initiate the search of the Diagnostic Report using the filter you have specified in the **Filter** field. The number of entries containing a match with the specified filter and a total of all problems reported in the Diagnostics Report are displayed within parentheses next to the **Search** button.

Diagnostic Report - Suppress Button

Click on this button to remove specified types of reports from the Diagnostic Report. See “Suppress Entries Window” for detailed information about the Suppress Entries window components. The number of problem reports being suppressed and a total of all problems reported in the Diagnostics Report are displayed within parentheses next to the **Suppress** button.

Diagnostic Report - Highlight Primary Button

Click on this button to highlight the primary router’s icon in the Topology window if it is already displayed.

Diagnostic Report - Edit Primary Button

Click on this button to open (in read only or read/write mode) the selected entry’s primary router’s configuration file using the editor specified by the EDITOR environment variable.

Diagnostic Report - Highlight Secondary Button

Click on this button to highlight the secondary router's icon in the Topology window if it is already displayed.

Diagnostic Report - Edit Secondary Button

Click on this button to open (in read only or read/write mode) the selected entry's secondary router's configuration file using the editor specified by the EDITOR environment variable.

Diagnostic Report - Summary Button

Click on this button to receive a summary and total count (in the Report Summary window) of the problems discovered when the router configuration commands were parsed during the opening of the baseline. See "Report Summary Window" for detailed information about the Report Summary window components.

Diagnostic Report - Save/Print Button

Click on this button to save the Diagnostic Report to a file in either ASCII or HTML format or to send it to a PostScript™ printer via the Print Options window. See "Print Options Window" for detailed information about the Print Options window components.

Note If you have suppressed or filtered out problem entries, those entries are not printed or saved to the specified file.

The report generated using this option contains the following categories:

- Integrity Violations Summary
  - IP High Severity Violations
  - IP Warnings
  - IPX High Severity Violations
  - IPX Warnings
  - RSRB High Severity Violations
  - RSRB Warnings
  - AppleTalk High Severity Violations
- Integrity Violations Details
  - Severe IP Problems
  - Severe Remote-Source Route Bridging Problems
  - Severe IPX Problems
  - Severe AppleTalk Problems
  - IP Warnings
  - IPX Warnings
  - RSRB Warnings

- Information About Integrity Checking Performed
  - IP Integrity Checking Information
  - Remote-Source Route Bridging Integrity Checking
  - IPX Integrity Checking Information
  - AppleTalk Integrity Checking Information
- Router Command Summary
  - Summary
  - List of Router Configuration Files
  - Interface Summary
- Router Command Usage
  - Configuration Command Summary
  - Summary of Configuration Commands Parsed
  - Summary of Other Commands
  - Top Ten Unparsed Configuration Commands
  - Summary of Configuration Commands Not Parsed
  - Summary of All Configuration Commands
- Router Syntax Errors
  - List of Syntax Errors
- Router Warnings
  - List of Warning Messages
- Template Warnings
  - List of Template Constraints

Suppress Entries Window

The Suppress Entries window, shown in Figure 5-2, is displayed when you click on the **Suppress** button in the Diagnostic Reports window. This window allows you to specify the information you wish to keep from being included in the Diagnostics Report being displayed. For example, you can specify to have all IPX related problems or all warning-level IP problems suppressed from the Diagnostics Report.

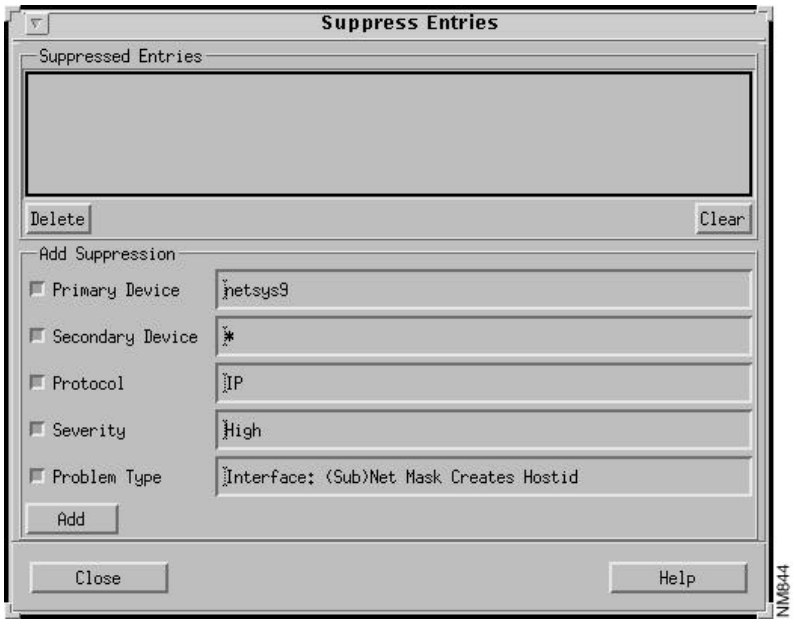

Figure 5-2 Suppress Entries Window

Suppress Entries Window Components

This window's components are described in the following sections. See "General Window Components" for a description of the **Help** button.

When you click on the **Close** button, the suppression parameters currently in effect are saved. When you subsequently invoke the Suppress Entries window, the suppression parameters that were in effect when the window was last closed remain in effect.

Suppressed Entries

A list of the suppression entries currently in effect are displayed in this pane. When an entry is added to this list, the Diagnostic Report entries that match the suppression parameters are no longer displayed in the Diagnostic Report pane. Initially suppression is not in effect, therefore the Suppressed Entries list is empty.

Suppressed Entries - Delete Button

Select an entry from the Suppressed Entries list then click on this button to remove that entry from the list. The Diagnostic Report entries that were suppressed due to this entry being in effect are redisplayed and the entry's suppression parameters are removed from existence.

Suppressed Entries - Clear Button

Click on this button to remove all of the entries used to suppress Diagnostic Report entries from the Suppressed Entries list. The Diagnostic Report entries that were suppressed due to these entries being in effect are redisplayed and *all* suppression parameters are removed from existence.

Add Suppression

The Add Suppression pane contains buttons pertaining to the columns in the Report window's Diagnostic Report pane. Deselecting a button removes that category from suppression consideration. Select a button and then specify a value that when found within that column in a Diagnostic Report entry, will cause that entry to be suppressed from the report. For example, if you want to suppress all Diagnostic Report entries that are related to warning-level problems, select the **Severity** button, specify **`Warning`** in the button's text field, deselect the other **Add Suppression** buttons, then click on the **Add** button. All entries that contained **`Warning`** in the **Severity** column are no longer shown in the Diagnostic Report. The suppression number within the parentheses next to the **Suppress** button is updated to reflect the number of Diagnostic Report entries currently being suppressed.

When you initially click on the **Suppress** button or create a suppression entry and add it to the Suppressed Entries list, all of the **Add Suppression** buttons in the Suppress Entries window are selected and their corresponding text fields contain the values associated with the selected entry in the Report window. Clicking on the **Add** button at this point removes that entry from the Diagnostic Report.

You can use the wild card character (an asterisk) to match any or all characters. When a field contains only an asterisk it is equivalent to specifying all items within that category. For example, specifying an asterisk in the **Protocol** field and clicking on the **Add** button results in an empty Diagnostics Report as the suppression mode was set to suppress reports for *all* protocols.

Add Suppression - Primary Device

Select the **Primary Device** button and then specify the name of the device whose problem reports you do not want included in the Diagnostics Report, in the **Primary Device** field.

Add Suppression - Secondary Device

Select the **Secondary Device** button and then specify the name of the secondary device whose problem reports you do not want included in the Diagnostics Report, in the **Secondary Device** field.

Add Suppression - Protocol

Select the **Protocol** button and then specify the protocol (`IP`, `IPX`, `SRB`, or `APPLE`) whose problem reports you do not want included in the Diagnostics Report, in the **Protocol** field.

Add Suppression - Severity

Select the **Severity** button and then specify the severity of the problem reports (`High` or `Warning`) you do not want included in the Diagnostics Report, in the **Severity** field.

Add Suppression - Problem Type

Select the **Problem Type** button and then specify the type of problem you do not want included in the Diagnostics Report, in the **Problem Type** field.

Add Suppression - Add Button

Once you have selected the problem category button(s) and specified the associated text in the button's text field(s), clicking on the **Add** button adds the suppression parameters to the Suppressed Entries list and initiates the suppression of the corresponding problems from the Diagnostic Report. The number of reports currently being suppressed (displayed within parentheses next to the **Suppression** button in the Report window) is updated accordingly.

When you click on the **Close** button, the suppression parameters currently in effect are saved. When you subsequently invoke the Suppress Entries window, the suppression parameters that were in effect when the window was last closed continue to be in effect.

Report Summary Window

The Report Summary window, shown in Figure 5-3, is displayed when you click on the **Summary** button in the Report window. This window provides a summary of the types and total number of problems detected while parsing the router configuration files during the opening of the baseline.

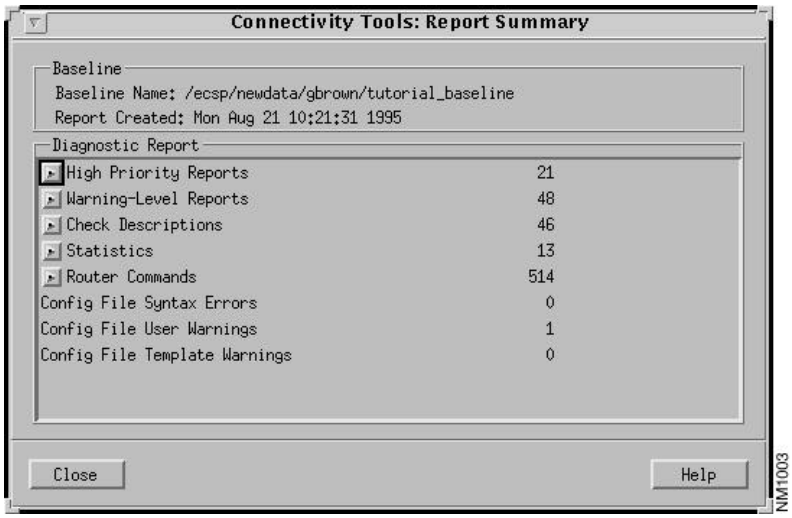

Figure 5-3 Report Summary Window

Report Summary Window Components

This window's components are described in the following sections. See "General Window Components" for a description of the **Close** and **Help** buttons.

Baseline

The Baseline pane displays the location and name of the baseline the Diagnostic Report corresponds to, as well as the date and time the report was created.

Diagnostic Report

The Diagnostic Report pane contains the following categories:

- High Priority Reports

- Warning-Level Reports
- Check Descriptions
- Statistics
- Router Commands
- Config File Syntax Errors
- Config File User Warnings
- Config File Template Warnings

The above categories are described in the following subsections.

Note When a category has an arrow icon displayed next to it, clicking on the arrow button displays a more specific list of problems within that category.

Diagnostic Report - High Priority Reports

This category contains items thought to cause *major* network problems. The total number of high priority problems detected by the parser during the opening of the baseline are displayed. Clicking on the High Priority Reports arrow icon displays IP, IPX, SRB, and APPLE subcategories and the total number of problems found by the Connectivity Tools parser, within each of the categories. These categories can be further expanded to provide the total number of protocol specific problems within that category and detailed information about the high priority problems detected. High Priority Reports contain the following sub-categories of problems:

- IP Problems

  The IP High Priority reports are divided into the categories listed below. For detailed information about specific High Priority IP problems, see “IP High Priority Reports” in Appendix B.

  — IP address/mask/network class

  — access list

  — static route

  — overlapping IP subnets

  — redundant address

  — potential Routing Table update

  — OSPF area

- IPX Problems

  The IPX High Priority reports are divided into the categories listed below. For detailed information about specific High Priority IPX problems, see “IPX High Priority Reports” in Appendix B.

  — redundant address

  — access list

  — address mismatch

- SRB Problems

The High Priority Source Route Bridging (SRB) reports are divided into the categories listed below. For detailed information about specific High Priority SRB problems, see "SRB High Priority Reports" in Appendix B. For detailed information about specific High Priority SRB SNA STUN problems, see "SNA STUN High Priority Reports" in Appendix B.

— SRB remote peer

— SNA STUN peername

- APPLE Problems

  The High Priority APPLE reports are divided into the categories listed below. For detailed information about specific High Priority APPLE problems, see "AppleTalk High Priority Reports" in Appendix B.

  — overlapping AppleTalk cable ranges

  — IP/AppleTalk address mismatch

Diagnostic Report - Warning-Level Reports

This category contains items considered significant, but not severe. Network performance is not likely to be completely halted by the existence of these problems. However, they could cause inadvertent side effects and performance degradation. For detailed information about specific Warning-Level problems, see "Baseline Integrity Checks." Use the same methods as described in the High Priority Report section for expanding the Warning-Level reports to obtain more information. Warning-Level reports contain the following sub-categories of problems:

- IP Problems

  The Warning-Level reports are divided into the categories listed below. For detailed information about specific IP Warning-Level problems, see "IP Warning-Level Reports" in Appendix B.

  — access list

  — wasted bandwidth

  — unconnected serial interfaces

  — potential Routing Table update

  — IP address/mask/network class

  — static route

  — IGRP interface bandwidth/delay metric mismatch

  — OSPF interface cost mismatch

  — unused commands

- IPX Problems

  The Warning-Level IPX reports are related to a non-utilized rule existing in an access list problems. For detailed information about this IPX Warning-Level problem, see "IPX Warning-Level Reports," in Appendix B.

- SRB Problems

  The Warning-Level Source Route Bridging reports are divided into the categories listed below. For detailed information about specific Warning-Level SRB problems, see "SRB Warning-Level Reports" in Appendix B.

For detailed information about specific Warning-Level SRB SNA STUN problems, see "SNA STUN Warning-Level Reports" in Appendix B.

— remote peer

— SNA STUN unknown address

Diagnostic Report - Check Descriptions

This category contains a summary of the total number of problems found when the integrity checks were performed by the Connectivity Tools parser during the opening of the baseline. Clicking on the Check Descriptions arrow icon displays IP, IPX, SRB, and APPLE subcategories. The total number of problems found within each of the subcategories is displayed. Clicking on the arrow icon next to these subcategories displays a more detailed list of problem categories and the number of problems found for each of them.

For example, when you click on the **Check Descriptions** arrow icon, IP, IPX, SRB, and APPLE categories are displayed with the total number of problems found within each of these categories listed. When you then click on the IP arrow icon, an expanded list of IP integrity checks is then displayed, as shown in Figure 5-4. Clicking on an arrow icon next to these integrity check categories provides a list of the checks within that category.

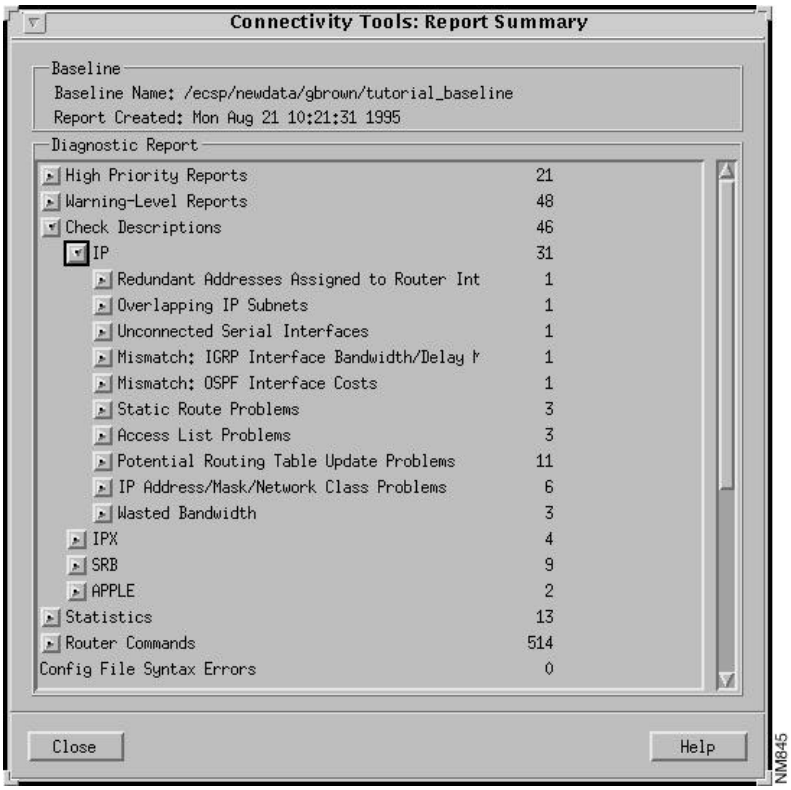

Figure 5-4 Report Summary Window: Expanded IP Check Descriptions

The categories and integrity checks performed for IP, IPX, SRB, and APPLE are described in the following sections.

- IP Reports

The IP category contains sub-categories containing report headers (listed below) and the number of problems detected within that category. See “IP Integrity Checks” for detailed information about the following IP Reports.

— Redundant Addresses Assigned to Router Interfaces

  Duplicate Address Check (high priority)

— Overlapping IP Subnets

  Overlapping IP Subnets Check (high priority)

— Unconnected Serial Interfaces

  Dead-end Serial Interfaces (warning-level)

— IGRP Bandwidth/Delay Metric Mismatch Problems

  IGRP Metric Mismatch Between Connected Interfaces (warning-level)

— OSPF Interface Costs Mismatch Detected

  OSPF Cost Mismatch Between Connected Interfaces (warning-level)

— Static Route Problems

  Static Route Next Hop is Indirectly Connected (high priority)

  Static Route Next Hop is a Shutdown Interface (high priority)

  Static Route Next Hop is an Unresolved Address (warning-level)

— Access List Problems

  Bad Masking in Access List (high priority)

  Non-utilized Rule in Access List (high priority or warning-level)

  Undefined Access List Referenced (high priority)

— Potential Routing Table Update Problems

  Redistribution: Metric Value Missing Where no Default (warning-level)

  Primary and Secondary Addresses Map to Same Subnet (warning-level)

  Connected IP (Sub)Net not Advertised by RIP/IGRP/EIGRP/OSPF (warning-level)

  Unconnected Net in network Command of RIP/IGRP/EIGRP (warning-level)

  OSPF Area Does Not Border Area Zero (high priority)

  Addresses of an Interface in Different OSPF Areas (high priority)

  Unused OSPF network area command (warning-level)

  Unused OSPF Area Range command (warning-level)

  Unused eigrp summary-address command (warning-level)

  Unused distance command (warning-level)

  RIP/IGRP Using Variable Length Subnet Masking (high priority)

— IP Address/Mask/Network Class Problems

  (Sub)Net Mask Creates Hostid of Zero (high priority)

  Noncontiguous Mask on Router Interface (high priority)

  Bad Target in Static Route Definition (warning-level)

Bad Default Network Specification (warning-level)

Bad Network Address Specified in Routing Process (warning-level)

Bad Address/Mask on Router Interface (high priority)

— Wasted Bandwidth

Missed Opportunity for a Passive Interface (warning-level)

Fast Switching Low Speed Serial Interface (warning-level)

Opportunity for Autonomous Switching (warning-level)

- IPX Reports

  The IPX category contains sub-categories containing report headers (listed below), and the number of problems detected within that category. See “IPX Integrity Checks,” for detailed information about the following IPX Reports.

  — Redundant Addresses Assigned to Router Interfaces

  Duplicate Address Check (high priority)

  — Access List Problems

  Non-utilized Rule in Access List (high priority or warning-level)

  Undefined Access List Referenced (high priority)

  — Address Mismatch

  IP and IPX Logical Topologies Out of Sync (high priority)

- SRB Reports

  The SRB category contains sub-categories containing report headers (listed below), and the number of problems detected within that category. See “Remote Source Route Bridging Integrity Checks” for detailed information about the following SRB Reports:

  — Source-Route Bridging Remote Peer Problems

  Local SRB Peer Definition Problem (high priority)

  Multiple SRB Remote Peer References to a Router (high priority)

  Referenced Remote Peer is not the Local Peer (high priority)

  SRB Remote Peers Encapsulation Mismatch (high priority)

  Unbalanced SRB Remote Peers (high priority)

  Unresolved SRB Remote Peer Address Referenced (warning-level)

  — SNA STUN Problems

  STUN Route Does Not Reference STUN Peername (high priority)

  STUN Needs Local Peername (high priority)

  STUN Route References Unknown Address (warning-level)

- APPLE Reports

  The AppleTalk category contains sub-categories containing report headers (listed below), and the number of problems detected within that category. See “AppleTalk Integrity Checks” for detailed information about the following AppleTalk Report categories:

  — Overlapping AppleTalk Cable Ranges (high priority)

— Address Mismatch

IP and Appletalk Logical Topologies Out of Sync (high priority)

Diagnostic Report - Statistics

This category contains the following information:

- the types and total number of router configuration files parsed
- number of routers referenced
- number of end systems detected
- a list of routers, their router configuration file names, and SCCS/CCS version number (initially 1.1)
- a summary of the number of active, shutdown, and total interface types (`async`, `atm`, `bri`, `dialer`, `ethernet`, `fddi`, `hssi`, `loopback`, `null`, `serial`, `tokenring`, and `tunnel`) detected in the router configuration files.

Diagnostic Report - Router Commands

This category contains the following information:

- the names of the router commands parsed by the Connectivity Tools during the opening of the baseline and the total number of times each of the commands is referenced, as well as the names and total numbers of commands separated into command type groups.
- the names of the non-connectivity router commands and the total number of times each of the commands is referenced, as well as the names and total numbers of commands separated into command type groups
- the names of the unparsed router commands and the total number of times each of the commands is referenced, as well as the names and total numbers of commands separated into command type groups.

Diagnostic Report - Config File Syntax Errors

This category contains the number of syntax errors detected by the parser during the opening of the baseline. “Baseline Syntax and Policy Checking” contains a list of the syntax errors.

Diagnostic Report - Config File User Warnings

This category contains the number of configuration file user warnings the parser detected and flagged during the opening of the baseline. The parser checks for entries that it determines to be unusual and that might cause a problem as configuration file user warnings. These items are just warnings. They do not mean a definite problem exists, as what the parser detects to be unusual may actually have been done intentionally.

Diagnostic Report - Config File Template Warnings

This category contains the number of customized checking commands you specified in your *$ECSP_HOME/`baseline_directory`/default.router_template* configuration file. *$ECSP_HOME* is the directory the Connectivity Tools were installed in and *`baseline_directory`* is the name you chose for the baseline you created. “Baseline Syntax and Policy Checking” contains detailed information about the customized checking feature.

Print Options Window

e Print Options window, shown in Figure 5-5, is displayed when you click on the **Save/Print** button in the Reports window. You are able to print and/or save a copy of the Diagnostic Report from this window.

Note If you have suppressed or filtered out problem entries, those entries are not printed or saved to the specified file.

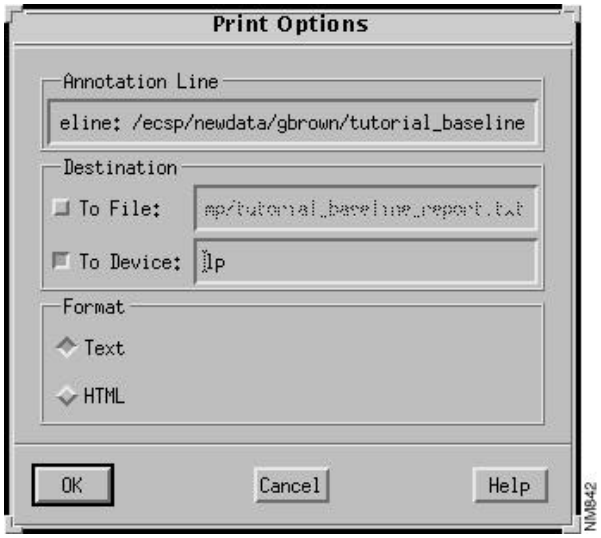

Figure 5-5 Diagnostic Report: Print Options Window

Print Options Window Components

This window's components are described in the following sections. See "General Window Components" for a description of the **OK**, **Cancel**, and **Help** buttons.

Annotation Line

The current baseline's location and name are displayed in this field.

Destination - To File

Click on this button to save the Diagnostic Report to the file you specify or to the default file */tmp/baseline_name_report.txt*.

Destination - To Device

Click on this button to send the Diagnostic Report to a printer via the default **lp** command. This option requires printing to a PostScript printer.

Format

You can specify to print or save the Diagnostic Report in ASCII text or HTML format by clicking on the appropriate button.

Click on the **OK** button to invoke the specified print options.