CiscoWorks Blue Maps and SNA View User Guide

Release 3.0.1

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Customer Order Number: DOC-7811351=
Text Part Number: 78-11351-02

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• Turn the television or radio antenna until the interference stops.

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• Move the equipment farther away from the television or radio.

• Plug the equipment into an outlet that is on a different circuit from the television or radio. (That is, make certain the equipment and the television or radio are on circuits controlled by different circuit breakers or fuses.)

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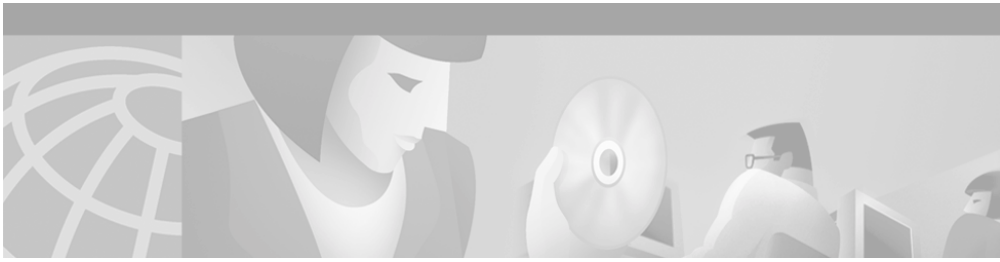
CiscoWorks Blue Maps and SNA View User Guide



About This Guide

This chapter describes the objectives, audience, organization, and conventions of the *CiscoWorks Blue Maps and SNA View User Guide*. It also points to related publications and sources of information.

Document Objectives

This guide tells you how to use CiscoWorks Blue Maps and SNA View to display the routers and Systems Network Architecture (SNA) resources in a data-link switching (DLSw), Advanced Peer-to-Peer Networking (APPN), TN3270, or remote source-route bridging (RSRB) network.

For last-minute information about using the CiscoWorks Blue Maps and SNA View applications, see the *Release Notes for CiscoWorks Blue Maps and SNA View Software Release 3.0*.

Audience

This guide is for the workstation user who uses CiscoWorks Blue software to examine and manage the topology of SNA resources running over a TCP/IP network. The reader should be familiar with the following topics:

- Motif window management system
- A network management system, such as NetView for AIX, HP OpenView, or SunNet Manager

- Basic UNIX and Windows NT commands
- Web browsers

Document Organization

This guide is divided into the following chapters and appendixes:

- Chapter 1, “CiscoWorks Blue Features,” describes the basic features of CiscoWorks Blue Maps applications and introduces the networking protocols.

  The information in this chapter applies to both UNIX workstations and Windows NT systems.
- Chapter 2, “Using the CiscoWorks Blue Home Page,” contains instructions for using a web browser to access and use the CiscoWorks Blue web page.

  The information in this chapter applies to both UNIX workstations and Windows NT systems.
- Chapter 3, “Using the CiscoWorks Blue Home Page to Display Maps,” contains instructions for displaying the Maps DLSw, RSRB, and APPN web pages and the SNA View web page.

  The information in chapter applies to UNIX workstations.
- Chapter 4, “Using the Motif Applications in Maps,” contains generalized instructions for using the CiscoWorks Blue Maps Motif-based applications: DLSw, APPN, and RSRB.

  The information in this chapter applies to both UNIX workstations.
- Chapter 5, “Using the DLSw Application in Maps,” contains instructions for using the Motif version of the DLSw application.

  The information in this chapter applies to both UNIX workstations.
- Chapter 6, “Using the RSRB Application in Maps,” contains instructions for using the Motif version of the RSRB application.

  The information in this chapter applies to both UNIX workstations.
- Chapter 7, “Using the APPN/SNASw Application in Maps,” contains instructions for using the Motif version of the APPN application.

  The information in this chapter applies to both UNIX workstations.

Note For installation and configuration information, troubleshooting procedures, and descriptions of error messages, use the *CiscoWorks Blue Maps and SNA View Workstation Installation and Administration Guide*.

Document Conventions

This guide uses basic conventions to represent text and table information.

Command descriptions use these conventions:

- Commands and keywords are in **boldface** font.
- Arguments for which you supply values are in *italic* font.
- Elements in square brackets ([ ]) are optional.
- Alternative but required keywords are grouped in braces ({ }) and separated by a vertical bar (|).

Examples use these conventions:

- Terminal sessions and information the system displays are printed in a `screen` font, with default responses in square brackets ([ ]).
- Information you enter is in **`boldface screen`** font. Variables you enter are printed in *`italic screen`* font.
- Nonprinting characters, such as passwords, are shown in angle brackets (< >).

This publication also uses the following conventions:

- Menu items and button names are in **boldface** font.
- A menu item you are to select is indicated by the following convention: Select **Edit** > **Add Device(s)**.
- Directories and filenames are in *italic* font.

Timesaver Means *the described action saves time*. You can save time by performing the action described in the paragraph.

Note Means *reader take note*. Notes contain helpful suggestions or references to materials not contained in the manual.

Caution Means *reader be careful*. You are capable of doing something that might result in equipment damage or loss of data.

Related Documentation

The CiscoWorks Blue Maps and SNA View documentation set includes the following documentation:

- *Release Notes for CiscoWorks Blue Maps and SNA View Software Release 3.0*
- *CiscoWorks Blue Maps and SNA View Mainframe Installation Guide*
- *CiscoWorks Blue Maps and SNA View Workstation Installation and Administration Guide*
- *CiscoWorks Blue Maps Online Help System*
- *Installation Checklist for CiscoWorks Blue Maps and SNA View for UNIX*
- *Installation Checklist for CiscoWorks Blue SNA View for Windows NT*
- *Quick Start Guide for CiscoWorks Blue SNA View*

Online Help

CiscoWorks Blue Maps and SNA View includes an online help system that allows users to access different levels of help information. The system provides overviews, related information, procedures, and glossary data on the CiscoWorks Blue applications and features. It contains both keyword and full-text search capabilities to enable users to search for specific text within the online help system.

Cisco Connection Online

Cisco Connection Online (CCO) is Cisco Systems' primary, real-time support channel. Maintenance customers and partners can self-register on CCO to obtain additional information and services.

Available 24 hours a day, 7 days a week, CCO provides a wealth of standard and value-added services to Cisco's customers and business partners. CCO services include product information, product documentation, software updates, release notes, technical tips, the Bug Navigator, configuration notes, brochures, descriptions of service offerings, and download access to public and authorized files.

CCO serves a wide variety of users through two interfaces that are updated and enhanced simultaneously: a character-based version and a multimedia version that resides on the World Wide Web (WWW). The character-based CCO supports Zmodem, Kermit, Xmodem, FTP, and Internet e-mail, and it is excellent for quick access to information over lower bandwidths. The WWW version of CCO provides richly formatted documents with photographs, figures, graphics, and video, as well as hyperlinks to related information.

You can access CCO in the following ways:

- WWW: http://www.cisco.com
- WWW: http://www-europe.cisco.com
- WWW: http://www-china.cisco.com
- Telnet: cco.cisco.com
- Modem: From North America, 408 526-8070; from Europe, 33 1 64 46 40 82. Use the following terminal settings: VT100 emulation; databits: 8; parity: none; stop bits: 1; and connection rates up to 28.8 kbps.

For a copy of CCO's Frequently Asked Questions (FAQ), contact cco-help@cisco.com. For additional information, contact cco-team@cisco.com.

You can access the CiscoWorks Blue web page using the following URL:

http://www.cisco.com/go/cwblue

CiscoWorks Blue Features

This chapter introduces the functions and capabilities of CiscoWorks Blue Maps and SNA View. CiscoWorks Blue Maps and CiscoWorks Blue SNA View provide a set of Motif and Web-based applications for diagnosing problems in, and managing, integrated networks based on Systems Network Architecture (SNA) and Transmission Control Protocol/Internet Protocol (TCP/IP) environments.

This chapter incudes the following main sections:

SNA Network Configurations

The world of SNA networking is divided into the following three fundamental environments:

- Traditional SNA networks, in which the mainframe computer, the network, and the network nodes are all running native SNA networking protocols.

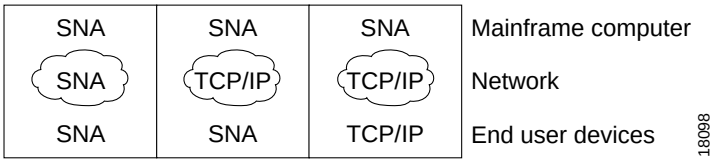
- integrated SNA/IP networks, in which the mainframe computer and the network nodes are running SNA protocols, which are being communicated over a TCP/IP network usually containing routers running RSRB, DLSw, or APPN/SNASw over IP.
- TN3270 networks, in which the mainframe computer is running SNA protocols while the network nodes and the network itself are running TCP/IP.

Figure 1-1 shows the types of NSA networks.

Figure 1-1 SNA Network Types

In these SNA networks, the mix of protocols run by the mainframe computer, the network, and the end user devices varies, as shown in Figure 1-2.

Figure 1-2 Various SNA Network Protocols



These various SNA networks run a variety of protocols to transport data between the mainframe computer and the network nodes over the network. The SNA network protocols are shown in Figure 1-3.

Figure 1-3 SNA Protocols

SNA Networks	SNA/IP Networks	TN3270	Network types
Subarea SNA SNASw	DLSw RSRB SNASw over IP	TN3270 over IP	Network protocols

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Network management programs are tools that you use to manage these SNA networks and vary depending on the protocols used, as shown in Figure 1-4.

Figure 1-4 SNA Network Management Tools

SNA Networks	SNA/IP Networks	TN3270	Network types
Subarea SNA SNASw	DLSw RSRB SNASw over IP	TN3270 over IP	Network protocols
NetView Netmaster	CiscoWorks Blue Maps	TN3270 Monitor	Network management tools

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There is one tool that lets you identify and isolate outages in all SNA networks. SNA View, as shown in Figure 1-5, lets you see network connectivity views for the three types of SNA networks.

Figure 1-5 SNA Problem Diagnosis Tool

SNA View			Problem diagnosis tool
NetView Netmaster	CiscoWorks Blue Maps	TN3270 Monitor	Network management tools
Subarea SNA SNASw	DLSw RSRB SNASw over IP	TN3270	Network protocols
SNA Networks	SNA/IP Networks	TN3270	Network types

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Network Management and Problem Diagnosis

When managing and diagnosing problems in SNA networks, the distinctions between diagnosis and management must be clear:

- When you diagnose an SNA network problem, you are reacting to a specific, often reported, network problem. The usual scenario develops when a network outage occurs and a network user is stranded without a connection, and your help line or technical response telephone begins to ring. The end result of problem diagnosis is to detect where the problem is and diagnose the problem.
- When you manage an SNA network, you are looking at a broader view of the network, and you might be trying to manipulate the status of one or more network devices to repair an outage or to improve performance. You might be called as a result of problem diagnosis, when a help-line responder detects an inactive device and asks you to activate it. But your job might also require you to take broader views of network maps to see where bottlenecks occur and to reroute network traffic.

Cisco Systems offers a set of SNA network management and problem diagnosis tools to help you perform these tasks.

- CiscoWorks Blue SNA View is a tool for problem solving in all SNA networks. Its purpose is to collect as much information as possible about the outage, and then show a picture of all the network devices between the inactive network node and the mainframe computer.

- Cisco's TN3270 Monitor products provide a network management tool for the TN3270 environment.

  Note Cisco's TN3270 Monitor products is available on UNIX workstations only.

- CiscoWorks Blue Maps is a tool for network management in those networks where SNA is routed over IP networks using DLSw, RSRB, or APPN/SNASw. Its purpose is to give you an overview of your integrated SNA/IP networks and to let you manage the IP routers that make up the network.

  Note CiscoWorks Blue Maps is available on UNIX workstations only.

When you use the CiscoWorks Blue SNA View application, you can start with a few bits of information about a network outage, perhaps the logical unit (LU) name or the MAC address, and view the entire path from a network terminal back through the network of routers, or communication controllers, to the SNA mainframe computer. When you use the CiscoWorks Blue Maps applications, you can manage the Cisco routers that control communication in networks enabled for RSRB, DLSw, or APPN/SNASw.

Introducing CiscoWorks Blue Maps

CiscoWorks Blue Maps is a set of applications that lets you manage Cisco routers in an IBM SNA network. Each Maps application focuses on a particular protocol: DLSw, RSRB, or APPN/SNASw. The Maps displays graphical views of SNA networks connected with Cisco routers. These views are dynamically updated to provide snapshots of the network as it appears at any time.

Maps also lets you see beyond the routers to the SNA physical units (PU) and LUs that use the DLSw, RSRB, or APPN/SNASw protocols. Maps mainframe component discovers the PUs and LUs from VTAM information at the mainframe, monitors those PUs and LUs, and reports their changing status to the Maps workstation applications to update the Maps database and the graphical maps.

What Maps Provides

The CiscoWorks Blue Maps product provides the following Motif and web-based applications that show, in a graphical or tabular format, the routers that make up your integrated SNA and TCP/IP network:

- DLSw Motif-based application—Displays graphic maps of DLSw devices and includes dependency views back to an SNA mainframe computer from SNA LUs and PUs that use DLSw.
- RSRB Motif-based application—Displays graphic maps of RSRB devices and includes dependency views back to an SNA mainframe computer from SNA LUs and PUs that use RSRB.
- APPN Motif-based application—Displays graphic maps of APPN/SNASw devices and includes dependency views back to an SNA mainframe computer from SNA LUs and PUs that use APPN/SNASw over IP.
- HTML interface to Maps—Provides DLSw, RSRB, and APPN/SNASw network information in tabular format, but does not include dependency views from SNA LUs and PUs (SNA View provides these views).

Maps Features

CiscoWorks Blue Maps applications provide the features described in the following sections:

- SNA Resource Management, page 1-6
- Graphical Map Layout, page 1-7
- Network Management Tools, page 1-8
- Problem Determination, page 1-9

SNA Resource Management

There is a trend in network management to reduce the need for separate network resource managers by providing direct management of heterogeneous multi-vendor networks from a single, integrated network management system. In keeping with this strategy, CiscoWorks Blue uses information from Virtual Telecommunications Access Method (VTAM) and the Multiple Virtual Storage

system (MVS) to enable network administrators to monitor and manage SNA resources. To further simplify and enhance network management, use Maps to display your SNA resources on graphical network maps.

The workstation program runs on a UNIX workstation to collect SNA network information provided by the Maps and SNA View mainframe program. It provides the SNA control and correlation needed to manage SNA devices from a workstation, allowing the network administrator to see beyond the routers to the SNA PU and LU resources.

CiscoWorks Blue gets PU and LU resource information from VTAM at a mainframe computer and correlates that information with the Cisco routers associated with the PUs and LUs. By interacting with the mainframe, CiscoWorks Blue adds vital PU and LU information to the graphical maps. Because CiscoWorks Blue correlates PU and LU names with the routers in the network, you can more easily isolate problems to the IP network or to the SNA network.

Resource information is dynamically updated to provide a snapshot of the network as it appears at any given time. This information allows the administrator to display a graphical map depicting details from the PU back toward the VTAM host, providing information, such as the PU and LU status and dependency relationships.

Note PUs connecting to the mainframe using the RSRB protocol and a CIP router, or a 3172 Interconnect Controller, do not benefit from the correlation feature. This means that Maps applications cannot determine the routers on which these PUs are dependent for connectivity to the mainframe.

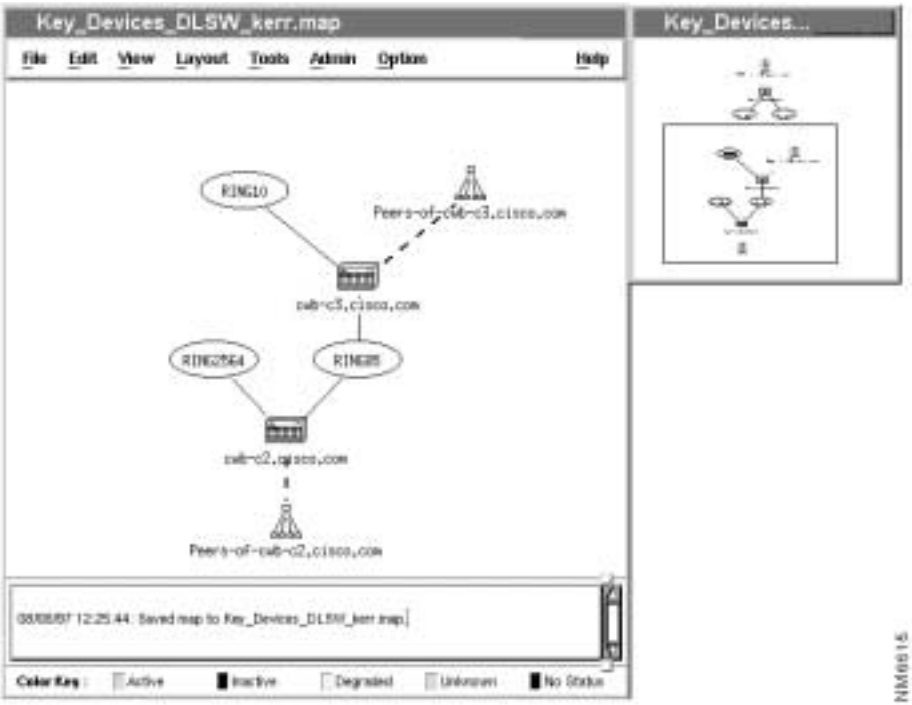
Graphical Map Layout

CiscoWorks Blue Maps applications get network data from the MIBs to provide detailed logical maps of the SNA-related protocols. These maps are automatically drawn to depict specific protocols in the network. For example, the DLSw key devices map provides a view of the key DLSw routers with their peer routers and the rings and peer connections between them. Topology is drawn based on the DLSw protocol, and you can focus on different components of the DLSw network, such as individual routers and links.

Figure 1-6 is a sample DLSw key devices view and shows the following information:

- A small set of routers that you designate as “key devices” based on their networking attributes
- The peer routers to those key router
- The peer connections that connect the key routers to their peers

Figure 1-6 Sample DLSw Map



Network Management Tools

CiscoWorks Blue Maps provides the network administrator with the tools needed to manage growing integrated SNA and TCP/IP networks. This set of Maps applications (RSRB, DLSw, and APPN/SNASw) can be integrated with popular Simple Network Management Protocol (SNMP) management platforms, such as

IBM NetView for AIX, HP OpenView, or SunNet Manager. From the graphical maps, you can display path information or go directly to a device view using CiscoView.

Problem Determination

You can use the graphical maps to efficiently identify and diagnose problems related to the specific protocol under observation (RSRB, DLSw, and APPN/SNASw). Having identified the problem area, you can easily access additional information by invoking other menus in the application. For instance, in a DLSw network, you can use a key routers view to display a selected set of routers and their peer connections. From this view, you can then display information about peer routers, peer connections, and DLSw circuits. You can also view new nodes as they are added, and view the status of the devices and links as it changes.

Maps Applications

CiscoWorks Blue Maps offers both Motif-based and web-based network management applications.

Motif-Based Network Management Applications

CiscoWorks Blue Maps offers a set of network management applications that use the X Window System and Motif graphical interfaces to display graphical maps of the nodes and links in your network. Each application focuses on a particular protocol: DLSw, RSRB, or APPN/SNASw.

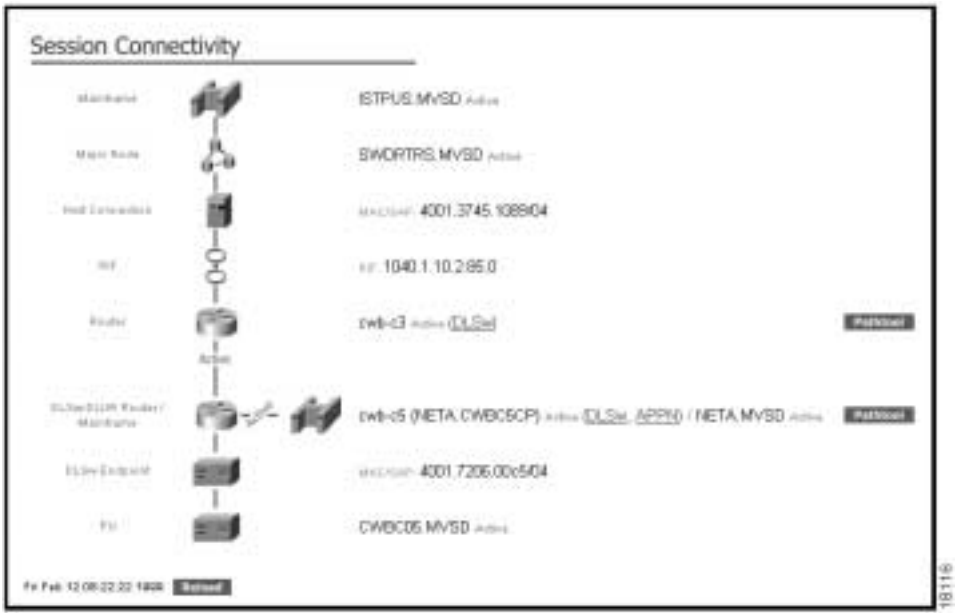
Web-Based Applications

CiscoWorks Blue Maps offers a set of web-based client/server applications that lets you use web browsers to display information about RSRB, DLSw, and APPN/SNASw networks. The network information is presented in a tabular format. The web server runs on your Maps workstation and collects information from the Cisco routers in the network. You can use a web browser from any workstation in the network to connect to the web server and to view the network.

Introducing CiscoWorks Blue SNA View

This section presents a brief overview of the functions provided by CiscoWorks Blue SNA View. SNA View is a web-based application used for problem diagnosis in all SNA networks. The SNA View web server runs in a UNIX workstation gathering information about routers and SNA LUs and PUs from the SNA View and Maps data base. When you link to the SNA View web page, you can display SNA session paths. The web page then displays a session connectivity view, as shown in Figure 1-7.

Figure 1-7 SNA View Session Connectivity View



CiscoWorks Blue SNA View provides the functions discussed in the following subsections:

- Web-Based Applications, page 1-9
- SNA Switching Services, page 1-11
- Levels of Security, page 1-11

CiscoWorks Blue SNA View offers web-based client and server applications. These applications start with all the information you can provide about a failing node and then display the network devices between that node and the mainframe computer.

SNA Switching Services

SNA View supports the SNA Switching Services feature of the Cisco IOS software. The SNA Switching Services feature identifies a new APPN/SNASw branch extender network node (BrNN) and includes a new APPN/SNASw stack in the Cisco IOS software. To support SNA Switching Services, the Cisco routers must be running Cisco IOS Release 12.0(5)XN or Release 12.1 or later.

Levels of Security

CiscoWorks Blue SNA View supports two levels of security; the administrator and the non-administrator.

The administrator has the following security privileges:

- Install, uninstall, and modify all CiscoWorks Blue SNA View functions.
- Launch the Console window from bridge icon or from the *cwb start console* command. This option displays in the bridge icon menu if you are logged in with administrator privileges.

The non-administrator has the following security privileges:

- Start and stop CiscoWorks Blue SNA View services.

Functions Common to Maps and SNA View

When you install the CiscoWorks Blue products, you always install all the code, whether you license Maps, SNA View, or both. Maps and SNA View use many common functions:

- Share router database and SNA information
- Maintain the information in the database with the same set of processes, daemons, and commands:
  - Discovery processes
  - Polling processes
  - Host discovery processes
  - Web daemon for access to the CiscoWorks Blue database
- Monitor and control the common processes with the Process Manager
- Collect, log, and display error messages with the Message Logger
- Provide graphical interfaces to discovery, creating key devices, and launching some of the main processes using the administration application
- Allow access to the database information from the web using the same web server and web daemon
- Collect VTAM information at the mainframe and send it to the workstation

Introducing the Protocols

This section presents a brief overview of the protocols supported by CiscoWorks Blue Maps and contains the following sections:

- Data-Link Switching Protocol (DLSw+), page 1-13
- Remote Source-Route Bridging (RSRB) Protocol, page 1-15
- Advanced Peer-to-Peer Networking (APPN) Protocol, page 1-17

Data-Link Switching Protocol (DLSw+)

The DLSw+ protocol is a way of transporting SNA and NetBIOS traffic over a campus or WAN. This method helps integrate SNA and LAN internetworks by encapsulating non-routable SNA and NetBIOS protocols within routable IPs.

DLSw+ is an alternative to RSRB and corrects the following limitations of RSRB:

- RSRB hop-count limits
- Broadcast traffic (from RSRB explorer frames or NetBIOS name queries)
- Unnecessary traffic (acknowledgments)
- Data-link control timeouts
- Lack of flow control and prioritization

Because these limitations occur when RSRB is extended across a WAN, DLSw+ is typically used to transport SNA and NetBIOS across a WAN.

DLSw Peers

Pairs of DLSw routers communicate SNA information across TCP/IP networks. The two routers exchanging SNA information are called peer routers or peers. The connection between any two peer DLSw routers is called a peer connection. Using CiscoWorks Blue Maps, you can select a DLSw router and then display information about that router and its DLSw peer routers.

DLSw Circuits

A DLSw circuit comprises three connections:

- The data-link control connection between an originating end system and the originating router.
- The peer connection between that router and its peer router (typically across a TCP/IP connection).
- The data-link control connection between this second peer router and the destination end system.

Each peer connection can carry multiple circuits. DLSw+ supports circuits between pairs of SNA PUs, and between NetBIOS clients and servers.

What the DLSw Maps Application Provides

The DLSw application displays a graphical map of the network routers that are enabled for the DLSw protocol. It shows you the routers, the logical DLSw connections, and the Token Rings attached to the routers. Use the DLSw application to display information in the following categories:

- DLSw Maps—Graphical representations of selected peer routers and peer connections
- Dynamic DLSw changes—Status changes to the DLSw peers, either by polling or router-generated trap messages
- Peer statistics—Information about DLSw peers
- Circuits—Logical connections between SNA devices throughout the DLSw network
- Data-link types and routing information field (RIF) data
- IP paths, WAN link states, and traffic statistics
- Event notifications messages—Trap messages sent when the network status changes
- Poller exits that can start your user-written applications when routers do not respond to polling
- Active or last-known connection paths for PUs and LUs

DLSw Maps provides the following main views of your network devices:

- Global view—Shows all routers in the DLSw network.
- Key devices view—Shows just those DLSw routers designated as key devices, and aggregations of the key router's peer routers and peer connections.
- Focus view—Shows the DLSw network from the perspective of a specified router called the focus router.
- Dependency view—Shows the path from a PU or LU back toward the mainframe.

The DLSw Maps application issues event notification messages that notify a network management system of changes in DLSw status, and dynamic discovery of new DLSw devices. DLSw+ features, such as border nodes and backup nodes are shown as regular DLSw nodes on the map.

The DLSw Maps application supports the CISCO-DLSW-MIB MIB and the IETF draft standard DLSw MIB (RFC 2024).

Remote Source-Route Bridging (RSRB) Protocol

RSRB was Cisco's original implementation for transporting the Logical Link Control, type 2 (LLC2) Protocol traffic over an IP network. RSRB connects Token Ring and non-Token Ring media into one logical network segment.

Benefits of RSRB

RSRB offers the following features to enhance performance, availability, scalability, and flexibility in internetworks:

- Performance—IP load sharing and custom and priority queuing
- Availability—Non-disruptive rerouting capability
- Scalability—Broadcast reduction and source-route bridging (SRB) hop count reduction by RIF passthrough
- Flexibility—Media conversion (Synchronous Data-Link Control [SDLC] to LLC2), SRB dynamics, transport options (Fast-Sequenced Transport [FST] and direct transport)

RSRB Transport Options

The following RSRB transport options are available:

- Encapsulate the Token Ring traffic inside IP datagrams passed over a TCP/IP connection between two routers.
- Use FST to transport RSRB packets to their peers without TCP/IP or User Datagram Protocol (UDP) header or processor overhead.
- Use Media Access Control (MAC) layer encapsulation over a single serial line, Ethernet, Token Ring, or Fiber Distributed Data Interface (FDDI) ring connected between two routers attached to Token Ring networks.

RSRB Application

The RSRB Maps application discovers IP-based RSRB devices in your network and displays them on a map. Using the RSRB Maps application, you can do the following:

- View your entire network or specific portions of your network
- View changes to peer states
- Get network traffic statistics for a peer
- Get peer information

What the RSRB Application Provides

The RSRB application displays a graphical map of the network routers enabled for the RSRB protocol. It shows you the routers, the links that connect them, the Token Rings attached to them, and the RSRB virtual rings. Use the RSRB application to display information in the following categories:

- RSRB peers, peer status, and virtual rings
- Data-link types and RIF data
- IP paths, WAN link states, and traffic statistics

RSRB Maps provides the following main views of your network devices:

- Global view—Shows all routers in the RSRB network with their virtual rings and Token Rings.
- Virtual ring view—Shows a specific virtual ring with all routers belonging to that virtual ring. Peer routers appear on this map.
- Focus view—Shows the RSRB network from a specified router (focus router) perspective. The focus router, its peers, the virtual rings, and Token Rings appear on this view.
- Dependency view—Shows the path from a PU or LU back toward the mainframe.

The RSRB Maps application supports the CISCO-RSRB-MIB MIB.

Advanced Peer-to-Peer Networking (APPN) Protocol

APPN is the second generation of SNA networking that was developed for the following reasons:

- To provide an effective routing protocol that allows SNA traffic to flow natively and concurrently with other protocols
- To allow sessions to be established between end users without using the mainframe
- To reduce excessive requirements for predefining resources and paths
- To maintain the class of service (COS) method to provide prioritization within SNA traffic
- To provide an environment that supports both legacy and APPN/SNASw traffic

APPN dynamically locates and defines network resources and routes. Sessions can be established between any two LUs in the network without involving a mainframe.

Directory services are distributed. A network node need remember only those resources that use its services. Each network node maintains a complete map of the network topology, including all network nodes and transmission groups. This map allows routers to select the best path through the network at any time based on the COS. The topology is updated as changes occur in the network.

APPN Terminology

This section defines some of the APPN/SNASw terminology you will encounter using the APPN/SNASw application.

A transmission group (TG) is the set of links connecting two or more nodes. The topology database contains network nodes and the connecting transmission groups.

A dependent logical unit is a traditional VTAM LU type (such as an LU type 0, 1, 2, or 3). The LU cannot initiate sessions without the intervention of VTAM, nor can it participate actively in a peer-to-peer session initiation.

A PU type 2.1 is the PU type for peer-to-peer networking.

The control point (CP) in an APPN/SNASw environment is similar to a traditional VTAM system services control point (SSCP). Each APPN/SNASw node has a control point, which is responsible for activating and deactivating resources within the node or between one node and its adjacent nodes. The CP is responsible for exchanging topology information with adjacent nodes as well.

A network node (NN) is a node in an APPN/SNASw network to which other nodes make requests to activate sessions and locate other SNA resources.

An end node (EN) is a node that provides end-user services and supports sessions between its local control point and the control point in an adjacent network node. An end node can be thought of as a session endpoint that accesses the network through a network node. An end node contains a subset of APPN/SNASw functionality, and does not include functions like network topology maintenance and routing.

A low-entry networking node (LEN) was the original peer node that IBM defined for AS/400s and S/36 systems. It allowed communication between two nodes without the intervention of VTAM. It did not support intermediate routing, so relay applications and direct connections were required. All resources had to be defined. APPN/SNASw nodes are the extensions added to low-entry networking nodes to provide this function. Low-entry networking nodes can access an APPN/SNASw network through a network node server, but resources must be predefined.

What the APPN/SNASw Maps Application Provides

The APPN/SNASw APPN/SNASw Maps application discovers APPN/SNASw network objects and connections, then displays the nodes and transmission groups on a graphical map. It displays the routers, the ports and links on the routers, and the transmission groups that connect them. Use the APPN/SNASw application to display the following information:

- APPN network nodes, end nodes, and low-entry networking nodes
- Intermediate session information and session paths
- Virtual routing nodes
- Ports, links, and transmission groups
- Dynamic LU Requestor-Dynamic LU Services (DLUR-DLUS) sessions
- PUs

APPN networks are dynamic. Nodes can be added, deleted, or moved within the network with no central administration. Sessions can travel between peer nodes in the network without going through a central host. Network administrators and users must understand the topology and status of the network, and should be able to diagnose communication failures within the network. The APPN/SNASw Maps application satisfies these needs by enabling administrators and users to do the following tasks:

- View a graphical representation of their APPN/SNASw network
- View APPN/SNASw nodes, transmission groups, ports and links, and transmission groups
- Determine the status of objects based on color coding

APPN Maps provides the following main views of your network devices:

- Global view—Shows all network nodes in the APPN/SNASw network.
- Adjacent nodes view—Shows the adjacent nodes for a selected APPN/SNASw network node.
- Ports and links view—Shows the ports and links for a selected APPN/SNASw network node.

The APPN/SNASw Maps application supports the IBM-6611-APPN-MIB, the APPN-DLUR-MIB, the IETF draft standard APPN MIB (RFC 2455), and the IETF draft standard DLUR MIB (RFC 2232).

Using the CiscoWorks Blue Home Page

This chapter provides information about how to display network map information from a web browser, such as the Netscape Navigator or Microsoft Internet Explorer. The web interface provides, in tabular format, functions similar to those provided by the standard Motif interface. You can access Maps information from any web browser on any workstation platform, such as a PC running Microsoft Windows or a UNIX workstation.

This chapter includes the following main sections:

Accessing CiscoWorks SNA View and Maps with a Web Browser

This topic describes how to access the CiscoWorks Blue SNA View and Maps web interface with a web browser.

Note After the CiscoWorks Blue web server is started, there may be a brief initialization period before the web browsers can successfully access the web server.

Preparing to Start the Web Browser

To use your web browser with the CiscoWorks Blue web page, configure your web browser as follows:

- Enable JavaScript for your web browser.
- If you want the web browser to remember settings from the Maps and SNA View pages, configure your web browser to accept cookies.
- Set your web browser's cache to a minimum of 4 MB (4069 KB).

Accessing the CiscoWorks Blue Server

To access the CiscoWorks Blue Maps web server, use the following URL:

http://*workstation*[:*port_number*]

Where:

workstation is the IP address or host name of the workstation on which you installed CiscoWorks Blue Maps.

port_number is the CiscoWorks Blue web server port. The default is port 80. However, if port 80 is already in use, the CiscoWorks Blue web server uses backup port 8080. If the server is using port 80, you can omit this option. If the server is using another port, for example port 8080, you must specify it with this option. For example, if you installed CiscoWorks Blue on a workstation with the address wwwblue.company.com, using port 8080, you would set your browser to the following URL:

```
http://wwwblue.company.com:8080
```

Using the Maps Web Browser from the Maps Motif Tools Menu

Start a web browser from the Maps Tools menu. To start the Maps web browser, select **Tools > Web Browser** from the Maps application menu bar.

If you have problems starting the web browser, review the */opt/CSCOcb/etc/runweb* script to verify that the setting of environment variables, the name of the web browser, and the path to the web browser match the directory structure on your workstation. You can modify the */opt/CSCOcb/etc/runweb* file with any editor, such as vi:

```
vi /opt/CSCOcb/etc/runweb
```

Creating Bookmarks

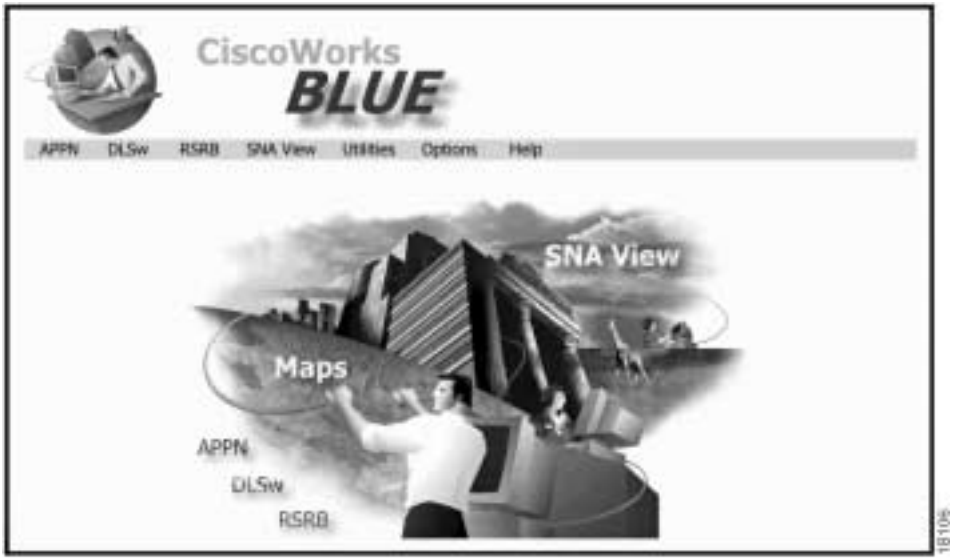
You can create a bookmark for any of the CiscoWorks Blue web pages, such as the SNA View page, the APPN/SNASw page, or the DLSw page. In Netscape, when you are at a page you want to mark, select **Bookmarks > Add Bookmark**.

Using the CiscoWorks Blue Home Page

When the web browser finds the CiscoWorks Blue URL, it displays the CiscoWorks Blue home page, as shown in Figure 2-2.Figure 2-1

Depending on whether you have licensed Maps or SNA View or both, the appropriate icons are active. For any program you have not licensed, its icons are inactive.

Figure 2-1 CiscoWorks Blue Maps and SNA View Home Page



Using the Links on the Home Page

Use the links on the Maps home page to start one of the Maps or SNA View applications.

Note Depending on whether you have licensed Maps or SNA View, the appropriate icons are active. For any Program you have not licensed, its icons are inactive.

- **SNA View** displays the SNA Resource Information page, with which you can display and manage the PUs and LUs, as described in the "Using the SNA Resource Information Page" section on page 2-9. The SNA View web page requires a license for CiscoWorks Blue SNA View.

- **APPN/SNASw** displays the APPN/SNASw page, with which you can view APPN/SNASw network and local topology, as described in the "Displaying APPN/SNASw Networks on the Web (Maps)" section on page 3-2. The APPN/SNASw web page requires a license for CiscoWorks Blue Maps.
- **DLSw** displays the DLSw page, with which you can view the DLSw network devices, as described in the "Displaying DLSw Networks on the Web (Maps)" section on page 3-21. The DLSw web page requires a license for CiscoWorks Blue Maps.
- **RSRB** displays the RSRB page, with which you can view the RSRB network devices, as described in the "Displaying RSRB Networks on the Web (Maps)" section on page 3-40. The RSRB web page requires a license for CiscoWorks Blue Maps.

Using the Menu Bar

The menu bar provides links to the Maps applications:

- **Home** displays the Maps home page, as described in the "Using the CiscoWorks Blue Home Page" section on page 2-3.
- **APPN/SNASw** displays the APPN/SNASw page, with which you can view APPN/SNASw network and local topology, as described in the "Displaying APPN/SNASw Networks on the Web (Maps)" section on page 3-2. This selection requires a Maps license.
- **DLSw** displays the DLSw page, with which you can view the DLSw network devices, as described in "Displaying DLSw Networks on the Web (Maps)" section on page 3-21. This selection requires a Maps license.
- **RSRB** displays the RSRB page, with which you can view the RSRB network devices, as described in the "Displaying RSRB Networks on the Web (Maps)" section on page 3-40. This selection requires a Maps license.
- **SNA View** displays the SNA Resource Information page, with which you can display and manage the PUs and LUs, as described in the "Using the SNA Resource Information Page" section on page 2-9. This selection requires a SNA View license.
- **Utilities** displays the Utilities page, which lets you verify your installation and log into NetView, as described in the "Using the Utilities Page" section on page 2-32.

- **Options** displays the Options page, as described in the "Using the Options Page" section on page 2-36.
- **Help** displays the online help.

Web Browser Conventions

This section presents some conventions that apply to all Maps and SNA View web pages.

Changing the Size of Dialogs

When you resize a dialog for a Maps or SNA View web page, the browser remembers the size for the next time you display that dialog. For example, if the Options dialog is too small, just drag it to a more convenient size. The browser remembers the setting the next time you display that dialog.

Using the Save, Reset, and Clear Buttons on Each Page

You can use the following buttons at the bottom of most Maps web pages. (Cookies must be enabled for these to work correctly.)

- **Save** saves the settings of the current web page as default settings for that page. When you next visit that page, or select **Reset**, your default settings are displayed.
- **Reset** resets fields of the current web page to their default settings.
- **Clear** clears all selections and entries on the current web page but does not change the default settings.

Using Hypertext Links

The hypertext links help you find your way through the network information. Configure your web browser to underscore hypertext links so you will more easily see them. Because many of the hypertext links are unique to the specific protocol-based applications, they are described in the remaining topics. The following two hypertext link types are common to all the applications:

- Click an IP address to display a view for the device with that IP address.

- Click a host name to display a view for the device with that host name.

Reloading Static Pages

All pages displayed by the web interface are static pages. They are not updated dynamically. To update the information on a web page, do one of the following:

- Click the **Reload** button on your web browser.
- Click **Reload** at the bottom of most Maps and SNA View web pages.

When you click **Reload**, the web server collects its data from the database or from the network devices, depending on which web page you are displaying. For example, when you click **Reload** on the DLSw Peer Statistics page, the web server collects data from the network topology agent in the network.

Entering Values into Web Pages

This topic explains some conventions for entering values, such as IP addresses, node names, and MAC and SAP addresses.

- You can enter wildcard values in the web fields. The wildcard values are the asterisk (*) and the question mark (?). The * replaces any number of consecutive characters. The wildcard value ? replaces one character.
- In fields that expect a device name or TCP/IP address:
  - Enter any character except a space
  - Enter up to 100 characters (the maximum length)
  - All characters are valid. For example, if you have a device named cwb*c4, queries using that name will also match cwb-c4 because the * is a wildcard character
  - TN3270 supports wildcard addresses
- In fields that expect a ring number:
  - Enter only digits
  - Enter no more than 4 characters (maximum length)
- In fields that expect an IDBLK/IDNUM (XID):
  - Enter exactly 8 hexadecimal characters plus an optional 0X and separator character A valid XID is either 8 or 10 characters long

  - Use as a separator any non-alphanumeric character (perhaps a slash or comma)
  - Both 0x12345678 and 12345678 are valid
  - 123/45678 and 123-45678 are valid
  - 0X123,45678 is valid
  - 0x1234.56 is invalid
- In fields that expect a port number:
  - Enter only digits
  - Port number must be in the range 0 through 65535
- In fields that expect a MAC address:
  - Optionally, begin the value with 0x or 0X; all remaining characters must be hexadecimal characters or periods (.)
  - The MAC address must be exactly 12 hexadecimal characters. For example, 123456789012, 1234.5678.1234, 0xabcdefABCDEF, and 0xabcdef.abcdef are valid. The addresses 0x123456 and 123456 are invalid.
- In fields that expect a SAP Address:
  - Optionally, begin the value with 0x or 0X
  - All remaining characters must be hexadecimal
  - The SAP must contain exactly 2 hexadecimal characters. For example, 04 and 0X04 are valid, but 041 is invalid.
- In fields that expect an SNA Name:
  - Enter alphanumeric characters, a single period, and the following special characters ($,#,@)
  - Enter no more than one period
  - Do not start or end the name with a period
  - Do not exceed 8 characters to the left or right of a period
  - Do not exceed 8 consecutive alphanumeric or special characters
  - Do not exceed 17 characters in the entire name (using 8.8 format)
  - Enter uppercase or lowercase characters, although lowercase characters are forced to uppercase internally

– If you use wildcards, names can contain more than one wildcard. For example, the following are valid: AAAA*BBB.CCCCDDDD, AAAABBBB*CCCC*DDD, *.*, NETA.*, and *.DOMAIN

Using the SNA Resource Information Page

This section describes SNA Resource Information and shows the screens used to manage SNA resources.

You must have a license for CiscoWorks Blue SNA View to view the SNA Resource Information page. Ask your Network Administrator for details.

Network Session Connectivity Path

SNA View is illustrates a network session connectivity path from a physical unit (PU) or logical unit (LU), back through the SNA or TCP/IP network to an SNA mainframe computer. It prompts you to enter as much information as you know about an end user device, then searches a database to find all the sessions that match your criteria. From this list, you can select a single session to display. SNA View then displays the path for that session.

SNA View includes the mainframe as a path tool target for diagnosing IP connectivity problems on HPR/IP links. The path too allows you to view the IP network between the SNASw router and an HPR/IP mainframe.

SNA Resource Information

The SNA Resource Information page displays SNA resources (PUs and LUs) and sessions in the network using the SNA Resource Information page from a web browser. It contains the following sections:

- SNA Resource Information Page, page 2-10
- SNA Filter Results Page, page 2-21
- Session Connectivity Display Page, page 2-27
- Pathtool Page, page 2-30

Select **SNA View** from the CiscoWorks Blue home page to display one or more SNA sessions based on a set of search criteria. The SNA Resource Information page is displayed. Enter your search criteria on the SNA Resource Information page, then click **go**. Enter as much information as you can to identify an SNA resource. The more information you enter, the more focused the resulting list of sessions will be. You may even be able to identify a single session.

If your search uniquely identifies a session, you will then see the network path taken by that session from the end user device to the SNA mainframe computer.

If your search results in more than one session, you will see a list of those sessions in the SNA Filter Results Page. Scroll through the session list to find the one session you want. Click **Session Path** to see the network path taken by that session from the end user device to the SNA mainframe computer.

The Session Connectivity Display Page displays a picture of the network showing your selected session from the end user device to the SNA mainframe. Each device in the path has its own network icon. When IP devices exist in the network path, click Pathtool to see the hops between pairs of routers.

SNA Resource Information Page

On the SNA Resource Information page, you can select the Basic Search tab or the Advanced Search tab, as shown in Figure 2-2. These tabs are discussed in the following subsections:

- Basic Search Tab, page 2-11
- Advanced Search Tab, page 2-14

Using either tab to provide as much information as you can to identify an SNA resource. For example, when a network user calls in with an outage, you can get such information as the MAC address, the LU name, or the PU name. For example, from a computer running Windows 95 the user can enter the **winipcfg** command to display the current IP address. The web server displays either a unique SNA resource (when you provide enough information), or a list of SNA resources with similar characteristics.

For more information, see the “How Do I Search for Sessions” section on page 2-19.

Figure 2-2 SNA Resource Information Page

Use one of the following search methods:

- Use the Basic Search tab to display a list of SNA resources based on a simple criterion, such as a PU or LU name, or LAN or TCP/IP address. For more information, see the “Basic Search Tab” section on page 2-11.
- Use the Advanced Search tab to display a list of SNA resources based on more complex criteria, such as the status of a resource, its router dependency, and APPN/SNASw information. For more information, see the “Advanced Search Tab” section on page 2-14.

The result of either search can be the single session that matches the criteria, or a list of sessions that match the criteria.

For more information, see the “How Do I Search for Sessions” section on page 2-19.

Basic Search Tab

The Basic Search tab allows network operators to display network information commonly provided by an end user.

Step 1 In the Specify SNA Information field, enter the following values:

- In the Name field, enter an LU name, PU name, CP name, or IDBLK/IDNUM pair that identifies one or more SNA resources. You can use wildcards in this field, except with IDBLK/IDNUM. Use one of the following name formats:

- CWB*.DOMAIN1 displays all resources in the DOMAIN1 domain whose names begin with the characters CWB.
- CWB* or CWB*.* displays all resources in all domains whose names begin with the characters CWB.
- CWBC6 or CWBC6.* displays all resources named CWBC6 in all domains.

When you specify a PU or LU name in the Basic Search tab, and you want to specify a domain name, include a period (.) separator between the SNA resource name and the domain name (for example, PUC25.DOMAIN1). Include the period (.) separator even when you use wildcards in your search.

For example:

- If you enter the string *.DOM* and search for PU names, you will find all the PUs in just those domains with domain names starting with DOM.
- If you enter the string *DOM* and search for PU names, you will find all PUs with the characters DOM in their PU names, in all domains. This is the same as searching with the *DOM*.* string.

- In the Name Type field, indicate the kind of name you entered in the Name field:
  - PU2/2.1 specifies a PU 2 or PU 2.1 name
  - LU specifies an LU name
  - CP specifies a CP name
  - IDBLK/IDNUM specifies an IDBLK/IDNUM pair
  - PU4/NODE specifies a PU 4 name. You can also enter a physical line name, a physical line PU name, a logical line name, a logical line PU name, a local FEP name, a remote FEP name, or a link station name.

You can specify all of these fields with or without the domain name. If you specify a domain name, the named resource must have been discovered from the VTAM with the specified domain or there will not be a match.

If you enter nothing in this field, you must enter a value in one of the other fields on this tab in order to get a list of resources.

Step 2 In the Specify LAN Information field, identify an SNA resource by its MAC and SAP address.

- In the MAC Address field, enter the MAC address of the SNA resource.

- In the SAP Address field, enter the SAP address of the SNA resource. If you enter a SAP, you must also enter a MAC.

Note If you enter a MAC and SAP for a PU 4, you must also enter the node name in the PU4/NODE field.

If you enter nothing in this field, you must enter a value in one of the other fields on this tab in order to get a list of resources.

Step 3 In the Specify TCP/IP Information field, identify one or more SNA resources by their TCP/IP attributes. For example, from a computer running Windows 95 the user can enter the **winipcfg** command to display the current IP address.

- In the TN3270 Client TCP/IP Host Name field, enter the internet address or host name associated with the SNA resource.
  - Use an asterisk (*) in place of any number of valid characters. For example, C*.CISCO.COM displays all resources with host names beginning with the character C, and are in the CISCO.COM domain.
  - Use a question mark (?) in place of any single valid character. For example, CWBC?.CISCO.COM displays all resources with host names beginning with the characters CWBC, and are in the CISCO.COM domain.

Note If you enter TN3270 information, do not enter a name in the PU4/NODE field. If you enter TN3270 information and a PU 4 name, the query is invalid.

- In the Port field, enter the port number. (If you enter a port number, you must also enter an internet address in the TN3270 Client TCP/IP Host Name field.)

If you enter nothing in this field, you must enter a value in one of the other fields on this tab in order to get a list of resources.

Step 4 Optionally check **Show only exact matches** to display only those sessions that exactly match your criteria. If you uncheck this check box, you will see a list of sessions that match any of your criteria.

- Uncheck **Show only exact matches** when you are not certain about identifying a specific session. You can then scan the displayed sessions to find the one you want.

- Check **Show only exact matches** when you are certain about your session identification and want to narrow the search.

Step 5 In the Max Sessions field, enter the maximum number of sessions you want displayed on the Filter Results page. If you do not enter a value, a maximum of 100 sessions will be displayed.

Note Keep the session limit less than1500. You could experience problems viewing query results if the session limit is greater than1500.

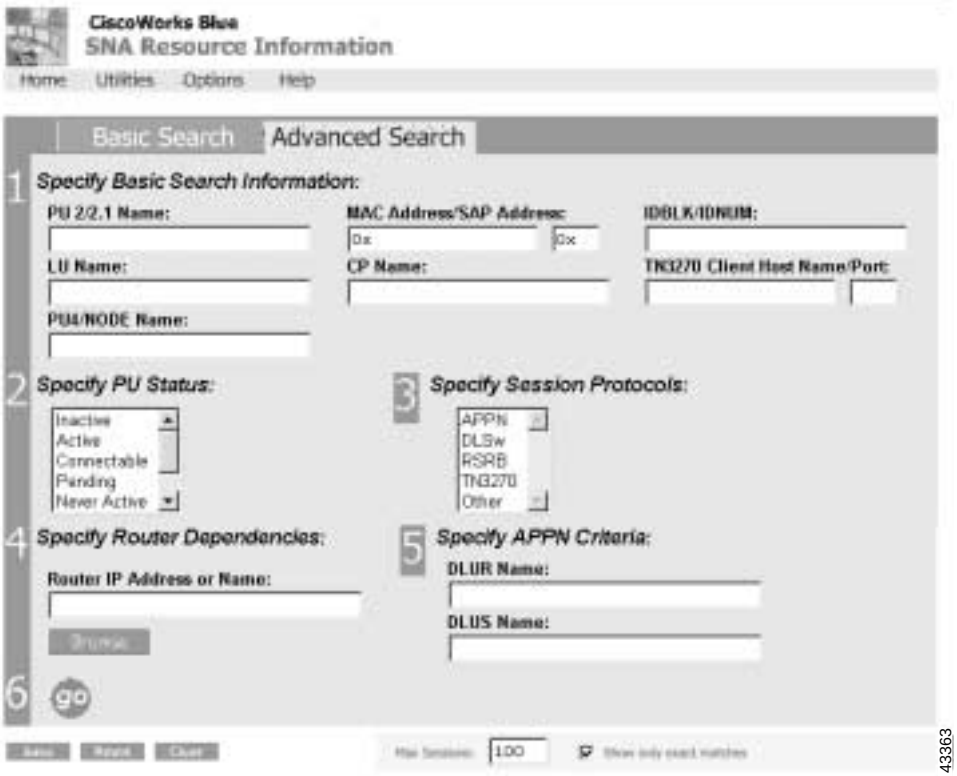
Step 6 Click **go**. The SNA Filter Results Page is displayed.

Continue with the “SNA Filter Results Page” section on page 2-21.

Advanced Search Tab

Use the Advanced Search tab to display a list of sessions based on their naming convention, PU or LU status, protocol, router dependency, or APPN/SNASw attributes.

Figure 2-3 Advanced Search Tab



Step 1 In the Specify Basic Search Information field, enter the PU or LU name of an SNA resource in one or more of the following fields:

- In the PU2/2.1 Name field, enter the PU name of a PU 2 or PU 2.1.
- In the LU Name field, enter an LU name.
- In the PU4/NODE Name field, enter the name of the PU 4. Optionally, you can enter a physical line name, a physical line PU name, a logical line name, a logical line PU name, a local FEP name, a remote FEP name, a link station name, a switched major node name, an XLA major node name, or an NCP major node name.

You can specify all these fields with or without the domain name. If you specify a domain name, the named resource must have been discovered from the VTAM with the specified domain or there will not be a match.

The values you enter in the Name fields determine what results are displayed:

- If you enter an asterisk (*) in the PU2/2.1 Name field and a switched major node name in the PU4/NODE Name field, you will get all the PU 2s and PU 2.1s associated with the switched major node.
- If you enter an asterisk (*) in the PU2/2.1 Name field and a PU name in the PU4/NODE name field, you will get all the PU 2s and PU 2.1s associated with the named PU 4.
- If you enter an * in the LU Name field and a name in the PU2/2.1 Name field, you will get all the LUs associated with the named PU.
- If you enter a FEP name in, you will get all the PU 4s at that FEP.
- If you enter a part of a PU 4 name and wildcards, you will get all the PU4s that match the name pattern you specify.

The MAC Address/SAP Address field and the Status field apply to a PU 2 or a PU 4, depending on the node names you enter:

- If you enter a PU 4 name, or part of a PU 4 name and wildcards, you get a list of PU 4-PU 4 sessions. The MAC/SAP field and the Status field apply to the PU 4.
- If you enter a PU 2 name, or part of a PU 2 name and wildcards, you get a list of PU 2 sessions. The MAC Address/SAP Address field and the Status field apply to the PU 2.
- If you enter both a PU 2 name and a PU 4 name, you get a list of PU 2 sessions that depend on the specified PU 4s. The MAC Address/SAP Address field and the Status field apply to the PU 2.

When you specify a PU or LU name in the Advanced Search screen, and you want to specify a domain name, include a period (.) separator between the SNA resource name and the domain name (for example, PUC25.DOMAIN1). Include the period (.) separator even when you use wildcards in your search.

For example:

- If you enter the string *.DOM* and search for PU names, you will find all PUs in just these domains with domain names beginning with DOM.
- If you enter the string *PU1* and search for PU names, you will find all PUs that have the characters PU1 in their PU names, in all domains. This is the same as searching with the *PU1*.* string.

- In the MAC Address/SAP Address field, enter the MAC and SAP of the SNA resource. The MAC should match the node (PU 2 or PU 4) in the name field or be the destination MAC.
- In the CP Name field, enter the CP name of the SNA resource.
- In the IDNUM/IDBLK field, enter the IDNUM/IDBLK values for the SNA resource.
- In the TN3270 Client Host Name/Port field, enter the client host name or IP address and port number of the SNA resource.

Use wildcard characters in the PU2/2.1 Name, LU Name, PU4/NODE Name, CP Name, and TN3270 Client Host Name fields.

- Use an asterisk (*) in place of any number of valid characters. For example, C*.CISCO.COM displays all resources with host names beginning with the character C ,and are in the CISCO.COM domain.
- Use a question mark (?) in place of any single valid character. For example, CWBC?.CISCO.COM displays all resources with host names beginning with the characters CWBC, and are in the CISCO.COM domain.

Step 2 In the Specify PU Status field, select one or more of the following values:

- **Inactive** returns PUs whose VTAM status is INACT.
- **Active** returns PUs whose VTAM status is ACTIV.
- **Connectable** returns PUs whose VTAM status is CONCT.
- **Pending** returns PUs whose VTAM status is a PENDING status.
- **Never active** returns PUs whose VTAM status is NEVAC.
- **Other** returns PUs with some other VTAM status.
- **Unknown** returns PUs with no reported status.

Note In Windows, to specify more than one status condition, hold down the **Ctrl** key while selecting subsequent items.

If you select all states or no states, state filtering is bypassed and PUs in any state are displayed.

Step 3 In the Specify Session Protocols field, select one or more of the following protocols:

- **APPN/SNASw** displays sessions associated with APPN/SNASw routers.
- **DLSw** displays sessions associated with DLSw routers.
- **RSRB/SRB** displays sessions associated with RSRB or SRB routers.
- **TN3270** displays connections to TN3270 service.
- **Other** displays sessions running standard SNA or other protocols.

Note In Windows, to specify more than one protocol, hold down the **Ctrl** key while selecting subsequent protocols.

Step 4 In the Specify Router Dependencies field, enter either the IP addresses or host names of one or more routers (separated by commas) on which the SNA resource depends. Use the **Browse** button to select a router from the displayed list of routers that match the protocols selected in Step 3. Use wildcard characters in Router Dependency field. Use this option to see which sessions depend on a router and would be affected by a router problem.

Step 5 In the Specify APPN/SNASw Criteria field, enter the following values:

- In the DLUR name field, enter the DLUR name.
- In the DLUS field, enter the DLUS name.

Step 6 Optionally check **Show only exact matches** to display only sessions that exactly match your criteria.

Step 7 In the Max Sessions field, enter the maximum number of sessions you want displayed on the Filter Results page. If you do not enter a value, a maximum of 100 sessions will be displayed.

Step 8 Click **go**. The SNA Filter Results Page is displayed.

Continue with the "SNA Filter Results Page" section on page 2-21.

How Do I Search for Sessions

This section gives you some tips on how to search for various SNA sessions.

How do I find LU sessions?

All LUs associated with a PU 2 or 2.1? Enter an * in the LU Name field and a name in the PU2/2.1 Name field.

One specific LU? Enter the LU name. Optionally, you can enter PU qualifiers such as the MAC address or IDBLK/IDNUM in the appropriate field.

A TN3270 LU? Enter the TN3270 Client TCP/IP Host Name or address for the LU in TN3270 Client Host Name/Port field.

How do I find PU 2 or 2.1 sessions?

One specific PU 2 or 2.1? Enter the PU2/2.1 name, MAC address, CP name, or IDBLK/IDNUM for the session in the appropriate field.

A list of PU 2 or 2.1 sessions going through a FEP/NCP? Enter an * in the PU2/PU2.1 Name field and enter the name of the NCP in the PU4/Node field.

A list of PU 2 or 2.1 sessions going through an XCA? Enter an * in the PU2/2.1 Name field and enter the name of the XCA node in the PU4/Node field.

A list of PU 2 or 2.1 sessions defined in a switched major node? Enter an * in the PU2/2.1 Name field and enter the name of the switched major node in the PU4/Node field.

A list of PU 2 or 2.1 sessions passing through a particular router? Enter the router name or address in the Router IP Address or Name field.

A list of PU 2 or 2.1 sessions using the DLSw protocol? Select only the DLSW protocol.

A list of APPN/SNASw sessions associated with a DLUR or DLUS? Enter the DLUR or DLUS name in the associated field.

A list of PU 2 or 2.1 sessions in all domains whose domain names start with DOM? Enter the string *.DOM* in the PU2/2.1 Name field.

A list of PU 2 or 2.1 sessions, in all domains, that have PUs with the characters PU1 in their PU names? Enter the string *PU1*.* in the PU2/2.1 Name field.

How do I find PU 4 sessions?

A list of PU 4-PU 4 sessions associated with a FEP/NCP? Enter just a FEP name in the PU4/NODE Name field.

A particular PU4-PU4 session? Enter one of the NCP names, a physical or logical line name, or a link station name in the PU4/Node field, or enter one of the MAC/SAP addresses in the MAC Address/SAP Address field.

A list of PU4-PU4 sessions passing through a particular router? Enter an * in the PU4/Node field and enter the router name or address in the Router IP Address or Name field.

SNA Filter Results Page

The SNA Filter Results page displays all the SNA sessions that matched the criteria you entered in the Basic or Advanced Search on the SNA Resource Information Page. The SNA Filter Results page displays information in the following areas:

- The Filter Results menu bar lets you select from the options, as described in the "Filter Results Menu Bar" section on page 2-21.
- The Filter Criteria table displays a summary of the filter criteria you entered on the SNA Resource Information Page, as described in the "Filter Criteria Table" section on page 2-22.
- The Summary table displays a summary of the state of all sessions selected by your search criteria, and is described in the "Summary Table" section on page 2-23.
- The Sessions table display detailed information about any sessions that exactly match your search criteria, and all sessions that match some of your search criteria depending on whether you select **Show only exact matches**. The Sessions table is described in the "Sessions Table" section on page 2-25.

Filter Results Menu Bar

The menu bar on the Filter Results page provides links to other applications:

- **Home** displays the Maps home page, as described in the "Using the CiscoWorks Blue Home Page" section on page 2-3.
- **SNA View** displays the SNA Resource Information page.
- **NetView** displays the NetView for OS/390 web page, which lets you issue NetView commands.

  The NetView item appears on the menu bar only after you have successfully configured the NetView web interface from the Options item on the menu bar of the SNA Resource Information page. If you have configured more than one NetView web URL on the Options page, the **NetView** item on the menu bar displays a list of URLs from which you select the URL you want to use.
- **Help** displays the online help.

Filter Criteria Table

On the SNA Filter Results page, the Filter Criteria table displays a list of the criteria you selected, as shown in Figure 2-4.

Figure 2-4 Filter Criteria Table

Filter Criteria

PU 2/2.1 Name:	cwb2p01*
Status:	Inactive, Active, Connectable, Pending
Protocols:	APPN, DLSw, RSRB, TN3270
Exact Matches Only:	Yes

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Fields

The Filter Criteria table contains some the following fields depending on the type of SNA resource:

Field	Description
PU 2/2.1 Name	Name of the PU 2/2.1.
Status	Displays the states of the sessions you selected in the basic or Advanced table that matched your criteria.
Protocols	Displays the protocols you selected in the Basic or Advanced tab that matched your criteria.
Exact Matches Only	Displays whether the criteria you selected on the Basic or Advanced tab resulted in exact matches.

Summary Table

On the SNA Filter Results page, the Summary table displays a summary of the state of all sessions selected by your search criteria, as shown in Figure 2-5.

Figure 2-5 Summary Table

Summary

PU States	Number of Sessions
Active	0
Inactive	0
Connectable	16
Pending	0
Never Active	0
Other	0
Unknown	0
Pending Active	0
Pending Inactive	0
Total number of sessions: **16**	

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Fields

The Summary table contains the following fields:

Field	Description
PU/LU States	**Inactive**—Total number of sessions whose VTAM status is INACT. **Active**—Total number of sessions whose VTAM status is ACTIV. **Connectable**—Total number of sessions whose VTAM status is CONCT. **Pending**—Total number of sessions whose VTAM status is PENDING status. **Never active**—Total number of sessions whose VTAM status is NEVAC. **Other**—Total number of sessions with some other status. **Unknown**—Displays the total number of sessions with no reported status. **Pending Active**—Total number of sessions whose status is pending active. **Pending Inactive**—Total number of sessions whose status is pending inactive.
Number of sessions	The number of sessions in the selected connection state that meet the specified criteria.
Total number of sessions	The total number of sessions in all the connections states that meet the specified criteria.

Sessions Table

On the SNA Filter Results page, the Sessions table displays details of all sessions selected by your search criteria, as shown in Figure 2-6. There can be one or two Sessions tables:

- The Sessions (Exact match) table displays those sessions that exactly match your search criteria. The sessions are ordered alphabetically, by PU Name.
- The Sessions table shows those sessions that match only some of your search criteria. The sessions are grouped according to the number of search criteria they satisfy. For example, all sessions that match three criteria are grouped together, just above all the sessions that satisfy two criteria.

Figure 2-6 Session Table

Sessions (Exact Match)

	PU2 Name	State	Client MAC/SAP	Destination MAC/SAP	IBBLK/IDNUM	Node Name
Snaview Path	C#B2P010.MVSD	Connectable	4001.1325.0074/04	4001.3745.1088/04	0x07d20010	C#BLUDM2
Snaview Path	C#B2P011.MVSD	Connectable	4001.1325.0075/04	4001.3745.1088/04	0x07d20011	C#BLUDM2
Snaview Path	C#B2P012.MVSD	Connectable	4001.1325.0076/04	4001.3745.1088/04	0x07d20012	C#BLUDM2
Snaview Path	C#B2P013.MVSD	Connectable	4001.1325.0077/04	4001.3745.1088/04	0x07d20013	C#BLUDM2
Snaview Path	C#B2P014.MVSD	Connectable	4001.1325.0078/04	4001.3745.1088/04	0x07d20014	C#BLUDM2
Snaview Path	C#B2P015.MVSD	Connectable	4001.1325.0079/04	4001.3745.1088/04	0x07d20015	C#BLUDM2
Snaview Path	C#B2P016.MVSD	Connectable	4001.1325.007a/04	4001.3745.1088/04	0x07d20016	C#BLUDM2
Snaview Path	C#B2P017.MVSD	Connectable	4001.1325.007b/04	4001.3745.1088/04	0x07d20017	C#BLUDM2
Snaview Path	C#B2P018.MVSD	Connectable	4001.1325.007c/04	4001.3745.1088/04	0x07d20018	C#BLUDM2
Snaview Path	C#B2P019.MVSD	Connectable	4001.1325.007d/04	4001.3745.1088/04	0x07d20019	C#BLUDM2
Snaview Path	C#B2P01A.MVSD	Connectable	4001.1325.007e/04	4001.3745.1088/04	0x07d2001a	C#BLUDM2
Snaview Path	C#B2P01B.MVSD	Connectable	4001.1325.007f/04	4001.3745.1088/04	0x07d2001b	C#BLUDM2
Snaview Path	C#B2P01C.MVSD	Connectable	4001.1325.0080/04	4001.3745.1088/04	0x07d2001c	C#BLUDM2
Snaview Path	C#B2P01D.MVSD	Connectable	4001.1325.0081/04	4001.3745.1088/04	0x07d2001d	C#BLUDM2
Snaview Path	C#B2P01E.MVSD	Connectable	4001.1325.0082/04	4001.3745.1088/04	0x07d2001e	C#BLUDM2
Snaview Path	C#B2P01F.MVSD	Connectable	4001.1325.0083/04	4001.3745.1088/04	0x07d2001f	C#BLUDM2

Total number of sessions: **16**

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Note Not all fields are displayed in every Sessions table. You will see only those fields that apply to the sessions in the table.

Fields

The Sessions tables contain some the following fields depending on the type of SNA resource:

Field	Description
Session Path	Click **Session Path** to see a Session Connectivity view for the session, as described in "Session Connectivity Display Page."
LU Name.Domain	LU name and domain name for each session that meets your criteria.
PU2 Name.Domain	PU 2 name and domain name for each session that meets your criteria.
Remote FEP Name	Remote front-end processor, which is the control unit that handles the remote PU 4 and that might be a 3745 running NCP.
Logical Line PU	Local PU definition for the remote connection, which is the local VTAM's defined name for the remote PU 4. The remote PU 4 becomes active when the connection to the remote FEP is activated.
State	Shows the state of each session: **Active**—VTAM status is ACTIV. **Inactive**—VTAM status is INACT. **Connectable**—VTAM status is CONCT. **Pending**—VTAM status is one of the pending statuses. **Never active**—VTAM status is NEVAC. **Other**—Session has some other status; often used for a session, such as a DLSw circuit, that could not be correlated to a PU. **Unknown**—No reported status. **Pending Active**—Status is pending active. **Pending Inactive**—Status is pending inactive.
Client IP	IP address of the client PU.
Client MAC/SAP[1]	MAC and SAP addresses of the PU.

Field (continued)	Description
Destination MAC/SAP[2]	MAC and SAP addresses of the host network connection.
XID	Exchange identification.
CPNAME	CPNAME of the PU.
DLUR Name	APPN/SNASw control point name of the device that provides the DLUR services to the LU.
DLUS Name	APPN/SNASw control point name of the VTAM host.
TN3270	Name of the TN3270 server for this PU session (for TN3270 sessions only).
IDBLK/IDNUM	Name of the SNA resource.
Node Name	Name of the major node under which the PU is defined.

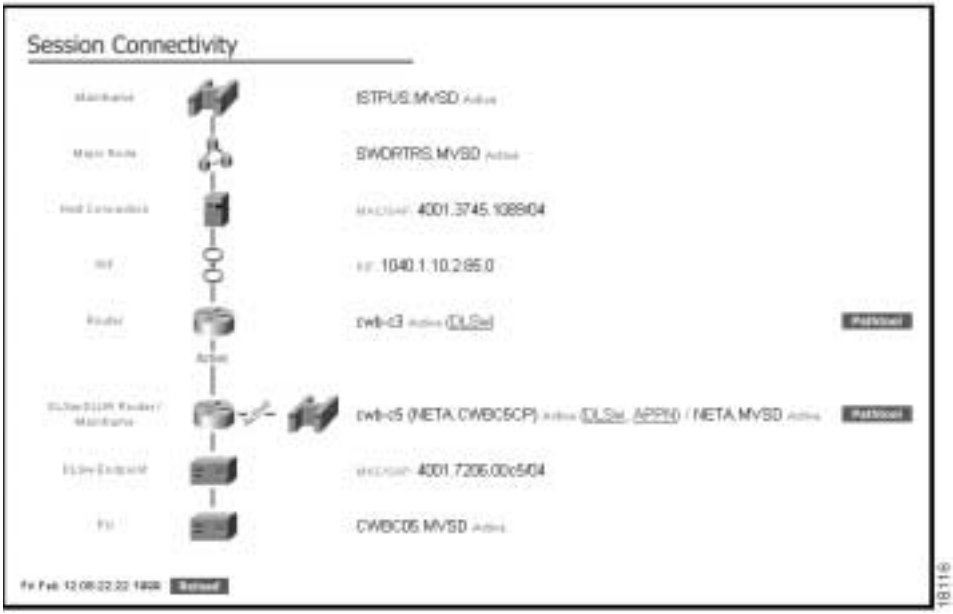
1. If no sessions on this page have PUs, this field is labelled MAC1/SAP1. If some sessions on this page do not have PUs, this field is labelled MAC1/SAP1 (Client).
2. If no sessions on this page have PUs, this field is labelled MAC2/SAP2. If some sessions on this page do not have PUs, this field is labelled MAC2/SAP2 (Destination).

Session Connectivity Display Page

The Session Connectivity Display page shows the path that a session takes from an end user device back to the SNA mainframe computer. The Session Connectivity view, shown in Figure 2-7, is displayed when you do one of the following:

- Enter the search criteria on the Basic tab or Advanced tab of the SNA Resource Information Page that results in only one session.
- Click **Session Path** in any row of the Session table on the SNA Filter Results Page.

Figure 2-7 Session Connectivity Page



The Session Connectivity page shows you the paths of one SNA session:

- The end-user device appears at the bottom of the page.
- The SNA mainframe computer appears at the top of the page if VTAM is being monitored.
- Between the end user device and the SNA mainframe are devices in the session path between the end user device and the SNA mainframe. Most of the icons on this view are selectable.
  - If you select a router, the CW2000 and CiscoView menu items are activated on the menu bar. CiscoView is launched as a Motif application. You can launch these applications by selecting their menu items. If you are using the CiscoWorks Blue web page from a remote workstation, you must be running an X Window System server to view the display.
  - If you select an SNA device, the NetView menu item is activated on the menu bar.

Next to each device on the page, the following information is provided:

- SNA or TCP/IP name of the device
- Status of that device
- Red arrow, indicating the first inactive device in the path
- Routing information field for a host connection
- Protocols a router is running: DLSw, RSRB, SRB, APPN/SNASw, or TN3270

There are various links on this page:

- Click on the protocol name to see a closer view of that router (requires Maps license):
  - DLSw Focus View page for a DLSw router
  - RSRB Focus View page for an RSRB router
  - APPN/SNASw Node Details page for an APPN/SNASw router
  - TN3270 Monitor for a TN3270 router
- If the word Pathtool appears next to a router name, click Pathtool to start the Pathtool application, which shows the network hops between routers.
- For a TN3270 device, there may be a link to TN3270 Monitor. TN3270 Monitor is launched as a Motif application. If you are using the CiscoWorks Blue web page from a remote workstation, you must be running an X Window System server to view the display.

Session Connectivity Menu Bar

The menu bar on the Session Connectivity Display page provides links to other applications:

- **Home** displays the Maps home page, as described in the topic “Using the CiscoWorks Blue Home Page” section on page 2-3.
- **SNA View** displays the SNA Resource Information page.

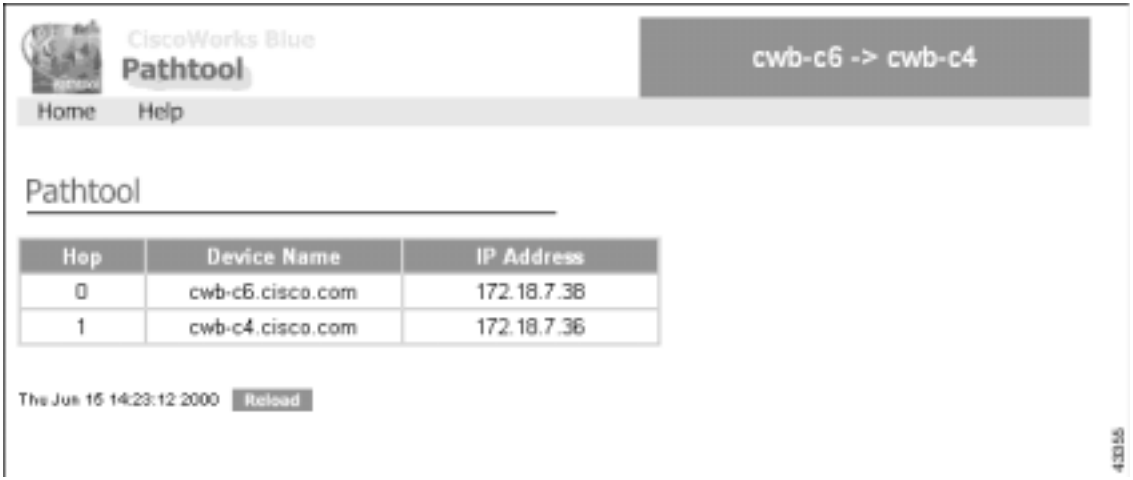
- **NetView** displays the NetView for OS/390 web page and performs a DIS on the selected device.

  The NetView item appears on the menu bar only after you have successfully configured the NetView web interface from the Options item on the menu bar of the SNA Resource Information page. If you configured more than one NetView web URL on the Options page, the **NetView** item on the menu bar displays a list from which you can select the URL you want to use.
- **CiscoView** launches CiscoView for the selected device. CiscoView is launched as a Motif application: if you are using the CiscoWorks Blue web page from a remote workstation, you must be running an X Window System server to view the display.
- **CW2000** launches CiscoWorks 2000 RME Device Center for the selected device.
- **Help** displays the online help.

Pathtool Page

The Pathtool page displays the hops between two selected devices using the same techniques used by the CiscoWorks Path tool. The Pathtool page contains the Pathtool table, which displays information about each hop in the path, as shown in Figure 2-8.

Figure 2-8 Pathtool Page



Step 1 In the Session Connectivity Display Page, click **Pathtool** next to the node for which you want to see the session path.

Step 2 If there are more than two routers in the Session Connectivity Display, the Select Routers window is displayed. Select the two routers for which you want a path.

Step 3 Select whether to include intermediate routers.

- Select **Compute path through intermediate routers** to show the IP path from source to destination, including any intermediate routers.
- Deselect **Compute path through intermediate routers** to show the IP path from source to destination, not including any intermediate routers.

Step 4 Click **OK**. The Pathtool page displays the Pathtool table.

Fields

The Pathtool table contains the following fields:

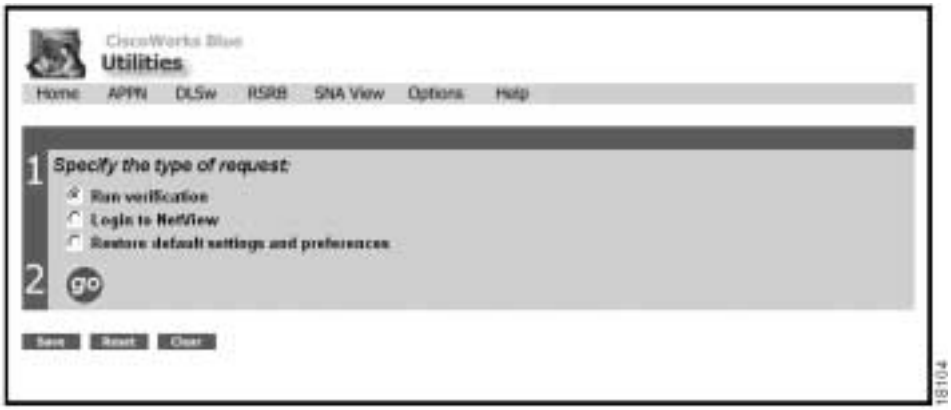
Field	Description
Hop	Number of the hop, starting with the origin node.
Device Name	Device name of the device at this hop.
IP Address	IP address of the device at this hop.

Field (continued)	Description
Interface (In)	Identifies the type of network interface into the device for this hop.
Interface (Out)	Identifies the type of network interface out from the device for this hop.

Using the Utilities Page

This topic describes how to use the web-based utilities on the Utilities page. Select **Utilities** from the CiscoWorks Blue home page. The Utilities page is displayed, as shown in Figure 2-9.

Figure 2-9 Utilities Page



On the Utilities page, choose one of the following:

- **Run verification** to verify the information in your CiscoWorks Blue installation and configuration, as described in the "Verifying the Installation" section on page 2-33.
- **Login to NetView** to login to the NetView application, as described in the "Logging into NetView" section on page 2-33.
- **Restore default settings and preferences** to restore your settings and preferences to their default values, as described in the "Restoring Settings and Preferences" section on page 2-34.

Verifying the Installation

Select **Run verification** from the Utilities page to verify that you correctly installed CiscoWorks Blue. The verification utility checks your configured protocols and tests the tables in the database. Review the displayed data, in the "Verification Results Page" section on page 2-34 to verify that each table contains the correct number of entries.

Logging into NetView

You can access the NetView web page from a web browser. Use the following procedure:

Step 1 Select **Utilities** from the Maps home page.

Step 2 Select **Options** from the menu bar. The Options page is displayed, as shown in Figure 2-10.

Step 3 Complete the fields on the Options page, as described in "Using the Options Page" section on page 2-36.

Step 4 Select **Login to NetView** from the CiscoWorks Blue home page.

If you have not yet used the Options page to configure NetView for Maps, the web browser displays following message:

```
Please configure the NetView Web Interface using the Options dialog.
```

If you receive this message, configure the NetView options as described in “Using the Options Page” section on page 2-36.

Restoring Settings and Preferences

This topic describes how to restore the settings and preferences in your browser after you make changes on a Maps or SNA View web page. Select **Restore settings and preferences** from the Utilities page. The web browser restores your settings to their default values.

Verification Results Page

The Verification page performs the following tasks:

- Summarizes the applied licenses
- Summarizes the applications you configured
- Checks your configuration files
- Scans the CiscoWorks Blue database
- Displays a report

Verification Report

```
The first section provides a time and date stamp.
=====================================================================
CiscoWorks Blue Verification
                           Mon Mar 15 09:10:14 1999
                              cwb-aix11.cisco.com
Configuration File:/opt/CSCOcb/etc/cwbinit
=====================================================================
```

The next section describes the applied licenses.

```
-----------------------------------------------------------------------
                              License Information
-----------------------------------------------------------------------

    CiscoWorks Blue SNA View:  Licensed
    CiscoWorks Blue Maps:      Licensed
```

The next section tells you which processes you configured at installation, and whether they are ready for use.

```
-----------------------------------------------------------------------
Process Summary
-----------------------------------------------------------------------
     Name       Configured      Ready
    ------     ------------    -------
     APPN/SNASw    Yes           Yes
     Base          Yes           Yes
     DLSw          Yes           Yes
     RSRB          Yes           Yes
     SNA           Yes           Yes
    TN3270         Yes           Yes
```

The next section summarizes the devices in your database by protocol.

```
-----------------------------------------------------------------------
Database Summary
-----------------------------------------------------------------------

Total number of devices: 13
    APPN/SNASw:     3
    DLSw:           8
    RSRB:           3
    TN3270:         2

DLSw Key Devices:  6
Physical Units:    7
Logical Units:     7
```

The last section reports any changes you should make to your installation.

```
-----------------------------------------------------------------------
Action Summary
-----------------------------------------------------------------------

Warnings:
```

Using the Options Page

Use the Options page to set up SNA preferences and to configure links to the NetView and CiscoWorks 2000 web pages.

Note The NetView item appears on the SNA Filter Results page or SNA Connectivity page **only** after you use the following procedure to configure a NetView web server from the Options page.

Step 1 Select **Options** from the menu bar. The Options page is displayed, as shown in Figure 2-10.

Figure 2-10 Options Page

Step 2 In the field "Specify how you would like RIFs to be formatted," select one of the following choices:

- **Hexadecimal** displays RIFs in hexadecimal format:

  `0x0a30410200a241000000.`

- **Decimal** displays RIFs in decimal format:

  `1040.2.10.2.1040.0.0.0`

Step 3 In the field "Specify how you would like MAC and SAP addresses to be formatted," select one of the following choices:

- **0x0123456789ab/0x04** displays MACs and SAPs in hexadecimal format (such as 0xabcdef123456 for a MAC and 0x04 for a SAP).
- **0123.4567.89ab/04** displays MACs and SAPs in dotted-hexadecimal format (such as abcd.ef12.3456 for a MAC and 04 for a SAP).

Step 4 In the field "Specify which SNA Resource Information tab you would like displayed by default," select one of the following choices:

- **Basic Search** displays the Basic Search SNA window, as described in the "Basic Search Tab" section on page 2-11.
- **Advanced Search** displays the Advanced Search SNA window, as described in the "Advanced Search Tab" section on page 2-14.

Step 5 Use the field "If present, specify the CiscoWorks 2000 Resource Manager Essentials URL" to contain a link to the CiscoWorks 2000 web interface. Enter the CiscoWorks 2000 URL in this field.

Step 6 Use the field "If present, specify the TME 10 NetView for OS/390 Web Interface(s)" to add, delete, or change a link to the NetView web interface.

- Click **New** to add a new NetView web interface.
- Select an interface from the list and click **Delete** to remove a NetView web interface.
- Select an interface from the list and click **Edit** to change a NetView web interface. Go to the "Changing the NetView Interface" section on page 2-38.

Step 7 Click **OK** to accept the options and close the Options dialog.

Changing the NetView Interface

To change a NetView interface, use the following procedure after clicking **Edit** on the Options page:

Step 1 In the “Please specify the NetView Identifier” dialog, enter or change the name you want to associate with the NetView web interface.

Step 2 Click **OK**.

Step 3 In the “Please specify the URL” window, enter or change the URL for the NetView web interface.

Step 4 Click **OK** to return to the Options page.

Using the CiscoWorks Blue Home Page to Display Maps

This chapter provides information about the interface you can use to display network map information from a web browser, such as the Netscape Navigator or Microsoft Internet Explorer. This interface provides, in tabular format, functions similar to those provided by the standard Motif interface. You can access Maps information from any web browser on any workstation platform, such as a PC running Microsoft Windows or a UNIX workstation.

This chapter includes the following main sections:

Using the Link on the Home Page

Use the links on the CiscoWorks Blue home page to start one of the Maps applications.

Depending on whether you have licensed Maps or SNA View or both, the appropriate icons are active. The icon for any program you have not licensed is inactive.

- **APPN/SNASw** displays the APPN/SNASw page, with which you can view APPN/SNASw network and local topology, as described in the "Displaying APPN/SNASw Networks on the Web (Maps)" section on page 3-2. The APPN/SNASw web page requires a license for CiscoWorks Blue Maps.
- **DLSw** displays the DLSw page, with which you can view the DLSw network devices, as described in the "Displaying DLSw Networks on the Web (Maps)" section on page 3-21. The DLSw web page requires a license for CiscoWorks Blue Maps.
- **RSRB** displays the RSRB page, with which you can view the RSRB network devices, as described in the "Displaying RSRB Networks on the Web (Maps)" section on page 3-40. The RSRB web page requires a license for CiscoWorks Blue Maps.

For information on Web Browser Conventions, see Chapter 2, "Using the CiscoWorks Blue Home Page."

Displaying APPN/SNASw Networks on the Web (Maps)

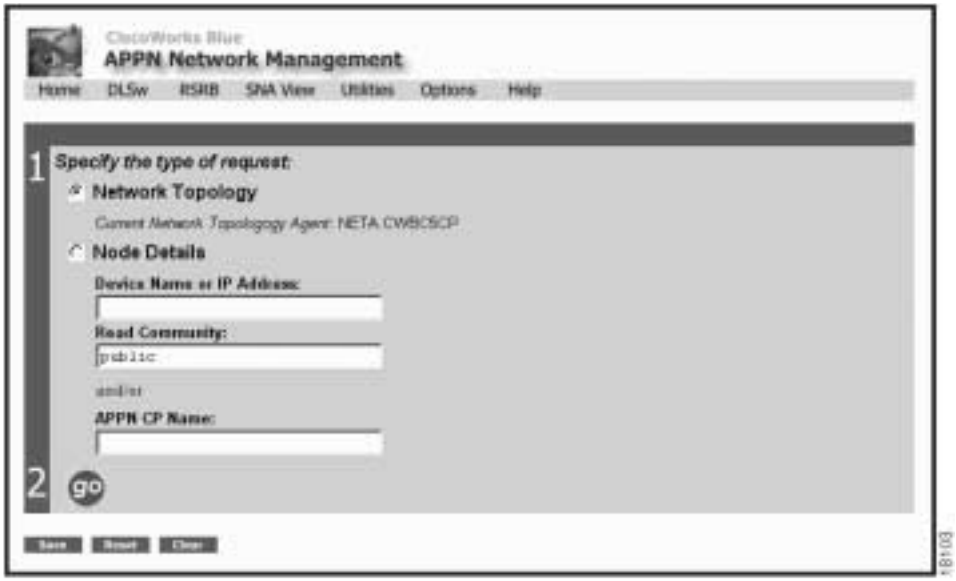
Note You must have a license for CiscoWorks Blue Maps to view the APPN/SNASw page. Ask your Network Administrator for details.

This section provides information on displaying the APPN/SNASw page from a web browser and viewing the nodes and transmission groups (TG) that make up the APPN/SNASw network topology. This section includes the following subsections:

APPN/SNASw Page

This topic describes how to use the APPN/SNASw page. From the CiscoWorks Blue home page, click APPN/SNASw. The APPN/SNASw page is displayed. The APPN/SNASw page is shown in Figure 3-1.

Figure 3-1 APPN Page



You can perform the following on the APPN/SNASw page:

- Click Network Topology to display the Network Topology page.
- Enter the IP address (host name) and the read community string, or just the CP name, of a network node to display the Node Details page for that node.

Click one of the buttons in the Request field to review the following information:

- **Network Topology** displays the Network Topology page, which shows the summary information about the APPN/SNASw network nodes and transmission groups. Use this selection to display a list of all nodes or all TGs that have the same status. See the "Network Topology Page" section on page 3-5 for more information.
- **Node Details** displays the APPN/SNASw Node Details page, which shows information about a specific node and the node's network connections. Use this selection to display detailed information about one node. See the "Node Details Page" section on page 3-10 for more information

Click **go** to display the requested page.

Using APPN/SNASw Hypertext Links

The APPN/SNASw web pages contain several kinds of hypertext links to help you navigate through the topology information. When you click a hypertext link, APPN/SNASw displays more information about the item that you clicked. The APPN/SNASw pages use the following hypertext links:

When you click this...	APPN displays this...
Link Name	Link Properties page
NETID.CPNAME	APPN Node Details page
Port Name	Port Properties page
Node State	List of nodes in that state
TG Number	TG Properties page
Intermediate Session	Intermediate session page, including session route

Deleting Inactive TGs

A change to the Cisco IOS software deletes inactive dynamic TGs from the router database. If you want to keep those inactive TGs in the Maps and SNA View cache, set the keep_deleted_tgs option in the *cwbinit* file to **on**. The following keep_deleted_tgs option is new in the *cwbinit* file:

```
# This option controls the CWBlue cache deletion of TGs that are no
# longer reported by local topology agents. A Cisco IOS change was
# made to delete inactive dynamic TGs from the router database.
# To delete TGs that are no longer reported by the agent,
# set this parameter to 'off'.
# To keep those TGs in the CWBlue cache, set this parameter to 'on'.
# If TG events are enabled, this will trigger an event if the TG
# becomes operational again.
# valid values:on/off
keep_deleted_tgs = off
```

Network Topology Page

This topic explains how to display a summary of all nodes and TGs with the same status. When you select **Network Topology** from the APPN/SNASw page, the Network Topology page displays the summary information about the nodes and TGs. It lists the number of nodes in each node state and the number of TGs in each TG state. The Network Topology page contents are described in the following subsections:

- APPN Node Topology Menu Bar, page 3-5
- Node Summary Table, page 3-6
- TG Summary Table, page 3-6

When you display the Network Topology page, the box in the upper-right corner displays the name of the topology agent. If no topology agent was found, the box displays the message “No topology agent.”

APPN Node Topology Menu Bar

The menu bar provides the following links:

- **Home** displays the Maps home page, as described in “Using the CiscoWorks Blue Home Page” section on page 2-3.

- **APPN** displays the APPN/SNASw page, as described in "Displaying APPN/SNASw Networks on the Web (Maps)" section on page 3-2.
- **Help** displays the online help.

Node Summary Table

The Node Summary table displays the number of nodes in each node state.

Fields

The Node Summary table has the following fields:

Field	Description
Node States	Status of each node.
Number of Nodes	Total number of APPN/SNASw nodes reported by the topology agent in each node state.
Details	Click **Details** to display the Node table for the selected node state, as described in "Node Details Page."

TG Summary Table

The TG Summary table displays the number of TGs in each TG state.

Fields

The TG Summary table has the following fields:

Field	Description
TG States	Status of each transmission group.
Number of TGs	Total number of APPN/SNASw TGs reported by the topology agent in each state.
Details	Click **Details** to display the detailed table for the selected TG state, as described in "TG Properties Page."

Node List Page

The Node List page includes a list of all nodes that have the same state. For each node state present in the network (unknown, degraded, active, and virtual routing nodes) there is a Node page that shows all the nodes in the specified state. There are up to four node pages, one for each possible state:

- Unknown Node page—A node is unknown when the node state cannot be determined because the node is not managed, and there is neither a network topology agent nor an active CP-CP session path from the network topology agent to the node.
- Degraded Node page—Degraded nodes are in the quiescing or congested state. A node has a degraded state if DLUR is configured but there is no DLUS session, or the node is reporting congested traffic.
- Active Node page—Active nodes are enabled for APPN/SNASw and are either being managed directly, or have an active CP-CP session path to the network topology agent.
- Virtual Routing Node page—A virtual routing node is a representation of a set of node's connectivity to a connection network, such as a Token Ring, displayed as a single node.

When you display a Node List page, the box in the upper-right corner displays the name of the topology agent. Each Node List page contains a menu bar and a Node table.

Node List Page Menu Bar

The menu bar on each Node List page contains the following items:

- **Home** displays the Maps home page, as described in the "Using the CiscoWorks Blue Home Page" section on page 2-3.
- **APPN** displays the APPN/SNASw page, as described in the "Displaying APPN/SNASw Networks on the Web (Maps)" section on page 3-2.
- **Unknown** displays the Unknown Node page.
- **Degraded** displays the Degraded Node page.
- **Active** displays the Active Node page.
- **Virtual** displays the Virtual Router Node page.

- **Summary** displays the APPN/SNASw Global View Summary page.
- **Help** displays the online help.

Node Table

The Node table lists all the nodes with the same state.

Fields

The Node table has the following fields:

Field	Description
Node Name	Name of the selected node. Click the node name to display the Node Details page, as described in the “Node Details Page.”
TG Number	TG number for each TG on the selected node. Click the TG number to display the TG Information page, as described in the “TG Properties Page.”
Destination Node	Name of the destination node connected to the selected node by this TG. Click the node name to display the Node Details page, as described in the “Node Details Page.”
CP-CP Sessions	Indicates whether there are CP-CP sessions on the selected connection.

TG List Page

The TG List page contains a list of all TGs that have the same status. For each TG state present in the network there is a TG page showing all the TGs in the specified state. There can be up to three TG pages, one for each possible state:

- Unknown TG page—TG state cannot be determined because the node that owns the TG is not managed, and there is neither a network topology agent nor an active CP-CP session path from the network topology agent to the node that owns the TG.
- Active TG page—TG is available for APPN/SNASw sessions, as reported by either the node that owns the TG or the network topology agent.
- Inactive TG page—TG is not available for APPN/SNASw sessions, as reported by either the node that owns the TG or the network topology agent.
- Degraded TG page—CP-CP session is defined but not active.

  When you display a TG List page, the box in the upper-right corner displays the name of the topology agent.

TG Table Menu Bar

The menu bar on each TG page contains the following items:

- **Home** displays the Maps home page, as described in the “Using the CiscoWorks Blue Home Page” section on page 2-3.
- **APPN** displays the APPN/SNASw page, as described in “Displaying APPN/SNASw Networks on the Web (Maps)” section on page 3-2.
- **Unknown** displays the Unknown TG page.
- **Active** displays the Active TG page.
- **Inactive** displays the Inactive TG page.
- **Degraded** displays the Degraded TG page.
- **Summary** displays the APPN/SNASw Global View Summary page.
- **Help** displays the online help.

TG Table

For each TG state present in the network, the summary page shows a table that displays the source node and destination node for each TG in a TG state. There are up to three TG tables, one for each possible TG state:

- Unknown
- Active
- Inactive
- Degraded

Fields

The TG table has the following fields:

Field	Description
Node Name	Name of the selected node. Click the node name to display the Node Details page, as described in the “Node Details Page.”
TG Number	TG number for each TG on the selected node. Click the TG number to display the TG information page, as described in the “TG Properties Page.”
Destination Node	Name of the destination node that is connected to the selected node by this TG. Click the node name to display the Node Details page, as described in the “Node Details Page.”
CP-CP Sessions	Indicates whether there are CP-CP sessions on the selected connection.

Node Details Page

You can display detailed information about one specific node by selecting **Topology Agent Details** from the APPN/SNASw page or by clicking a node or device name, or IP address, from any APPN/SNASw web page.

The APPN/SNASw Node Details page displays information about the selected node in the following subsections:

- General Table, page 3-11
- IP Addresses Table, page 3-12
- Ports and Links Table, page 3-12
- DLUS/DLUR Table, page 3-13
- Directory Table, page 3-13
- Intermediate Sessions Table, page 3-14

Menu Bar

The menu bar provides links to the following applications:

- **Home** displays the Maps home page, as described in the "Using the CiscoWorks Blue Home Page" section on page 2-3.
- **APPN** displays the APPN/SNASw page, with which you can view APPN/SNASw network and local topology, as described in the "Displaying APPN/SNASw Networks on the Web (Maps)" section on page 3-2.
- **Telnet** starts a Telnet client to connect to the selected router. Enter the password to complete the connection.
- **HTTP** establishes an HTTP connection with the router.
- **Help** displays the online help.

General Table

The General table identifies the selected APPN/SNASw node.

Fields

The General table has the following fields:

Field	Description
SNMP Device Name	Name of the device.
CP Name	CP name in the format *network_ID.CP_name*.
APPN Node State	Status of the node.
Node Type	Type of the node.

IP Addresses Table

The IP Addresses table displays all the IP addresses and their subnet masks configured for the node.

Fields

The IP Addresses table has the following fields:

Field	Description
IP Address	All IP addresses configured for the node.
Net Mask	Subnet mask for each IP address.
Interface Type	Interface type configured for each IP address.

Ports and Links Table

The Ports and Links table displays all the ports and links configured for the node.

Fields

The Ports and Links table has the following fields:

Field	Description
Link	Link name of each link configured on the node. Click the name to display the Port Properties page, as described in the “Link Properties Page.”
Port	Port name of each port configured on the node. Click the name to display the Port Properties page, as described in the “Port Properties Page.”
TG Number	TG name of each TG configured on the node. Click the number to display the TG Properties page, as described in the “TG Properties Page.”
Adjacent Node	Name of the adjacent node. Click the node name to display the Node Details page, as described in the “Node Details Page.”

DLUS/DLUR Table

The DLUS/DLUR table displays the DLUS/DLUR information configured for the node. It lists all resources (PUs) served by the DLUR function at the selected node and displays the PU connection state, the name of the DLUS node, and the DLUS-DLUR state for each resource.

Fields

The DLUS/DLUR table has the following fields:

Field	Description
Resource Name	Name of each resource (a PU for example) served by the DLUR function at the selected node. Click **Resource Name** to link to the SNA Resources Session Connectivity web page for this PU (requires SNA View license).
PU State	Status of each resource.
DLUS Node Name	Name of the DLUS node. Click the node name to display the Node Details page for that node.
DLUR-DLUS State	Status of the DLUS/DLUR control session.

Directory Table

The Directory table lists the directory information for the selected network node, which shows all the local LUs, all the LUs served by attached end nodes and LENs, and all the LUs cached as a result of directory searches.

Fields

The Directory table has the following fields:

Field	Description
LU Name	Name of each LU supported by the selected node.
Owning CP Name	Network name of the owning CP. Click the node name to display the Node Details page, as described in the “Node Details Page.”
Serving NN Name	Name of the network node that supports the LU. Click the node name to display the Node Details page, as described in the “Node Details Page.”

Intermediate Sessions Table

The Intermediate Sessions table displays all the intermediate sessions that pass through the selected node.

Fields

The Intermediate Sessions table has the following fields:

Field	Description
Primary LU	Name of the primary LU in each session.
Secondary LU	Name of the secondary LU in the session.
Mode Name	Name of the VTAM mode table used by the session.
PCID CP Name	CP name of the node that assigned the Procedure Correlation Identifier (PCID) for the intermediate session.
FQPCID	Unique identifier assigned by the PCID CP name.
Details	Links to the Intermediate Sessions page, as described in the “Intermediate Sessions Page.”

TG Properties Page

The TG Properties page contains detailed information about one specific TG. When you select a TG, the TG Properties page displays the TG information as perceived by each node that owns this TG. This information is taken from the topology database and might not reflect actual TG properties if a network outage is preventing this information from being reported to the network topology agent. In this case, the TG connection is displayed in blue on the map to reflect unknown status.

When you display a TG Properties page, the box in the upper-right corner displays the names of the nodes at each end of the TG.

The TG Properties page contains a General table and a Details table.

General Table

The General table displays two columns of information. Each column describes the properties of the TG directed from the node in that column to the node in the other column (“N/A” means that the information for that field is unavailable).

Fields

The General table has the following fields:

Field	Description
CP Name	CP name of device owning the TG.
TG Number	Number that identifies this TG and the two CP names.
Status	Indicates whether this TG is available for inclusion in an APPN/SNASw route.
CP-CP Sessions	Indicates whether CP-CP sessions are supported in this TG.
Virtual Node	Indicates whether the node that supports this TG is a virtual node.
Quiescing	Indicates whether this TG is in the process of being shut down.

Details Table

The Details table displays two columns of information. Each column describes the properties of the TG directed from the node in that column to the node in the other column ("N/A" means that the information for that field is unavailable).

Fields

The Details table has the following fields:

Field	Description
Security Level	Security level of this link; values include Non-Secure, Public Switched Network, Underground Cable, Secure Conduit, Guarded Conduit, Encrypted, and Guarded Radiation.
Propagation Delay	Relative length of time it takes a signal to travel the length of this link; values include minimum, negligible, terrestrial, packet, long, and maximum.
Effective Capacity	Capacity of the TG, in kilobits per second.
Cost/Connect Time	Relative cost per unit of time to use this TG, in the range 0 to 255, where 0 is low cost.
Cost/Byte	Relative cost of transmitting a byte over this link, in the range 0 to 255, where 0 is low cost.
Days Until Deletion	Number of days until this TG is deleted from the network topology agent's database. This value is meaningful only when this TG is not operational.
User-defined 1	User-defined route calculation constraint number 1, in the range 0 to 255.
User-defined 2	User-defined route calculation constraint number 2, in the range 0 to 255.
User-defined 3	User-defined route calculation constraint number 3, in the range 0 to 255.

Port Properties Page

The Port Properties page displays information about a port that is configured on a node. To see port properties, select a port on a Node Details page. The Port Properties page displays information about that port.

Fields

The Port Properties page has the following fields:

Field	Description
Port Name	Name of the port as configured at the owning node.
Status	State of this port; values include Inactive, Pending-Inactive, Active, or Pending-Active), according to the owning node.
Owning CP Name	Network name of the owning node.
Maximum BTU Size	Maximum basic transmission unit size that a link station on this port can receive, in the range 0 to 32767.
Maximum I-Frame Window	Maximum number of I-frames that can be received by the XID sender before an acknowledgment is received.
Port Type	Type of line used by the port (Leased, Switched, or Shared Access Facility).
Link Station Role	Initial role for link stations activated through this port (Primary, Secondary, Negotiable, or Asynchronous Balance Mode).
DLC Type	Data-link control type of the port (HPR/IP, SDLC, Ethernet, Token Ring, or Other). Other includes RSRB, DLSw, and Frame Relay.
Local Address	Local MAC or IP address used by this port.
SAP	Service access point used by this port if applicable.
SIM/RIM Supported	Indicates whether Set Initialization Mode and Receive Initialization Mode are supported.

Link Properties Page

The Link Properties page displays information about a link that is configured on a node. To see link properties, select a link on a node's focus view. The Link Properties page displays information about that link. The Link Properties page contains the General table and the Details table.

General Table

The General table lists each link station.

Fields

The General table contains the following fields:

Field	Description
Link Name	Name of the link as configured at the owning node.
Status	State of this link station (Inactive, Pending-Inactive, Active, or Pending-Active), according to the owning node.
Owning CP Name	Network name of the owning node.
Destination CP Name	Network name of the destination node.
Port Name	Name of the port under which this link station is defined.
DLC Type	Data-link control type of the port (HPR/IP, SDLC, Ethernet, Token Ring, or Other). Other includes RSRB, DLSw, and Frame Relay.
CP-CP Support	Indicates whether CP-CP sessions are supported on this link.

Details Table

The Details table lists detailed information about each link.

Fields

The Details table contains the following fields:

Field	Description
TG Number	Number of the TG associated with this link station.
Max Send BTU Size	Numeric value between 0 and 32767, inclusive, indicating the desired number of bytes in a basic transmission unit that can be sent on this TG.
Dynamic Link	Indicates whether a definition for this link station was created dynamically as a result of an incoming link activation request.
Local Address	Local MAC or IP address used by this link.
Local SAP	Local SAP used by this link, if applicable.
Remote Address	Remote MAC or IP address used by this link.
Remote SP	Remote SAP used by this link, if applicable.
Limited Resource	Indicates whether this link station will be deactivated when all sessions using it have ended.

Intermediate Sessions Page

The Intermediate Sessions page displays information about an intermediate session. To display an intermediate session, select **Details** from the Intermediate Sessions table of the Node Details page for a router. The Intermediate Sessions page is displayed. The Intermediate Sessions page contains a set of tables of APPN/SNASw information about a node through which APPN/SNASw sessions pass. There are three areas on the Intermediate Sessions page:

- General table
- Details table
- Session Route list

General Table

The General Table identifies the nodes and LUs of the intermediate session. The General table contains the following fields:

Field	Description
Intermediate Node Name	Name of the intermediate node; this is the node that was queried.
Session PCID Originator Node Name	Node name for the originating node.
PCID	Procedure correlation ID of the intermediate session, as assigned by the session PCID originator node.
Primary LU Name	Name of the primary LU.
Secondary LU Name	Name of the secondary LU.
Mode Name	Name of the APPN/SNASw mode.
Class Of Service Name	Class of service name associated with the mode name.
Transmission Priority	Transmission priority of the intermediate session.
Session Up Time	Duration of an active intermediate session.
Duration	The time that the circuit has been in its current state.

Details Table

The Details Table provides detailed information about the intermediate session.

Fields

The Details table contains the following fields:

Field	Description
Adjacent CP Name	CP name for the adjacent network node for primary and secondary side of the session.
Adjacent TG Number	TG number to the adjacent network node for primary and secondary side of the session.

Field (continued)	Description
Max BTU Size	Maximum basic transmission unit that can be carried by Send and Receive values for primary and secondary side of the session.
Pacing Type	Type of pacing used (fixed or adaptive) for Send and Receive values for primary and secondary side of the session.
Residual Pacing Count	APPN residual pacing count for Send and Receive values for primary and secondary side of the session.
Next Window Size	Window size, in bytes, of the next pacing window for the session for Send and Receive values for primary and secondary side of the session.

Session Route List

The Session Route list displays the nodes and TGs in the path of the overall APPN/SNASw session.

Displaying DLSw Networks on the Web (Maps)

Note You must have a license for CiscoWorks Blue Maps to view the DLSw page. Ask your Network Administrator for details.

This section provides information about displaying the DLSw page from a web browser and viewing the routers and rings that make up the DLSw network. It contains the following subsections:

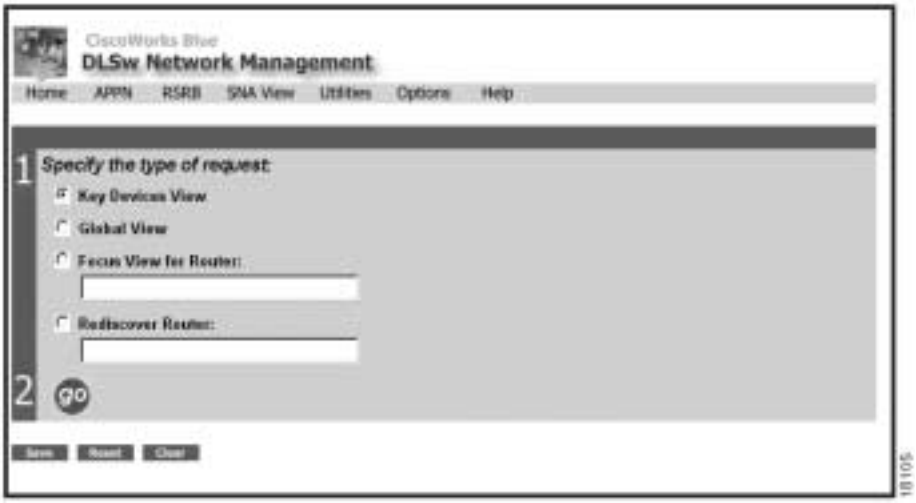
- Focus View Page, page 3-29
- Peer Statistics Page, page 3-33
- Circuit Information Page, page 3-35
- Circuit Details Page, page 3-36
- Rediscover Router Page, page 3-39

Note For the DLSw web page to display current information, the DLSw poller and/or trap daemon must be running. See the *CiscoWorks Blue Maps and SNA View Workstation Installation and Administration Guide* for information about starting the DLSw poller and trap daemons.

DLSw Page

This topic describes how to use the DLSw page. To display the DLSw page as shown in Figure 3-2, select **DLSw** from the CiscoWorks Blue home page.

Figure 3-2 DLSw Page



Click one of the buttons in the Request field and then click **go**.

- **Key Devices View** displays the Key Devices View page, which shows the DLSw routers defined as key devices. For more information, see the "Key Devices Page" section on page 3-24.
- **Global View** displays the Global View page, which shows summary and detail views for all DLSw routers. For more information, see the "Global View Page" section on page 3-24.
- **Focus View for Router** displays the Focus View page, which shows DLSw information for a specific DLSw router, including the router's IP addresses and peer routers. Enter the IP address or host name to select the router. For more information, see the "Focus View Page" section on page 3-29.

  Note This must be the same host name or IP address with which the router was discovered.

- **Rediscover Router** updates the Maps database with the latest information for a specific DLSw router. For more information, see the "Rediscover Router Page" section on page 3-39.

Using DLSw Hypertext Links

The DLSw web pages contain several kinds of hypertext links to help you navigate through the network information.

Links

The DLSw pages use the following hypertext links:

When you click this...	DLSw displays
Peer Statistics	Peer statistics for the selected router or peer connection.
Router name or IP address	DLSw Focus view for that router.
Details in a Router or Peer Connection State table	Routers or peer connections in that state.

Key Devices Page

This topic tells you how to display a list of routers considered key devices in your network. When you select **Key Devices View** from the DLSw page, the Key Devices View page displays the key routers in the network.

Fields

The Key Devices View page contains the following fields:

Field	Description
Name	Host name of each router identified as a key device. Click a router name or IP address to display a focus view for that router.
Inactive Connections	Number of peer connections with status Inactive.
Degraded Connections	Number of peer connections with status Degraded.
Unknown Connections	Number of peer connections with status Unknown.
Active Connections	Number of peer connections with status Active.

Global View Page

The DLSw Global View page displays a summary of all the DLSw routers and all DLSw connections in your network. When you select Global View from the DLSw page, the DLSw Global View page is displayed. The Global View page contains the following items:

- DLSw Global View Menu Bar, page 3-25
- Router Summary Table, page 3-25
- Connection Summary Table, page 3-25

DLSw Global View Menu Bar

The menu bar on the Global View page provides the following links:

- **Home** displays the Maps home page, as described in the "Using the CiscoWorks Blue Home Page" section on page 2-3.
- **DLSw** displays the DLSw page, as described in the "Displaying DLSw Networks on the Web (Maps)" section on page 3-21.
- **Help** displays the online help.

Router Summary Table

The Router Summary table displays summary views of the DLSw routers.

Fields

The Router Summary area contains the following fields:

Field	Description
Router States	Lists the possible router states.
Number of Routers	Shows the total number of routers in each state.
Details	Click **Details** to display the list of routers in the selected state. See the "Router Pages" topic for more information.

Connection Summary Table

The Connection Summary table displays summary views of the DLSw peer connections.

Fields

The Connection Summary area contains the following fields:

Field	Description
DLSw Peer States	Lists the possible DLSw peer-router states.
Number of Connections	Shows the total number of peer connections in each state.
Details	Click **Details** to display the list of connections in the selected state. See the "Connections Pages" topic for more information.

Router Pages

Each DLSw Router page displays a list of all DLSw routers that have the same state. There is a DLSw Router page for each router state in the network: Inactive, Degraded, Unknown, and Active. Each router page contains a menu bar and a Router table. The Router table lists all routers in the same state. The possible router pages are as follows:

- Inactive Router page—Inactive routers are not responding to SNMP queries.
- Degraded Router page—Degraded routers are in the Pending state.
- Unknown Router page—Unknown routers are not managed or are not responding to SNMP queries.
- Active Router page—Active routers are responding to SNMP queries.

Router Table Menu Bar

The menu bar on each Router page contains the following items:

- **Home** displays the Maps home page, as described in the "Using the CiscoWorks Blue Home Page" section on page 2-3.
- **DLSw** displays the DLSw page, with which you can view the DLSw network devices, as described in the "Displaying DLSw Networks on the Web (Maps)" section on page 3-21.
- **Inactive** displays the Inactive Router page.
- **Degraded** displays the Degraded Router page.

- **Unknown** displays the Unknown Router page.
- **Active** displays the Active Router page.
- **Summary** displays the DLSw Summary page.
- **Help** displays the online help.

Router Tables

There is a Router page for routers in each router state.

Fields

The fields in a router table apply to all router states. Click any router name or IP address to display DLSw peer information for that router. Each Router table contains the following fields:

Field	Description
Local Router Name	Lists each local router by name or IP address.
Peer Connection State	Shows the total number of routers in each router state.
Peer Router	Shows the host name of the peer router.
Peer Statistics	Provides a **Peer Statistics** link to the DLSw Peer Statistics page for the peer router.

Connections Pages

Each DLSw Connection page displays a list of all DLSw connections that have the same state. There is a DLSw Connection page for each connection state in the network: Inactive, Degraded, Unknown, and Active. Each Connection page contains a menu bar and a Connection table. The Connection table lists all connections in the same state. The possible Connection pages are as follows:

- Inactive Connection page—For an inactive connection, the peer routers are not exchanging data.
- Degraded Connection page—For a degraded connection, the peer routers are in a pending state.

- Unknown Connection page—For an unknown connection, the peer routers are not responding to polling.
- Active Connection page—For an active connection, the peer routers are exchanging data.

Each Connection page contains a menu bar and a connection table.

Connection Page Menu Bar

The menu bar on each Connection page contains the following items:

- **Home** displays the Maps home page, as described in the ““Using the CiscoWorks Blue Home Page” section on page 2-3.”
- **DLSw** displays the DLSw page, with which you can view the DLSw network devices, as described in the “Displaying DLSw Networks on the Web (Maps)” section on page 3-21.
- **Inactive** displays the Inactive Connection page.
- **Degraded** displays the Degraded Connection page.
- **Unknown** displays the Unknown Connection page.
- **Active** displays the Active Connection page.
- **Summary** displays the DLSw Summary page.
- **Help** displays the online help.

Connections Tables

Each Connection page has a Connection table for its state. The possible tables are as follows:

- Inactive Connection table
- Degraded Connection table
- Unknown Connection table
- Active Connection table

Fields

The fields apply to all connection states. Click any router name or IP address to display the Focus View table for the selected router. Each Connections table contains the following fields:

Field	Description
Router #1	For each peer connection, lists the name or IP address of router 1, and shows its state.
Router #2	Lists the name or IP address of router 2, and shows its state.
Peer Statistics	Provides links to the DLSw Peer Statistics page for the peer routers. The arrow indicates the direction. The icon #1-- >#2 shows statistics from router 1 to router 2. The icon #2-->#1 shows statistics from router 2 to router 1.

Focus View Page

The DLSw Focus View page displays detailed information about a specific DLSw router. Display the focus view for a router in one of the following ways:

- Select **Focus View for Router** from the DLSw page, type in the device name or IP address of the router, and click **go**.
- Click a router name or the IP address of a router on a DLSw web page.

The Focus View page for a router displays the information described in the following subsections:

- Focus View Menu Bar, page 3-30
- Connections Tables, page 3-28
- General Table, page 3-31
- Details Table, page 3-32
- IP Addresses Table, page 3-32

When you display the Focus View, the box in the upper-right corner displays the name of the router.

Focus View Menu Bar

The menu bar on each Focus View page contains the following items:

- **Home** displays the Maps home page, as described in the "Using the CiscoWorks Blue Home Page" section on page 2-3.
- **DLSw** displays the DLSw home page, as described in the "Displaying DLSw Networks on the Web (Maps)" section on page 3-21.
- **Telnet** starts a Telnet client so you can log in to the focus router.
- **HTTP** starts a web client so you can browse web pages on the focus router.
- **Circuits** displays a list of circuits for the focus router.
- **PU** displays a list of PU names that are dependent on the focus router (requires SNA View license).
- **LU** displays a list of LU names that are dependent on the focus router (requires SNA View license).
- **Rediscover** rediscovers the focus router; collects current information for the database.
- **Help** displays online help.

Connections Table

The Connections table displays the focus router's peer connections in each connection state.

Fields

The Connections table contains the following fields:

Field	Description
Peer Connection State	State of the selected peer connection.
Peer Router	Device name or IP address of the peer router for the selected peer connection. Click the address or name to display the focus view for that peer router.
Peer Router State	State of the selected peer router.
Peer Statistics	Click **Peer Statistics** to display the Peer Statistics page for the selected connection.
Attached Rings	List of rings attached to this peer router.

General Table

The General table displays the focus router's peer connections in each connection state.

Fields

The General table contains the following fields:

Field	Description
Device Name	Host name of the focus router.
Status	State of the focus router.
IOS Version String	Cisco IOS release running on the focus router (SNMP collects this information on demand).

Details Table

The Details table displays DLSw protocol and connection information for the focus router, such as the maximum frame size. SNMP collects this information on demand.

Fields

The Details table contains the following fields:

Field	Description
DLSw Version	Version of DLSw used by the router.
Vendor ID	Vendor identification.
Largest Frame Size	Largest frame supported by this router.
Pacing Support	Level of pacing supported by this router.
DLSw Up-Time	Length of time DLSw has been continuously active on this router.
Active Peer Connections	Number of active peer connections to this router.
Busy Connections Closed	Number of closed busy connections on this router.
Circuits Created	Number circuits created with this router.
Active Circuits	Number of currently active circuits.

IP Addresses Table

The IP Addresses table displays all the IP addresses and their subnet masks configured for the focus router, as stored in the Maps database.

Fields

The IP Addresses table contains the following fields:

Field	Description
IP Address	IP addresses configured at the focus router.
Net Mask	Subnet mask for each IP address.
Interface Type	Interface type configured for each IP address.

Peer Statistics Page

The DLSw Peer Statistics page displays detailed information about one DLSw peer connection. To display the Peer Statistics page, click **Peer Statistics** in the Global View or Focus View page. The Peer Statistics page contains the information described in the following subsections:

- Peer Statistics Menu Bar, page 3-33
- General Table, page 3-33
- Details Table, page 3-34

When you display the Peer Statistics page, the box in the upper-right corner identifies the peer connection.

Peer Statistics Menu Bar

The menu bar on each Peer Statistics page contains the following items:

- **Home** displays the Maps home page, as described in the "Using the CiscoWorks Blue Home Page" section on page 2-3.
- **DLSw** displays the DLSw home page, as described in the "Displaying DLSw Networks on the Web (Maps)" section on page 3-21.
- **Help** displays online help.

General Table

The General table displays information about the selected peer connection.

Fields

The General table has the following fields:

Field	Description
State	State of the transport connection.
Local Address	Local transport address for this transport connection.
Remote Address	Remote transport address of the transport connection.
Transport	Transport domain of the transport connection.

Field (continued)	Description
Flow Control Mode	Flow control mechanism in use on the transport connection; values are Undetermined, Pacing, and Other.
Circuits Created	Number of times that circuits entered a circuit-established state (not counting transitions from circuit restart).
Active Circuits	Number of currently active circuits on this transport connection.

Details Table

The Details table displays detailed information about the selected peer router.

Fields

The Details table has the following fields:

Field	Description
Data Packets In	Number of SSP messages of type DGRMFRAME, DATAFRAME, or INFOFRAME received on this transport connection.
Data Packets Out	Number of SSP messages of type DGRMFRAME, DATAFRAME, or INFOFRAME transmitted on this connection.
Data Octets In	Number of octets in SSP messages of type DGRMFRAME, DATAFRAME, or INFOFRAME received on this transport connection.
Data Octets Out	Number of octets in SSP messages of type DGRMFRAME, DATAFRAME, or INFOFRAME transmitted on this connection.
Control Packets In	Number of SSP messages received on this transport connection that were not of type DGRMFRAME, DATAFRAME, or INFOFRAME.
Control Packets Out	Number of SSP messages transmitted on this transport connection that were not of type DGRMFRAME, DATAFRAME, or INFOFRAME.

Field (continued)	Description
CanUReach Xxpl In	Number of CanUReach_ex messages received on the transport connection.
CanUReach Expl Out	Number of CanUReach_ex messages sent on the transport connection.
ICanReach expl In	Number of ICanReach_ex messages received on the transport connection.
ICanReach Expl Out	Number of ICanReach_ex messages sent on the transport connection.
NETBIOS NQ In	Number of NetBIOS_NQ_ex messages received in the transport connection.
NETBIOS NR Out	Number of NETBIOS_NR_ex messages sent on this transport connection.
NETBIOS NR In	Number of NetBIOS_NQ_ex messages received in the transport connection.
NETBIOS NQ Out	Number of NetBIOS_NQ_ex messages sent on the transport connection.

Circuit Information Page

The DLSw Circuit Information page displays information about one DLSw circuit. From a focus view for a router, you can click **Circuits** on the menu bar to display information about all circuits on the focus router. Hyperlins are added for each circuit to lauch the page for the selected circuit. The hyperlinks for Resource 1 and Resource 2 normally contain a PU name.

Fields

The Circuit Information page has the following fields:

Field	Description
Resource 1	PUNAME.DOMAIN[1] of SNA resource 1[2].
MAC1/SAP1	MAC address and SAP address of SNA resource 1.
Resource 2	PUNAME.DOMAIN of SNA resource 2.
MAC2/SAP2	MAC address and SAP address of SNA resource 2.

Field (continued)	Description
Status	Status of the circuit.
Details	Click **Details** to display a detailed DLSw Circuit Information page for the selected circuit.

1. The PU name and domain name are displayed only if SNA correlation was successful. Otherwise, dashes (---) are displayed.
2. Resource 1 and Resource 2 refer to the PU and the host network connection, depending on your view of the network. If you are viewing the network from the host end, Resource 1 is the host network connection and Resource 2 is the PU on the circuit. If you are viewing the network from the PU end, Resource 1 is the PU on the circuit and Resource 2 is the host network connection.

Circuit Details Page

The DLSw Circuit Details page displays information about one DLSw circuit. It contains the following tables:

- Circuit Information Table, page 3-36
- Circuit Details Table, page 3-37

Circuit Information Table

The Circuit Information table displays summary information about the selected circuit.

Fields

The Circuit Information table contains the following fields:

Field	Description
Resource 1	PUNAME.DOMAIN[1] of SNA resource 1[2].
MAC 1 Address	MAC address of SNA resource 1.
SAP 1 Address	SAP address of SNA resource 1.
Resource 2	PUNAME.DOMAIN of SNA resource 2.
MAC 2 Address	MAC address of SNA resource 2.
SAP 2 Address	SAP address of SNA resource 2.
Status	Status of the circuit.

1. The PU name and domain name are displayed only if SNA correlation was successful. Otherwise, dashes (---) are displayed.
2. Resource 1 and Resource 2 refer to the PU and the host network connection, depending on your view of the network. If you are viewing the network from the host end, Resource 1 is the host network connection and Resource 2 is the PU on the circuit. If you are viewing the network from the PU end, Resource 1 is the PU on the circuit and Resource 2 is the host network connection.

Circuit Details Table

The Circuit Details table displays detailed information about the selected circuit.

Fields

The Circuit details table contains the following fields:

Field	Description
Router Name	Host names of the local and remote routers.
IP Address	IP addresses of the local and remote routers.
Status	Status of the local and remote routers.
Circuit Identifier	Circuit identifier assigned by this DLSw node to this circuit. The first four octets are the DLC port ID. The second four octets are the data-link correlator.
DLC Type	DLC protocol in use between the DLSw node and the SNA resource. The possible values are QLLC, SDLC, LLC, NA, or Other.
Interface Index	Entry index of the local interface through which the SNA resource can be reached.
Route Information	For source-route bridging between the DLSw node and the SNA resource, the routing information field describing the path between the two devices. Otherwise, the value will be an octet string of zero length.
Transport Domain	Transport domain of the transport connection.
Max Messages Sendable	Number of paced SSP messages this DLSw router is authorized to send on this circuit before it must stop and wait for an additional flow control indication from the partner DLSw router.

Field (continued)	Description
Max Messages Receivable	Current number of paced SSP messages this DLSw router has authorized the partner DLSw router to send on this circuit before the partner DLSw must stop and wait for an additional flow control indication from this DLSw router.
Send Window Size	Current window size that this DLSw peer is using in its role as a data sender. This is the value by which the router can increase the number of messages it is authorized to send if it receives a flow control indication with the bits specifying “repeat window.”
Receive Window Size	Current window size that this DLSw router uses in its role as a data receiver. This is the number of additional paced SSP messages this DLSw router can authorize its DLSw partner router to send, if this DLSw router sends a flow control indication with the bits specifying “repeat window.”
Send Largest Window	Largest value (with respect to this DLSw router) granted by the partner DLSw router during the current activation of this circuit.
Receive Largest Window	Largest value granted by this DLSw router during the current activation of this circuit. This is not the largest number of messages granted at any time, but the largest window size as represented by FCIND operator bits.
Halve Window Sent	Number of Halve window operations this DLSw has sent on this circuit, in its role as a data receiver.
Halve Window Received	Number of Halve window operations this DLSw router has received on this circuit, in its role as a data sender.
Reset Window Sent	Number of Reset window operations this DLSw router has sent on this circuit in its role as a data receiver.
Reset Window Received	Number of Reset window operations this DLSw router has received on this circuit in its role as a data sender.

Rediscover Router Page

The Rediscover Router page lets you rediscover a router. Rediscovering a router reloads the Maps database with the SNMP information from the router. Click the router name to display the Focus View page for that router.

To rediscover a router, use the following procedure:

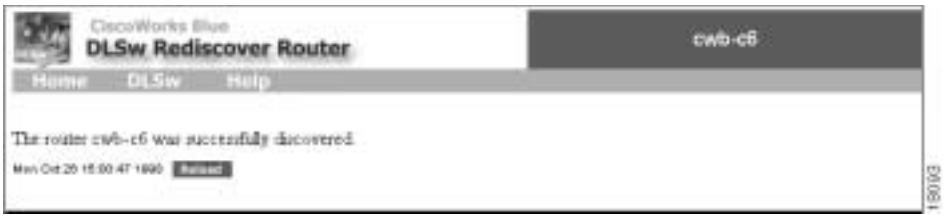
Step 1 Select **Rediscover Router** on the DLSw page.

Step 2 Enter the IP address or host name of the router as it appears in the database. (You can browse the DLSw Global View page to find the router and then select the Focus view for that router.)

Step 3 Click **go**. When the router is discovered, the Rediscover Router page is displayed, as shown in Figure 3-3.

Note When you are adding, discovering, or rediscovering routers, you can use the **cwbsnamapsd** and **dlswpollerd** commands to ensure the correct information is available for the discovered resources.

Figure 3-3 Rediscover Router Page



Displaying RSRB Networks on the Web (Maps)

Note You must have a license for CiscoWorks Blue Maps to view the RSRB page. Ask your Network Administrator for details.

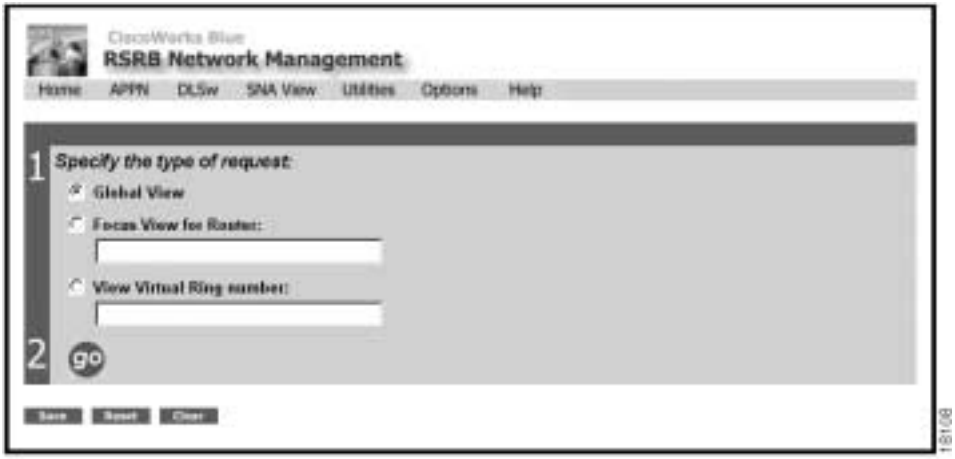
This section provides information about displaying the RSRB page from a web browser and viewing the routers, rings, and virtual rings that make up the RSRB network. It contains the following subsections:

Note For the RSRB web page to display current information, the RSRB poller daemon must be running. See the *CiscoWorks Blue Maps and SNA View Workstation Installation and Administration Guide* for information about starting the RSRB poller daemon.

RSRB Page

To display the RSRB page, select **RSRB** from the CiscoWorks Blue home page, as shown in Figure 3-4.

Figure 3-4 RSRB Page



Click one of the buttons in the Request field and click **go**.

- **Global View** shows the global view, which displays all RSRB routers.
- **Focus View for Router** shows virtual rings, RSRB peers, and Token Rings for a specific RSRB router. Enter the IP address or host name for the router.
- **View Virtual Ring number** shows all RSRB routers for a specific virtual ring. Enter the virtual ring number.

Links

The RSRB web pages contain the following hypertext links to help you navigate through the network information:

When you click this...	RSRB displays
Details in Router state field	In Focus view, list of active routers in that state. In Virtual Ring view, list of active virtual rings in that state.
Router name or IP address	RSRB Focus View page for that router.
Virtual ring number	Virtual Ring view for that virtual ring.

Global View Page

Select **Global View** on the RSRB page to display the RSRB Global View page, which contains the following areas:

- Summary area
- Unknown Routers area
- Active Routers area
- Virtual Rings area
- Token Rings area
- Other Rings area

Summary Area

The Summary area contains the Summary table, which displays the number of routers in each router state.

Fields

The Summary area contains the following fields:

Field	Description
Router States	Shows state for each router.
Number of routers	Number of routers in each router state.
Details	Click **Details** for a router state to see a list of routers in that state.

Unknown Routers Area

The Unknown Routers area lists the name or address of each unknown router. If there are no unknown routers, the Unknown Routers area is not displayed. Click a router name or address to display the Focus View page for the selected router.

Active Routers Area

The Active Routers area lists the name or address of each active router. If there are no active routers, the Active Routers area is not displayed. Click a router name or address to display the Focus View page for the selected router.

Virtual Rings Area

The Virtual Rings area lists all virtual rings discovered in the network; for each virtual ring there is a list of routers on that virtual ring. If there are no virtual rings, the Virtual Rings area is not displayed. Click a virtual ring number to display the Virtual Ring page for the selected ring.

Token Rings Area

The Token Rings area lists all Token Rings discovered in the network; for each Token Ring there is a list of routers on that ring and a link to the Ring Information page. If there are no Token Rings, the Token Rings area is not displayed. Click a Token Ring number to display the Ring Properties page for the selected ring.

Other Rings Area

The Other Rings area lists all discovered rings that are neither virtual rings nor Token Rings; for each ring there is a list of associated routers. If there are no other rings, the Other Rings area is not displayed. Click a router name to display the Focus View page for the selected router.

Focus View Page

Display the Focus View for an RSRB router in one of the following ways:

- Select **Focus View for Router** from the RSRB page, enter the device name or IP address of the router, and click **go**.
- Click a router name or IP address on the Global View page or on a Focus View page for another router.

When you display the Focus View, the box in the upper-right corner displays the name of the focus router.

Focus View Menu Bar

The menu bar on each Focus View page contains the following items:

- **Home** displays the Maps home page, as described in the "Using the CiscoWorks Blue Home Page" section on page 2-3.
- **RSRB** displays the RSRB home page, as described in the "Displaying RSRB Networks on the Web (Maps)" section on page 3-40.
- **Telnet** starts a Telnet client so you can log in to the focus router.
- **HTTP** starts a web client so you can browse web pages on the focus router.
- **PU** displays a list of PU names that are dependent on the focus router (requires SNA View license).
- **LU** displays a list of LU names that are dependent on the focus router (requires SNA View license).
- **Help** displays online help.

Focus View Fields

The RSRB Focus View page displays information about the selected router.

Fields

The Focus View page contains the following fields:

Field	Description
IP addresses	Lists all the IP addresses, their subnet masks, and their interface types, configured on the router.
Virtual Rings	Lists all the virtual rings configured on the router; click the virtual ring number to display the Virtual Ring View page.
Token Rings	Lists all the Token Rings configured on the router.
Other Rings	Lists all the other rings configured on the router.

Virtual Ring View Page

The RSRB Virtual Ring View page, displayed when you select a virtual ring number on the Focus View or Global View page, describes the virtual rings in the RSRB network. Click the Ring Information link to display the Ring Statistics page for the selected ring.

When you display the Virtual Ring view, the box in the upper-right corner displays the number of the virtual ring.

Fields

The Virtual Ring View page contains the following fields:

Field	Description
Routers	Lists the total number of RSRB-enabled routers, of each connection state, that make up the selected virtual ring. Click the router name to display the Focus View page for that router.
Token Rings	Lists the Token Rings connected to the selected virtual ring. Click the Ring Information link to display the Ring Statistics page for that ring.
Other Rings	Lists the other rings on the selected virtual ring. Click the Ring Information link to display the Ring Statistics page for that ring.

Peer Statistics Page

The RSRB Peer Statistics page provides information and statistics for the selected peer. The Peer Statistics page contains the General table and the Details table.

General Table

The General table provides information about the selected peer.

Fields

The General table contains the following fields:

Field	Description
State	Current status of the peer.
Source Router	Name of the source router.
Peer Router	Name of the peer router.
Virtual Ring Number	Number of the virtual ring.

Details Table

The Details table provides information about the selected peer.

Fields

The Details table contains the following fields:

Field	Description
Encapsulation Type	RSRB encapsulation: Serial, LAN, Fast-Sequenced Transport (FST), or Frame Relay.
Interface Index	Local interface index value of the RSRB remote peer.
Packets Received	Number of packets received from remote peer.
Packets Sent	Number of packets sent to remote peer.
Bytes Received	Number of bytes received from the remote peer.
Bytes Sent	Number of bytes sent to remote peer.
Explorers Received	Number of explorer packets received from the remote peer.
TCP Queue Length	Number of packets being held by the local router in the TCP output queue for the remote peer.

Field (continued)	Description
Packets Dropped	Number of received packets discarded by the local router (packets are dropped because of problems with the configuration, queue overflow, and protocol errors).
Local Acknowledgment	Indicates whether local acknowledgment is used for the sessions going to the remote peer.
RSRB Version	Version of RSRB used between local and remote peers.

Ring Properties Page

The RSRB Ring Properties page provides information and statistics for the selected ring.

Fields

The Ring Properties page contains the following fields:

Field	Description
Source Router	Peer router for which you queried ring information.
Ring Number	Number of the ring.
Bridge Number	Configured number of the bridge that connects this entry's ring to the virtual ring.
Ring Type	Ring type, which can be static, dynamic, SDLC, QLLC, or virtual.
MAC Address	MAC address of either the local router's interface to the ring for local ring entries, or the remote peer's interface to the ring for remote ring entries.
Local Ring	Indicates whether the entry represents a local or remote ring: YES indicates a local ring; NO indicates a remote ring.
Interface Index	Local interface into the ring for local ring entries.
Packets Sent	Number of packets forwarded by the local router onto this ring.

Using the Motif Applications in Maps

This chapter describes how to use the CiscoWorks Blue Maps Motif-based applications from a UNIX-based network-management workstation. This chapter introduces the common elements of the Maps Motif applications (DLSw, RSRB, and APPN/SNASw).

This chapter includes the following main sections:

Using the Maps Application window

The main window of each Maps application consists of the following elements, as shown in Figure 4-1.

Title bar—Displays the map title in this format: *View_Protocol_Name.map*

The following are sample map titles:

- Key_Devices_DLSw_Heritage.map
- Global_RSRB_Heritage.map
- Global_APPN_cwb-c2.cisco.com.map

Menu bar—Provides a series of menu items that provide access to the Maps application windows and options. The following are the standard menus:

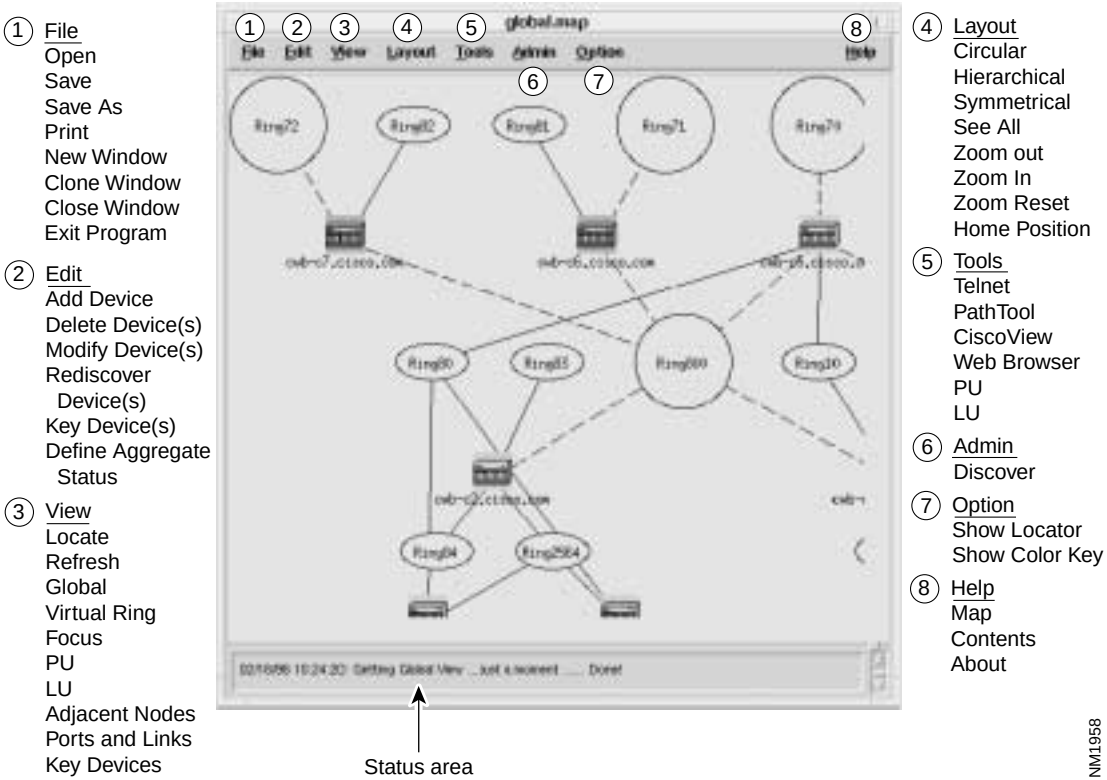
- **File**—Lets you open, save, and close maps.
- **Edit**—Lets you change items on a map.
- **View**—Lets you select from various views of the network.
- **Layout**—Lets you change the way the devices are displayed on a map.
- **Tools**—Lets you start associated tools, such as a Telnet client, or a web browser.
- **Admin**—Lets you perform discovery.
- **Option**—Lets you show and hide the Locator window and color key.
- **Help**—Displays the Maps online help.
- **Status area**—Displays status messages about the application.

The Locator window, smaller than the main window, is a navigational aid that shows a miniature representation of your entire network and lets you control which portion of the network appears in the main window.

Using the Menu Bar

Use the items on the menu bar to change the way you view the map, or to change the type of information to view, and to run special tools. This section describes how to use the items on the Maps application menu bar. Figure 4-1 shows the main window of a sample Maps application. (Not all options in Figure 4-1 appear in every Maps application.)

Figure 4-1 Sample Maps Application—Main Window with Menu Options



Using the File Menu

Use the items on the File menu to change the information displayed on a map. Table 4-1 lists the items on the File menu.

Table 4-1 Items on the File Menu

Menu Item	Purpose
Open	Displays the Map File Selector window from which you can open a previously saved network map file.
Save	Saves the network map file is currently displayed in the Maps application main window; saves the positions of the map icons when you rearrange them.
Save As	Saves the current network map file under a different name.
Print	Prints a snapshot of the current screen to a printer. Remember to first set the PRINTER environment variable.
New Window	Opens a blank main window for the Maps application.
Clone Window	Opens a new main window identical to the current main window. The second window displays the same network map that is displayed in the first window. Having two identical windows is useful when comparing different parts of the network or navigating to another map while keeping the current map.
Close Window	Closes the current window.
Exit Program	Exits the Maps application.

Using the Edit Menu (DLSw and RSRB only)

Use the items on the Edit menu to change the information in the database. Table 4-2 lists the items on the Edit menu.

Table 4-2 Items on the Edit Menu

Menu Item	Purpose
Add Device	Manually adds a device to the Maps database by prompting you to specify its host name or IP address and its read community string. If the device is running DLSw or RSRB, the device is added to the appropriate map display.
Delete Device(s)	Deletes selected devices from the Maps database and removes the device from the corresponding map.
Modify Device(s)	Modifies the read community string for selected devices.
Rediscover Device(s)	Queries selected devices to update the Maps database and the displayed network map.
Key Device(s) (DLSw only)	Displays a list of all DLSw routers so you can select one or more routers to be key devices.
Define Aggregate Status (DLSw only)	For the DLSw key devices view, lets you define the Status criteria for aggregated peer connections.

Using the View Menu

Use the items on the View menu to control the way devices are displayed on the map. Table 4-3 lists the items on the View menu

Table 4-3 Items on the View Menu

Menu Item	Purpose
Locate	Locates a specific device on the map by prompting you to type either the device's host name or its IP address.
Refresh (RSRB, DLSw only)	Refreshes the displayed map with the most recent information from the Maps database.
Global	Displays a map of your entire network. Use the mouse pointer to move the black frame within the Locator window to display the framed area of the map in the main map window.

Table 4-3 Items on the View Menu (continued)

Menu Item	Purpose
Virtual Ring (RSRB only)	Displays a view of the network from the viewpoint of a selected virtual ring.
Focus (RSRB, DLSw only)	Displays a view of the network from the viewpoint of a specific router.
PU (RSRB, DLSw only)	Displays a session connectivity (dependency) view for a PU by prompting you to enter a PU name in the format PUNAME.DOMAIN.
LU (RSRB, DLSw only)	Displays a session connectivity (dependency) view for an LU by prompting you to enter an LU name in the format LUNAME.DOMAIN.
Adjacent Nodes (APPN/SNASw only)	Displays the selected network node and its adjacent nodes (that are just one hop away from a selected node).
Ports and Links (APPN/SNASw only)	Displays the selected network node and its ports (such as Ethernet and Token Ring) and its links from the ports to adjacent nodes.
Key Devices (DLSw only)	Displays a key devices view of the network, which shows the following items: • The routers marked as key devices • The aggregate of peer connections

Using the Layout Menu

Use the items on the Layout menu to change the way information is displayed on a map. Table 4-4 lists the items on the Layout menu.

Table 4-4 Items on the Layout Menu

Menu Item	Purpose
Circular	Displays devices in a circular pattern.
Hierarchical	Displays devices in a hierarchical pattern.
Symmetrical	Displays devices in a symmetrical pattern.
See All	Makes all devices visible in the main window.

Table 4-4 Items on the Layout Menu (continued)

Menu Item	Purpose
Zoom Out	Displays a wide-angle view in the main window. This menu item is not available on HP-UX.
Zoom In	Displays a close-up view in the main window. This menu item is not available on HP-UX.
Zoom Reset	Resets the view to the default zoom setting.
Home Position	Resets the frame in the Locator window to the upper-left corner of the window.

Using the Tools Menu

Use the items on the Tools menu to start related network management tools. Table 4-5 lists the items on the Tools menu:

Table 4-5 Items on the Tools Menu

Menu Item	Purpose
Telnet4500.	Starts a Telnet client at your workstation so that you can log in to a Cisco router or another workstation. If you first select a router icon, Telnet logs you in to that selected router. The **xterm** program must be in the PATH.
PathTool	If CiscoWorks is installed, starts the Path Tool application, which enables you to view and analyze the path between two devices so that you can: • Analyze the path to collect utilization and error data. • Display the IP devices encountered between the source and the destination devices, the link speeds connecting these SNMP devices, and the interface names. • After prompting you for two addresses or host names (an origin and a destination), PathTool displays a map of the network from the origin to the destination. If you select one router, that router is the source. If you select two or more routers, the first is the source and the second is the destination.

Table 4-5 Items on the Tools Menu (continued)

Menu Item	Purpose
CiscoView	If CiscoView is installed, starts the CiscoView application, which is a GUI-based device-management application that provides dynamic status, statistics, and comprehensive configuration information on Cisco products. CiscoView allows you to display a graphical representation of each network device, display configuration and performance information, examine the status of interfaces, and perform minor troubleshooting tasks. For a list of Cisco devices you can manage with this application, refer to the *CiscoView Release Notes*.
Web Browser	Starts a web browser at your workstation so you can use the CiscoWorks Blue Maps web interface.
PU	Displays a list of PUs. Use the PU Filter window to select the criteria for determining which PUs to display.
LU	Displays a list of LUs. Use the LU Filter window to select the criteria for determining which LUs to display. The APPN/SNASw application does not display an LU filter; instead, it displays the entire LU list.

Using the Admin Menu

Use the discover item on the Admin menu to start the Maps discovery process. Table 4-6 lists the items on the Admin menu.

Table 4-6 Items on the Admin Menu

Menu Item	Purpose
Discover	Starts the discovery process, which looks for routers in your network that are enabled for DLSw, RSRB, or APPN/SNASw. Select **Seed File** to start discovery from a seed file of router names. Select **Database** to start discovery from a network management system database.

Using the Option Menu

Use the items on the Option menu to display or hide the Locator window and the color key. Table 4-7 lists the items on the Option menu:

Table 4-7 Items on the Option Menu

Menu Item	Purpose
Show Locator	Displays the Locator window with the main window. You can move the black frame in the Locator window to change the displayed area in the main window.
Show Color Key	Displays a key to the icon colors used on the maps at the bottom of the main window.

Selecting Multiple Items

You can select several map icons or several items in a list at one time.

Selecting Multiple Map Icons

You can select several map icons at one time, perhaps when you want to delete several devices from the map, or rediscover several devices at one time. There are two ways to select multiple icons. You can drag a box around the icons, or you can select each icon separately.

Dragging a Box Around the Icons

To select multiple map icons by dragging a box around them, use the following procedure:

Step 1 Hold the left mouse button down while pointing in an open area near the icons that you want to select.

Step 2 Move the mouse pointer on the screen to form a rectangle encompassing the icons you want selected. You will see a black box form as you drag the mouse pointer. The icons should be inside the rectangle.

Step 3 Release the mouse button. The icons within the rectangle are now selected.

Clicking the Icons

To select multiple map icons by clicking them, use the following procedure:

Step 1 Click the first map icon with the left mouse button.

Step 2 While holding down the **Shift** key, click the next map icon with the left mouse button.

Step 3 Continue clicking all the icons you want with the left mouse button while holding down the **Shift** key.

Step 4 Release the **Shift** key and the left mouse button. Now all the icons you clicked are selected.

You can now go on to select an item from the menu bar, such as **Edit > Rediscover Device(s)** or **Edit > Delete Device(s)** to perform the action on all the selected devices.

Selecting Multiple Items in a List

You can select several menu items, perhaps to select several routers to be key routers. To select multiple menu items, use the following procedure:

Step 1 Click the first menu item with the left mouse button.

Step 2 While holding down the **Shift** key, click the next menu item with the left mouse button.

Step 3 Continue clicking all then menu items you want with the left mouse button while holding down the **Shift** key.

Step 4 Release the **Shift** key and the left mouse button. Now all the menu items you clicked are selected.

Selecting Multiple Dependency Routers

You might want to select several items from a list when you want to display a PU List window that contains PUs from a set of routers.

Step 1 From the menu bar, select **Tools > PU**. The PU Filter window is displayed.

Step 2 From the PU Filter window, select **By Dependency**.

Step 3 While holding down the **Shift** key, select the routers whose PUs you want to list.

Step 4 Continue selecting routers with the left mouse button, while holding down the **Shift** key, until you have selected all the routers you want.

Step 5 Select **Apply**. The PU List window now displays the PUs dependent on the routers you selected.

Using the Popup Menus

Many icons and links on a DLSw, RSRB, and APPN/SNASw map have unique popup menus. When you click the icon (a router or ring, for example) with the right mouse button, a popup menu is displayed. For more information about these popup menus, see the following "Displaying the Popup Menus" sections in the following chapters:

- Chapter 5, "Using the DLSw Application in Maps"
- Chapter 6, "Using the RSRB Application in Maps"
- Chapter 7, "Using the APPN/SNASw Application in Maps"

Selecting Devices

There are several ways to select single or multiple devices:

- You can select a single device by clicking it.
- You can select several devices by clicking one device, pressing the **Shift** key, and then clicking each of the additional devices.
- You can select several adjacent devices by clicking and dragging a frame around them.

You can rediscover the selected devices to update their status by selecting **Edit > Rediscover Device(s)** from the menu bar.

You can delete them as a group by selecting **Edit > Delete Device(s)** from the menu bar.

Locating a Device Using the Locator Window

Use the Locator window to locate a device on the map. If the Locator window is not displayed, select **Option > Show Locator** from the menu bar on the main window to display the locator window, which shows you a miniature representation of the network. A black frame delimits a subset of the network that is actually displayed in the main window.

You can move the black frame in one of the following ways:

- You can click inside the frame and drag the frame to another part of the network in the Locator window.
- You can click anywhere outside the frame to move the frame to the center of the map.

As you move the frame in the Locator window, you can look for the device you want in the main window. When you find the device you want, you can display the focus view for that router, or use one of the other Maps functions.

Selecting Alternate Views

In addition to the default global view, each application offers a set of alternate views. An alternate view is a perspective of the network as seen by a single router of your choice. There are two ways to access an alternate view:

- Point to a device and press the right mouse button for a popup menu. The options include the views currently applicable to that router. From the router popup menu, you can select the view you want.
- Select a view from the View menu. You will be prompted for the name of the router whose alternate view you want to see. From the View menu, you can select a view.

The alternate views available depend on the application:

DLSw	RSRB	APPN/SNASw
Global view	Global view	Global view
Focus view	Focus view	Adjacent Nodes view
Key Devices view	Virtual Ring view	Ports and Links view

Accessing the Online Help System

This section explains how to access the online help system. Use the Maps help system to accomplish the following tasks:

- Get help on specific tasks you want to perform with a Maps application
- Understand the purpose of specific fields or buttons in windows

Map applications come with a HyperHelp viewer window that displays help topics.

You can get help by doing one of the following:

- Selecting **Help** > **Contents** from the menu bar of any Maps application
- Clicking a **Help** button within an application window

Navigating Online Help Topics

You can navigate help topics in the HyperHelp viewer window in a variety of ways:

- Click the **Help Topics** button to display the main contents for the Maps applications. From this window you can click any topic of interest and view a detailed listing of relevant help topics.
- Click any help topic of interest within the HyperHelp Viewer window.
- Click one of the **Browse** buttons to navigate backward and forward and view other related help topics.
- Click the **Back** button to return to a previously displayed help topic.
- Click the **Find** button to perform a full-text search.

Searching for a Topic with the Find Dialog Box

The HyperHelp viewer provides a superior search capability through the Find dialog box. Click the **Find** button to access the Find dialog box. The Find dialog box lets you quickly locate occurrences of text in almost any combination.

When you enter the desired characters in the text entry field at the top of this dialog box, corresponding words appear in a list in the middle of the dialog box, and related topics are displayed in the bottom portion of the box.

You can search for words that contain text strings that begin or end with, appear in, or contain exactly the characters that are typed.

Saving a Custom Topology

To save a custom topology for later use, select **File > Save As** from the menu bar and enter a name for the topology. When you re-open the topology file, you will see an exact representation of the saved map. Saving is done automatically when you switch views or end the application normally.

Terminating the Applications

To terminate the application, select **File > Exit Program** from the menu bar. The application terminates

Using the DLSw Application in Maps

This chapter describes the CiscoWorks Blue Maps data-link switching (DLSw) application.

This chapter includes the following main sections:

If you prefer to view the DLSw information from a web browser, see Chapter 2, “Using the CiscoWorks Blue Home Page.”

Introducing DLSw Maps

The DLSw Maps application discovers Cisco IP-based, DLSw-enabled routers in your network and displays them in a map, so you can perform the following tasks:

- View graphical representations of individual peer routers
- View the network from the perspective of a few key routers
- View DLSw-related network changes
- Get information about DLSw peer routers, peer connections, and circuits
- View logical connections between network devices

DLSw Maps provides the following main views of your network devices:

- The **key devices** view shows just the routers you designate as key devices. For each key router, all of its peers are represented by a single icon. This resulting icon shows the aggregation of the peers it represents.
- The **global view** shows all routers in the DLSw network with their peer connections and rings.
- The **focus view** shows the DLSw network from a specified router, which is called the focus router. The focus router, its peers, peer connections, and associated rings appear on this map.
- The **PU and LU views** show the devices in the network path from a PU or LU back toward the VTAM host.

From these DLSw map views, you can obtain additional DLSw-related information by selecting the popup menu associated with a device on the map. Data-link switching plus (DLSw+) network entities, such as border nodes, backup nodes, and group numbers, are shown as regular DLSw nodes on the map.

Starting the DLSw Application

This section describes how to start the DLSw application. You can start the DLSw application from the following locations:

- Network management system
- Workstation system prompt
- Remote workstation

Starting DLSw from a Network Management System

To start DLSw from a network management system:

- On SunNet Manager, select **Tools** > **CWB-DLSW** from the menu bar.
- On HP-OV and NetView for AIX, select **CWBlue** > **DLSW** from the menu bar.

Starting DLSw from a System Prompt

You can start DLSw from any valid user account. The installation process establishes a sample default user account named cwblue. The user cwblue does not have a starting password. You can either assign a password to cwblue or log in as root and change to cwblue. Then start the DLSw application.

To start the DLSw application from a system prompt, you can use the **cwb start dlsw** command. The command sets up all the environment variables, starts the DLSw monitor and poller daemons, and then calls the **dlsw** executable. To start the DLSw application, enter the following commands:

cd /opt/CSCOcb/bin

./cwb start dlsw

Starting DLSw from a Remote Workstation

You can log in to a remote UNIX host from your own local UNIX workstation, export the remote host display to your local workstation, and then run the application from the remote host. To start the remote host's DLSw application from your local workstation, use the following procedure:

Step 1 At your local UNIX workstation, enter the following command:

xhost +

Step 2 Log in to the remote UNIX host.

Step 3 Set your DISPLAY environment variable to export the display from the remote host to your local workstation. Depending on which shell you are using, use one of these commands.

- From the K shell (ksh):

  setenv DISPLAY

  export DISPLAY=*IP_address***:0.0**

- From the C shell (csh) or TC shell (tcsh):

  setenv DISPLAY *IP_address***:0.0**

Step 4 To start DLSw, enter the following commands:

cd /opt/CSCOcb/bin

./cwb start dlsw

DLSw Initial Startup Sequence

This section describes what happens when you start DLSw for the first time (or when you select **View > Key Devices** from the menu bar).

When it first starts, DLSw tries to display a special view called the key devices view. The key devices view displays the routers you designated as “key devices.” Key devices are explained in the *CiscoWorks Blue Maps and SNA View Workstation Installation and Administration Guide*.

If no devices are designated as key devices, the key devices view is empty. DLSw determines whether there are any routers enabled for DLSw in the Maps database. Depending on whether there are DLSw -enabled routers in the database, DLSw proceeds as described in the following sections:

- No DLSw Routers in the Database, page 5-5
- DLSw Routers Are in the Database, page 5-5

No DLSw Routers in the Database

If the key devices view is empty and there are no DLSw routers in the Maps database, then discovery was not done. DLSw displays the following message:

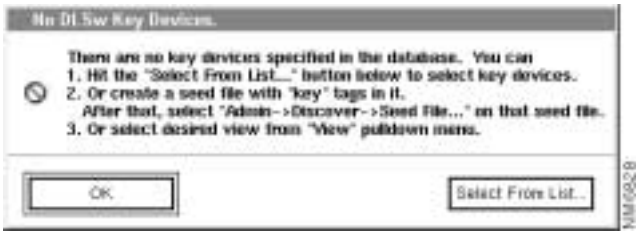
```
Key devices discovery needs to be performed.
Please create a seed file with "key" tags in it.
After that, select Admin->Discover->Seed File.. on that seed file.

OK?
```

Ask your network administrator to run a discovery process, as described in the *CiscoWorks Blue Maps and SNA View Workstation Installation and Administration Guide*.

DLSw Routers Are in the Database

If the key devices view is empty, but DLSw routers exist in the Maps database, then discovery was done but no key routers were designated. DLSw displays the message window shown in Figure 5-1.

Figure 5-1 No Key Routers Defined



Report this problem to your network administrator, who will use the processes outlined in the *CiscoWorks Blue Maps and SNA View Workstation Installation and Administration Guide* to designate key routers.

Locating Devices on the DLSw Map

The following sections provide information on locating and selecting devices on the DLSw map.

Locating a Device

There are two methods for locating a device on the map:

- If you know the IP address or host name of the device, you can select **View > Locate** from the menu bar.
- If you do not know the exact IP address or host name, you can use the Locator window.

Locating a Device Using the View Menu

To locate a device from the View menu you must know the device's IP address or host name. Then use the following procedure:

Step 1 From the DLSw menu bar, select **View > Locate**.

Step 2 Select either **By Name** or **By IP Address**.

Step 3 Enter the IP address or host name of a router.

- If you enter a host name, you must specify the name in the same form shown on the map: the device name is case-sensitive. If you want to locate a device by name, that device name must be in either the seed file or the network management database during discovery. There is no domain-name lookup provided.
- If you enter an IP address, it can be any IP address configured on the device.

Step 4 **Click Locate**. DLSw displays the part of the map that contains the selected device and highlights the device.

Adding and Deleting Devices on a DLSw Map

If the set of devices on any map is not up-to-date because automatic update is disabled or set to an infrequent interval, and you have not chosen to list target devices in a seed file, you can add and delete devices manually. From the Edit menu, you can select either **Add Device** or **Delete Device(s)**.

When you add or delete a device, the DLSw application prompts you for the device's host name or IP address and read community string. If the device is found to belong on this map, the application immediately adds a new device to the map or removes an existing device, depending on the menu item you selected.

If a Cisco device does not appear on the map, but you know it exists in the network, add the device using **Edit > Add Device** from the Maps menu bar.

After you add or delete a device from the map, you can save that device in your seed file with the **cwb create seed** command:

cd /opt/CSCOcb/etc

./cwb create seed -s *seed_file_name*

Where *seed_file_name* is the name of the seed file.

Note The device you add appears on the DLSw map only if the DLSw protocol is running on the router and it is at the prerequisite Cisco IOS software level, and if it is appropriate to that view.

Displaying Popup Menus on a DLSw Map

Each icon on the DLSw map has an associated popup menu. To activate the menu, click the icon with the right mouse button. Table 5-1 lists the popup menus associated with the icon.

Table 5-1 Popup Menus on the DLSw Map

Icon	Popup Menu Items
Router	**Information**—Displays information about the selected known router, including the DLSw version, the version of Cisco IOS that the router is running, DLSw performance information, and circuit information. **Peer Statistics**—Displays a list of the selected router's peer routers. When you select a peer router, you will see detailed statistics about that peer router. The Peer Statistics option is available in the focus view and global view only. **Circuit List**—Displays the Circuit List window for a known router. After you select the filter criteria, it displays a list of circuits that meet these criteria. You can double-click the displayed circuits to view more detailed information about the circuit and its component devices and links. **Rediscover**—Rediscovers the router information and updates the router information in the Maps database. **Focus View**—When selected from a discovered router, displays the focus view for the selected router. **Telnet**—Starts a Telnet client that logs you in to the selected device**.**
Aggregated Peer Router	**Focus View**—Displays a focus view map for the key router. **Aggregate Summary**—Displays information about the aggregated peer connection.
Aggregated Peer Connection	**Focus View**—Displays a focus view map for the key router. **Aggregate Summary**—Displays information about the aggregated peer connection.

Viewing the Network Devices

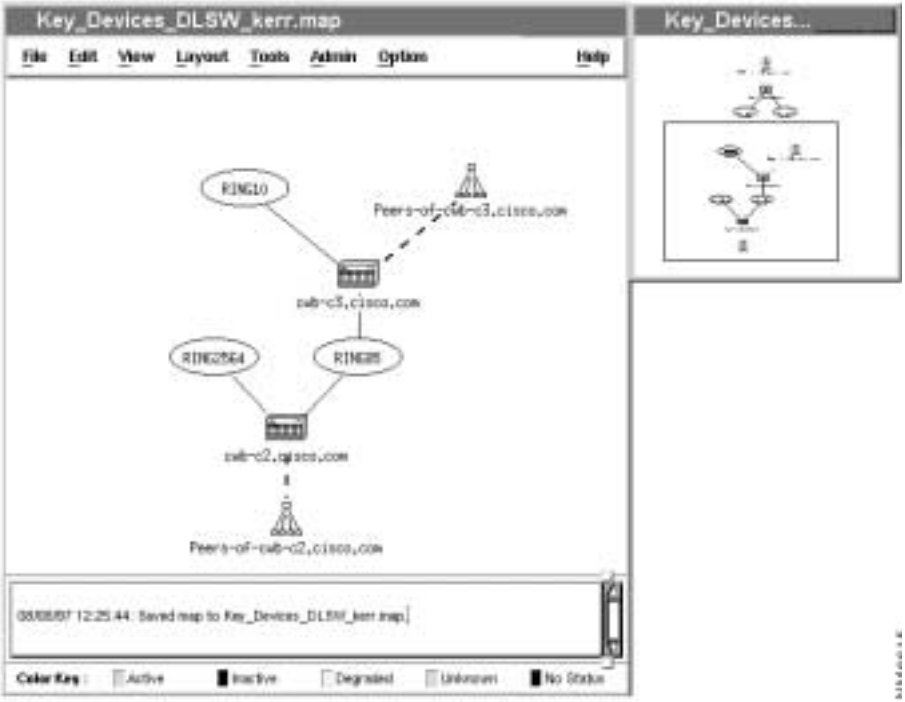
The DLSw map presents several views of your DLSw network devices:

- The key devices view of the network shows an up-to-date view of all DLSw-enabled key peer routers as well as their connections to each other and to their peer routers. For each key router, all the peer routers are represented by an icon called an aggregated peer router. The connection between each key router and its aggregated peer router is represented by a connection called an aggregated peer connection. To display the key devices view, see the "Displaying the Key Devices View of the Network" section on page 5-9.
- The global (high-level) view of the network shows an up-to-date view of all the DLSw -enabled peer routers and their status. It also shows all the DLSw peer connections and their status, all Token Rings (displayed as ovals), all pseudo-rings (displayed as dotted ovals), and all physical links (displayed as solid lines). To display the global view, see the "Displaying the Global View of the Network" section on page 5-11.
- The focus view for a router shows an up-to-date view of all the DLSw-enabled peer routers that are peer routers to a selected router called the focus router. The focus view also shows the DLSw peer connections for the focus router, and their status, the Token Rings (displayed as ovals) for the focus router, the pseudo-rings (displayed as dotted ovals) for the focus router, and the physical links (displayed as solid lines) for the focus router. Dashed lines reflect connections to non-DLSw rings. To display the focus view, see the "Displaying a Focus View of a Router" section on page 5-11.

Displaying the Key Devices View of the Network

The key devices view is displayed when you start the DLSw application. To display the key devices view at any other time, select **View > Key Devices** from the DLSw menu bar. The key devices view is displayed, as shown in Figure 5-2.

Figure 5-2 Key Devices View of the Network



The key devices view displays the key routers in the network. For any one key router, all its peer routers are displayed as a single icon that represents the aggregation of those peer routers. From any one key router, all the peer connections to its peer routers are displayed as a single peer connection. The color of the aggregated peer router and aggregated peer connection reflects the status of the links that make up the aggregated peer connection.

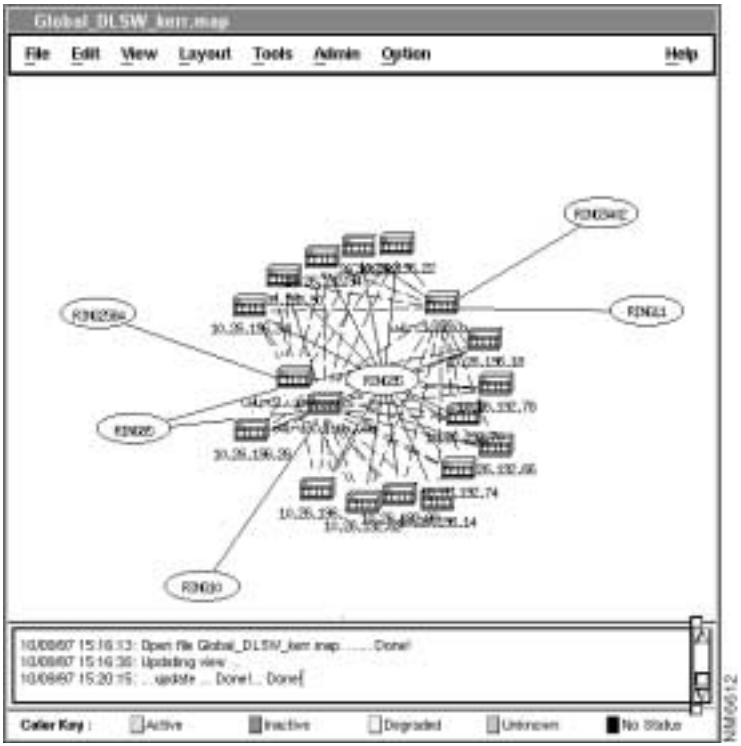
From the key devices view, you can select an aggregated peer router icon or aggregated peer router icon with the right mouse button. Select **Focus View** from the menu to display a focus view for the key router.

Optionally, you can select an aggregated peer router icon or an aggregated peer connection icon then select **Aggregate Summary** from its popup menu to review information about the individual peer connections that make up the aggregation.

Displaying the Global View of the Network

To display the global view, select **View > Global** from the DLSw menu bar. The global view is displayed, as shown in Figure 5-3.

Figure 5-3 Global View of a DLSw Network



Displaying a Focus View of a Router

The following information describe the ways in which you can display the focus view for a router.

Displaying the Focus View from a Popup Menu

To display the focus view for a specific router from the View menu, use the following procedure:

Step 1 Locate the router in the main window.

Step 2 Click the router with the right mouse button.

Step 3 From the popup menu, select **Focus View**.

Displaying the Focus View from the View Menu

To display the focus view for a router from the View menu, use the following procedure:

Step 1 From the DLSw menu bar, select **View** > **Focus**.

Step 2 Type in the device name of the router.

Step 3 Click **OK**.

Displaying the Focus View from the View Menu with a Router Selected

To display the focus view for a selected router from the View menu, use the following procedure:

Step 1 Locate the router in the main window.

Step 2 Click the router with the left mouse button to select it.

Step 3 Select **View** > **Focus**.

Step 4 Click **OK** in the Focus Peer Prompt window.

Displaying Information about a DLSw Peer Router

Once you locate a router on the map, you can display information about that router by using the following procedure:

Step 1 Locate the router in the main window.

Step 2 Click the router with the right mouse button.

Step 3 Select **Information** from the router's popup menu. The DLSw application displays the Peer Information window, as shown in Figure 5-4.

Figure 5-4 Router Information Window

The Peer Information window contains information about the router, including the DLSw and Cisco IOS versions, connections, and circuits.

In the Peer Information window, you can click **Refresh** to update the view.

Table 5-2 describes the fields in the Peer Information window.

Table 5-2 Peer Information Fields

Field	Description
DLSw Version	Version of DLSw used between local and remote peers.
Vendor ID	Name of the DLSw vendor and its ID.

Table 5-2 Peer Information Fields (continued)

Field (continued)	Description
IOS Version	Cisco IOS release running on the router.
Pacing Support	Receiving window size. The possible values are NONE, ADAPTIVE, and FIXED.
DLSw Up Time	Elapsed time since the DLSw router entered the active state.
Largest DLSw Frame	Largest frame size (including DLC header and information field but not any MAC-level or framing octets) that this DLSw router can forward on any path through itself.
Active Peer Connections	Number of transport connections that are not in the disconnected state.
Busy Connections Closed	Number of times transport connections in this node exited the connected state with some non-zero number of active circuits on the transport connection.
Active Circuits	Current number of circuits that are not in the disconnected state.
Circuits Created	Total number of circuits added or reactivated upon exiting the disconnected state table.

Displaying Information about a Peer Connection

A peer connection is the connection from one peer DLSw router to another. Once you locate a router in the focus view or global view, you can display information about the selected router's peer connections to other peer routers. To display peer statistics, use the following procedure:

Step 1 Locate the router in the main window in the focus view or global view.

Step 2 Click the router with the right mouse button.

Step 3 Select **Peer Statistics** from the router's popup menu. If the router has more than one peer connection, the Select Peer window is displayed.

Step 4 Select the peer connection you want to see and click **Get**.

The DLSw application displays a Peer Statistics window that contains routing statistics for the peer connection, as shown in Figure 5-5.

In the Information window, you can click **Refresh** to update the view.

Figure 5-5 Peer Statistics Window

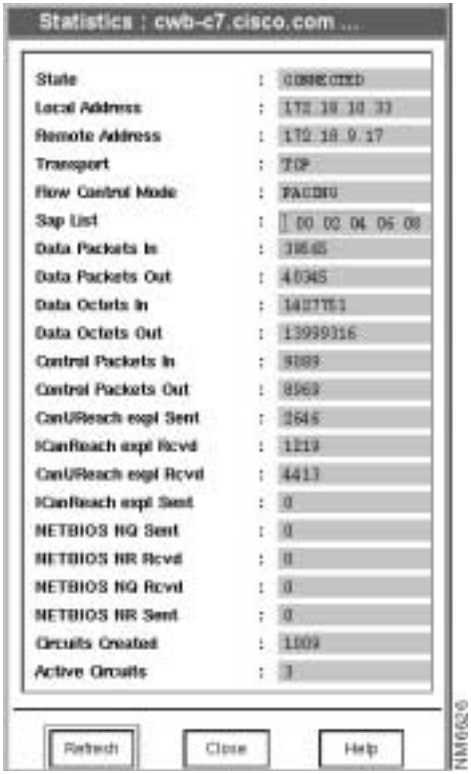


Table 5-3 describes the fields in the Peer Statistics window:

Table 5-3 Fields of the Peer Statistics Window

Field	Description
State	State of the transport connection.
Local Address	Local transport address for this transport connection.
Remote Address	Remote transport address of the transport connection.
Transport	Transport domain of the transport connection.
Flow Control Mode	Flow control mechanism in use on the transport connection. Values are UNDETERMINED, PACING, and OTHER.
Sap List	Supported SAP list received in the capabilities exchange message from the peer DLSw router.
Data Packets In	Number of Switch-to-Switch Protocol (SSP) messages of type DGRMFRAME, DATAFRAME, or INFOFRAME received on this transport connection.
Data Packets Out	Number of SSP messages of type DGRMFRAME, DATAFRAME, or INFOFRAME transmitted on this connection.
Data Octets In	Number of octets in SSP messages of type DGRMFRAME, DATAFRAME, or INFOFRAME received on this transport connection.
Data Octets Out	Number of octets in SSP messages of type DGRMFRAME, DATAFRAME, or INFOFRAME transmitted on this connection.
Control Packets In	Number of SSP messages received on this transport connection which were not of type DGRMFRAME, DATAFRAME, or INFOFRAME.
Control Packets Out	Number of SSP messages transmitted on this transport connection which were not of type DGRMFRAME, DATAFRAME, or INFOFRAME.
CanUReach expl Sent	Number of CanUReach_ex messages sent on the transport connection.

Table 5-3 Fields of the Peer Statistics Window (continued)

Field	Description
ICanReach expl Rcvd	Number of ICanReach_ex messages received on the transport connection.
CanUReach expl Rcvd	Number of CanUReach_ex messages received on the transport connection.
ICanReach expl Sent	Number of ICanReach_ex messages sent on the transport connection.
NETBIOS NQ Sent	Number of NetBIOS_NQ_ex messages sent on the transport connection.
NETBIOS NR Rcvd	Number of NetBIOS_NQ_ex messages received in the transport connection.
NETBIOS NR Sent	Number of NETBIOS_NR_ex messages sent on this transport connection.
NETBIOS NQ Rcvd	Number of NetBIOS_NQ_ex messages received in the transport connection.
Circuits Created	Number of times that circuits entered a circuit-established state (not counting transitions from circuit-restart).
Active Circuits	Number of currently active circuits on this transport connection.

Displaying Information about a Circuit from the Circuit List

A DLSw circuit is the end-to-end association of two PUs passing through one or two DLSw routers. Once you locate a router on the DLSw map, you can display circuit information about that router. To display a router's circuit list, use the following procedure:

Step 1 Locate the router in the main window.

Step 2 Click the router with the right mouse button.

Step 3 Select **Circuit List** from the router's popup menu. The Circuit List window is displayed, as shown in Figure 5-6.

Figure 5-6 Circuit List Window

The Circuit List window displays a list of the circuits that pass through the selected router, as shown in Figure 5-6. For each circuit, the Circuit List window displays the name, MAC, and service access point (SAP) for the host network connection and for the PU on the circuit (the host and the remote PU).

In the Information window, click **Refresh** to get a more up-to-date view.

Table 5-4 describes the fields in the Circuit List window.

Table 5-4 Fields of the Circuit List Window

Field	Description
Filter	Enter MAC and SAP addresses and click **Get Next** to obtain a new set of circuits based on the new MAC and SAP addresses.
Resource1	PU name of the resource associated with the router in the title bar.
MAC1 Address	MAC address of Resource1.
SAP1 Address	SAP address of Resource1.
Resource2	PU name in the circuit associated with the peer router.
MAC2 Address	MAC address of Resource2.

Table 5-4 Fields of the Circuit List Window (continued)

Field	Description
SAP2 Address	SAP address of Resource2.
State	State of the circuit connection, which can be DISCONNECTED, CIRCUIT START, RESOLVE PENDING, CIRCUIT PENDING, CIRCUIT ESTABLISHED, CONNECT PENDING, CONTACT PENDING, CONNECTED, DISCONNECT PENDING, HALT PENDING, HALT PENDING NOACK, CIRCUIT RESTART, or RESTART PENDING.

Step 4 Double-click a circuit (one row of information) in the Circuit List window to display a Circuit Information window, which shows a diagram of the entire circuit and lists information about the peer routers in the circuit, as shown in Figure 5-7.

Figure 5-7 Circuit Information Window

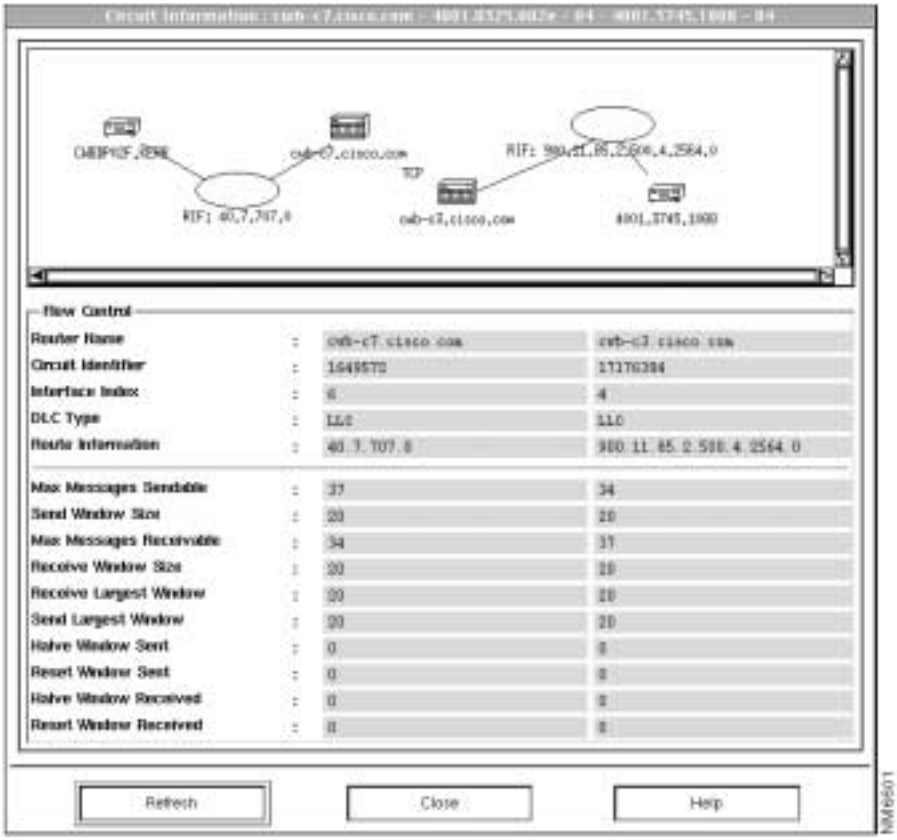


Table 5-5 describes the fields in the Circuit Information window.

Table 5-5 Fields of the Circuit Information Window

Field	Description
Router Name	Device name of the DLSw router.
Circuit Identifier	Circuit identifier assigned by this DLSw node to this circuit. The first four octets are the Data Link Control (DLC) port ID, and the second four octets are the data link correlator.
Interface Index	Entry index of the local interface through which the PU can be reached.
DLC Type	DLC protocol in use between the DLSw node and the PU. The possible values are QLLC, SDLC, LLC, NA, or Other.
Route Information	If source-route bridging is in use between the DLSw node and the PU, this is the routing information field describing the path between the two devices. Otherwise the value would be an octet string of zero length.
Max Messages Sendable	Number of paced Switch-to-Switch Protocol (SSP) messages that this DLSw router is authorized to send on this circuit before it must stop and wait for an additional flow control indication from the partner DLSw router.
Send Window Size	Current window size that this DLSw is using in its role as a data sender. This is the value by which the router can increase the number of messages it is authorized to send if it receives a flow control indication with the bits specifying a repeat window.
Max Messages Receivable	Current number of paced SSP messages that this DLSw router has authorized the partner DLSw router to send on this circuit before the partner DLSw must stop and wait for an additional flow control indication from this DLSw router.

Table 5-5 Fields of the Circuit Information Window (continued)

Field	Description
Receive Window Size	Current window size that this DLSw router uses in its role as a data receiver. This is the number of additional paced SSP messages that this DLSw router can authorize its DLSw partner router to send if this DLSw router sends a flow control indication with the bits specifying a repeat window.
Receive Largest Window	Largest receive window size granted by this DLSw router during the current activation of this circuit. This is not the largest number of messages granted at any time, but the largest window size as represented by FCIND operator bits.
Send Largest Window	Largest send window size (with respect to this DLSw router) granted by the partner DLSw router during the current activation of this circuit.
Halve Window Sent	Number of Halve window operations this DLSw has sent on this circuit, in its role as a data receiver.
Reset Window Sent	Number of Reset window operations this DLSw router has sent on this circuit, in its role as a data receiver.
Halve Window Received	Number of Halve window operations this DLSw router has received on this circuit, in its role as a data sender.
Reset Window Received	Number of Reset window operations this DLSw router has received on this circuit, in its role as a data sender.

Displaying a Focus View from an Aggregated Peer

While in the key devices view, you can display a focus view of a key router from its aggregated peer router or its aggregated peer connection by using the following procedure.

Step 1 Locate an aggregated peer router in the main window.

Step 2 Click the router with the right mouse button.

Step 3 Select **Focus View** from the router's popup menu. The application displays the focus view for the key router that is the peer to the routers represented by the selected aggregated peer router.

Displaying a Summary of Aggregated Peer Connections

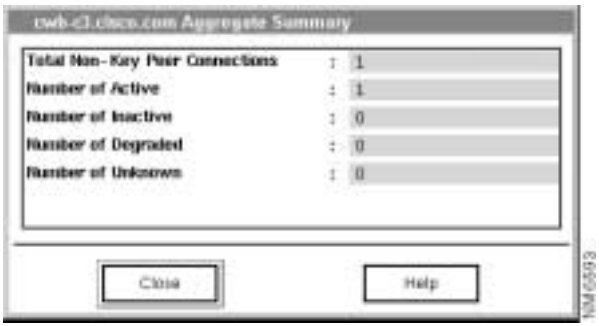
While in the key devices view, you can display summary information about the peer connections that are represented by an aggregated peer router icon or aggregated peer connection icon.

Step 1 Locate an aggregated peer router or aggregated peer connection in the main window.

Step 2 Click the icon with the right mouse button.

Step 3 Select Aggregate Summary from the icon's popup menu. The Aggregate Summary window is displayed, as shown in Figure 5-7.

Figure 5-8 Aggregate Summary Window



The Aggregate Summary window displays the summary of aggregated peer connections. This aggregation does not include connections to other key device

Table 5-6 describes the fields in the Aggregate Summary window.

Table 5-6 Fields of the Aggregate Summary Window

Field	Description
Total Non-Key Peer Connections	Total number of peer connections aggregated into this icon. This count does not include connections to key devices.
Number of Active	Number of active peer connections aggregated into this icon.
Number of Inactive	Number of inactive peer connections represented by this icon.
Number of Degraded	Number of degraded peer connections represented by this icon.
Number of Unknown	Number of unknown peer connections represented by this icon.

Using the View Menu

You can change the view by selecting one of the following items from the View menu:

- **Locate** finds a specific device on the map. Select **View > Locate** and enter either the device name or IP address of the device and click **Locate**. The specified device is selected in the map. The IP address should be in dotted decimal format, such as 75.122.10.147.
- **Refresh** updates the status of the displayed map from the maps database. The monitor daemon refreshes the map automatically.
- **Global** displays a high-level view of DLSw-enabled Cisco devices. The map presents the status of devices and links.
- **Focus** displays information for a specific device. Select **Focus** and enter the name of a router, or point to a single peer (a router icon), click the right mouse button, and select **View > Focus**. Either action displays the selected peer's perspective of the network, with the in-focus router in a black box.

- **Key Devices** displays a key devices view of the network, which contains all the routers that were designated as key devices, all their peer routers, and the peer connections between the peer routers and the key routers.
- **PU** or **LU** displays the path to the host for a PU or LU. Specify the PU or LU name in the form *NAME.DOMAIN*.

Viewing Dependent PUs and LUs

You can retrieve the dependency view information for a PU or LU. Maps gets the PU and LU information from the VTAM at the mainframe and displays the PU and LU information at the workstation in logical maps. You can display information about specified PUs and LUs, and you can see their dependency paths through the network to the VTAM host. There are several ways to retrieve PU and LU information, depending on whether you know the PU or LU name, and on what you want to do with the PU or LU once you locate it.

- If you know the PU or LU name, and you want a quick path to the dependency view, you can select **PU** or **LU** from the View menu. This method is explained in the "Viewing PUs and LUs from the View Menu" section on page 5-25.
- Select **PU** or **LU** from the Tools menu and use the Filter window to select a PU or LU to view; you need not remember the PU or LU name. This method, which is explained in the "Viewing PUs from the Tools Menu" section on page 5-26 and the "Viewing LUs from the Tools Menu" section on page 5-33, lets you display dependency views as well as activate and deactivate the PUs and LUs.

Viewing PUs and LUs from the View Menu

If you know the name of the PU or LU, you can use the **View** menu on the Maps menu bar to display a dependency view. To view a PU or an LU from the View menu, use the following procedure:

Step 1 From the DLSw application's menu bar, select **View**. The View menu is displayed.

Step 2 From the View menu, select **PU** to view a PU, or select **LU** to view an LU. The PU/LU Prompt window is displayed, as shown in Figure 5-9.

Figure 5-9 PU/LU Prompt Window

Step 3 From the PU/LU Prompt window, enter the PU name or LU name in the format *NAME.DOMAIN*.

Step 4 Click **OK**. Maps displays a dependency view for the selected PU or LU.

Viewing PUs from the Tools Menu

If you would rather select the PU names from a filtered list, you can use the **PU** item on the Tools menu, which lets you set up filtering criteria to search for a PU name, based on VTAM information, or on its router or Token Ring dependency. From the Map application's menu bar, select **Tools > PU** to display the PU Filter window, as shown in Figure 5-10.

Filtering the PU List

When you select **PU** from the Maps Tools menu, the application displays the PU Filter window, as shown in Figure 5-10. This window lets you configure a filter to be used in selecting which PUs to display in a PU List window. Select PUs the following ways:

- **By VTAM Info** to configure the filter to select PUs based on VTAM criteria.
- **By Dependency** to configure the filter to select PUs based on the routers on which the PUs are dependent.
- **Get All PUs** to see all discovered PUs.

Click **Apply** to display all the PUs filtered as you requested. The PU List window is described in the "Using the PU List Window" section on page 5-28.

Figure 5-10 PU Filter Window

Filtering PUs by VTAM Information

You can filter the PU List based on the PU name, state, and type.

Step 1 From the PU Filter window, select **By VTAM Info**.

Step 2 In the PU Name field, enter all of a PU name, or just part of a PU name and wildcards. The PU List will contain PUs with names that match the filter criteria:

- Use *NAME* to search for a specific PU
- Use *NAME.DOMAIN* to search for a specific PU in a specific domain

- Use *NAME.** or *NAME* to get a list of PUs with the same name in all domains
- Use *NAM** to get a list of PU names that start with the same characters (NAM, in this case) in all domains

Step 3 In the PU State field, select one or more PU states. The PU List window will contain the names of PUs that match one of the PU states you select.

Step 4 In the PU Type field, select one or more PU types. The PU List window will contain PUs whose type matches one of the PU types you select.

Step 5 Click **Apply**.

Filtering PUs by Dependency

Use the following procedure to filter PUs by dependency:

Step 1 From the PU Filter window, select **By Dependency** to filter the PU List based on the router dependency.

Step 2 Select one or more routers from the Routers field in the PU Filter window.

Step 3 Click **Apply**. The PU List window displays the PUs dependent on the selected routers.

Getting all PUs

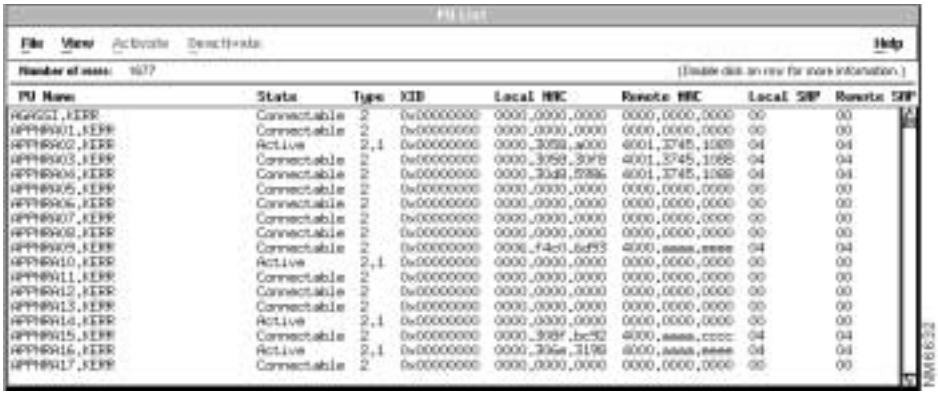
Select **Get All PUs** and then click **Apply** to display a PU List that contains all discovered PUs.

Using the PU List Window

This section describes how to use the functions of the PU List window, as shown in Figure 5-11. The PU List window shows all the PU names that satisfy the same set of PU filter criteria.

The PU List window is static; select **View** > **Refresh** to update the status.

Figure 5-11 PU List Window



From the PU List window, you can do the following:

- Activate a PU, as described in the “Activating a PU” section on page 5-30.
- Deactivate a PU, as described in the “Deactivating a PU” section on page 5-30.
- List the LUs dependent on a PU, as described in the “Listing the LUs Dependent on a PU” section on page 5-31.
- Display a dependency view from a PU to the VTAM host, as described in the “Displaying a PU Dependency View” section on page 5-31.
- Choose another set of PUs to display in a PU List window, as described in the “Choosing Another PU Set” section on page 5-33.
- Update the current filter information by selecting **View > Refresh**.

Note Some nodes may appear in the PU list with an unknown type and status. This status appears when VTAM returns the IST453I message in response to a D NET,ID command for a node. Message IST453I indicates that the node is unknown to VTAM; this can occur when a major node is inactivated or when a node is activated, but VTAM is not ready to return information for the node when Maps queries it. This situation should not occur for switched PUs, unless the switched PU major node is inactivated.

Activating a PU

You can activate a PU from the PU List window. This action is comparable to using the VTAM command **VARY NET,ACT,ID=***PU_name*.

Note Before you can activate a PU, you must enable PU activation and an SPO subtask must be running in the mainframe, as described in the *CiscoWorks Blue Maps and SNA View Workstation Installation and Administration Guide*. Notify your network administrator. After you have enabled PU and LU activation, select a PU or LU to activate the menu. Otherwise it remains inactive.

To activate a PU from the PU List window, use the following procedure:

Step 1 Select an inactive PU from the PU List window.

Step 2 From the PU List window menu bar, select **Activate**.

Step 3 From the Activate menu, select one of the following:

- **Default** activates the PU as if you had issued the VTAM command **VARY NET,ACT,SCOPE=COMP,ID=***PU_name*.
- **All** activates the PU and its LUs regardless of the ISTATUS value, which is the status with which the PU was configured through VTAM.
- **Only** activates the selected PU, but no LUs, regardless of their ISTATUS values (the status with which the PU was configured through VTAM).

Deactivating a PU

You can deactivate an active PU from the PU List window. This is comparable to issuing the VTAM command **VARY NET,INACT,ID=***PU_name*.

To deactivate a PU from the PU List window, use the following procedure:

Step 1 Select an active PU from the PU List window.

Step 2 From the PU List window menu bar, select **Deactivate**.

Step 3 From the Deactivate menu, select one of the following:

- **Quiesce** deactivates the PU and any subordinate resources when all current sessions are terminated.
- **Immediate** deactivates the PU and any subordinate resources immediately, disrupting active sessions.
- **Forced** deactivates the PU forcibly; this form of deactivation is recommended for PUs that do not respond to other deactivation methods.

Listing the LUs Dependent on a PU

From the PU List window you can display a list of LUs attached to a PU. To display an LU list, use the following procedure:

Step 1 Select a PU from the PU List window.

Step 2 From the PU List menu bar, select **View** > **Show LU List**. The LU List window is displayed.

For information about using the LU List window, read the “Using the LU List Window” section on page 5-35.

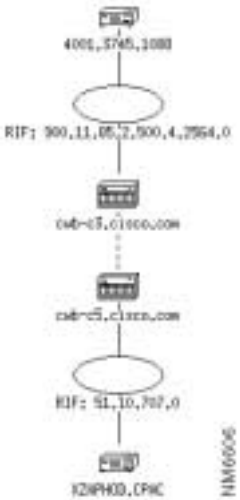
Displaying a PU Dependency View

From the PU List window you can display a dependency view of the path from the PU back toward the VTAM host. To display a dependency view, use the following procedure:

Step 1 Select a PU from the PU List window.

Step 2 From the PU List menu bar, select **View** > **Dependency**. Maps displays the PU dependency view, as shown in Figure 5-12.

Figure 5-12 PU Dependency View



Step 3 Because the PU dependency view is static, select **View** > **Refresh** to update the status.

The PU dependency view shows the network components from the PU itself, back toward the mainframe to the host network connection. The PU dependency view shown in Figure 5-12 includes the following network components, starting at the top:

- Host network connection
- RIF from the peer router to the host network connection
- First peer router (cwb-c3.cisco.com)
- Peer connection (dotted line between cwb-c3.cisco.com and cwb-c5.cisco.com)
- Second peer router (cwb-c5.cisco.com)
- RIF from the PU to the peer router
- PU (XZAPHOD.CPAC)

Choosing Another PU Set

From the PU List window, you can configure a new PU filter to display a new set of PU names in the PU List window. To configure a new PU List filter, use the following procedure:

Step 1 From the PU List menu bar, select **View** > **Filter**.

Step 2 Choose your filtering options: By VTAM Info, By Dependency, and Get All PUs. (These options are explained in the "Filtering PUs by VTAM Information" section on page 5-27.

Step 3 Click **Apply**.

Viewing LUs from the Tools Menu

You can use the **LU** item on the Tools menu to set up filtering criteria to search for an LU name based on VTAM information or on its router or Token Ring dependency. From the Map application's menu bar, select **Tools** > **LU** to display the LU Filter window, as shown in Figure 5-13.

Figure 5-13 LU Filter Window

Filtering the LU List

The LU Filter window lets you configure the filter to use when selecting the LUs to display in an LU List window, as shown in Figure 5-13. Select LUs in the following ways:

- **By VTAM Info** to configure the filter to select LUs based on VTAM criteria.
- **By Dependency** to configure the filter to select LUs based on the routers on which the LUs are dependent.
- **Get All LUs** to get all the discovered LUs.

The LU List window is described in the “Using the LU List Window” section on page 5-35.

Filtering LUs by VTAM Information

You can filter the LU List based on the LU name, PU name, and LU state.

Step 1 From the LU Filter window, select **By VTAM Information**.

Step 2 In the LU Name field, enter all of an LU name, or just part of an LU name and wildcards. The LU List contains LUs with names that match the filter criteria:

- Use *NAME.DOMAIN* to search for a specific LU in a specific domain.
- Use *NAME.** or *NAME* to get a list of LUs with the same name in all domains.
- Use *NAM** to get a list of LU names that start with the same characters (NAM, in this case) in all domains.

Step 3 In the LU State field, select one or more LU states. The LU List window will contain the names of LUs that match one of the LU states that you select.

Step 4 In the LU Type field, select one or more LU types. The LU List window will contain LUs whose type matches one of the LU types that you select.

Step 5 Click **Apply**.

Filtering LUs by Dependency

You can filter the LU List based on the router dependency. Select one or more routers from the Routers field in the LU Filter window. The LU List window will contain the LUs dependent on the selected routers.

Getting all LUs

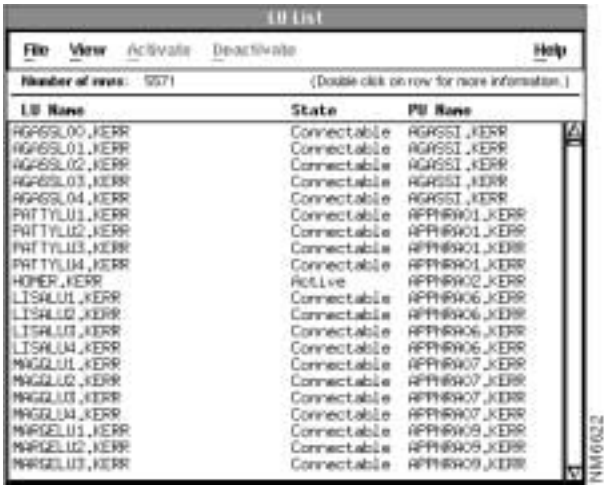
From the LU Filter window, you can select **Get All LUs** to display an LU List that contains all LUs discovered by SNA View.

Using the LU List Window

This section describes how to use the functions of the LU List window, as shown in Figure 5-14. The LU List window shows all the LU names that satisfy the same LU filter criteria.

The LU List window is static; select **View > Refresh** to update the status.

Figure 5-14 LU List Window



From the LU List window, you can perform the following actions:

- Activate an LU, as described in the “Activating an LU” section on page 5-36.
- Deactivate an LU, as described in the “Deactivating an LU” section on page 5-37.
- Display a dependency view from an LU to the VTAM host, as described in the “Displaying a Dependency View from an LU” section on page 5-38.
- Choose another set of LUs to display in a LU List window, as described in the “Choosing Another LU Set” section on page 5-39.
- Refresh the current filter information by selecting **View** > **Refresh**.

Activating an LU

You can activate an LU from the LU List window. This is comparable to issuing the VTAM command **VARY NET,ACT,ID=***LU_name*.

Note Before you can activate an LU, you must enable LU activation and verify that an SPO subtask is running in the mainframe, as described in the *CiscoWorks Blue Maps and SNA View Workstation Installation and Administration Guide*. Notify your network administrator. After you enable PU and LU activation, select a PU or LU to activate the menu. Otherwise it remains inactive.

To activate an LU from the LU List window, use the following procedure:

Step 1 Select an inactive LU from the LU List window.

Step 2 From the LU List menu bar, select **Activate**.

Step 3 From the Activate menu, select one of the following:

- **Default** activates an LU as if issuing the VTAM command **VARY NET,ACT,SCOPE=COMP,ID=***LU_name*.
- **All** activates an LU regardless of its ISTATUS value.

Deactivating an LU

You can deactivate an active LU from the LU List window. This is comparable to issuing the VTAM command **VARY NET,INACT,ID=***LU_name*. To deactivate an LU from the LU List window, use the following procedure:

Step 1 Select an active LU from the LU List window.

Step 2 From the LU List menu bar, select **Deactivate**.

Step 3 From the Deactivate menu, select one of the following:

- **Quiesce** deactivates the LU when all current sessions are terminated.
- **Immediate** deactivates the LU immediately, disrupting active sessions.
- **Forced** deactivates the LU forcibly; this action is recommended for LUs that do not respond to other deactivation methods.

Displaying a Dependency View from an LU

From the LU List window you can display a dependency view of the path from the LU back toward the VTAM host. To display an LU dependency view, use the following procedure:

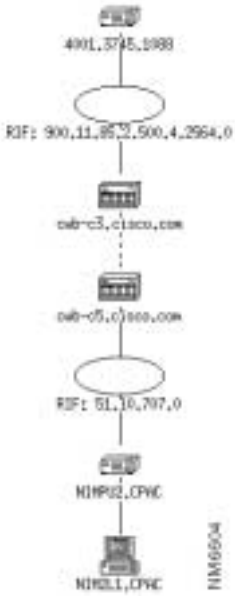
Step 1 Select an LU from the LU List window.

Step 2 From the LU List menu bar, select **View** > **Dependency**.

Step 3 Maps displays the LU dependency view, as shown in Figure 5-15.

Step 4 Because the LU dependency view is static, select **View** > **Refresh** to update the status.

Figure 5-15 LU Dependency View



The LU dependency view shows the network components from the LU itself, back toward the mainframe to the host network connection. The LU dependency view, shown in Figure 5-15, includes the following network components, starting at the top:

- Host network connection
- RIF between the peer router and the host network connection
- First peer router (cwb-c3.cisco.com)
- Peer connection (dotted line between cwb-c3.cisco.com and cwb-c5.cisco.com)
- Second peer router (cwb-c5.cisco.com)
- RIF between the PU and the peer router
- PU (NIMPU2.CPAC)
- LU (NIM2L1.CPAC)

Choosing Another LU Set

From the LU List window, you can configure a new LU filter to display a new set of LU names in the LU List window. To configure a new LU List filter, use the following procedure:

Step 1 From the LU List menu bar, select **View > Filter**.

The LU Filter window is displayed.

Step 2 Choose a filtering option: By VTAM Info, By Dependency, or Get All LUs. (These options are explained in the “Filtering the LU List” section on page 5-34.

Step 3 Click **Apply**.

Interpreting Colors and Symbols on a Map

The colors and symbols on a DLSw map are explained below:

- Green—Device or link is up and running
- Red—Device or link is down, or aggregated link is above critical threshold
- Yellow—Device or link performance is degraded or pending, or aggregated link is between critical and marginal thresholds
- Black—Physical link; no status is reported
- Blue—Status of device or link is unknown
- Solid line—Physical link
- Dashed line—Logical link

DLSw Icons

Table 5-7 shows the icons that can appear on a DLSw map.

Table 5-7 DLSw Icons

Icon	Description
	Token Ring
	Routing information field (RIF)
	Known DLSw router • Green—Managed by SNMP • Blue—Not managed by SNMP
	Focus router

Table 5-7 DLSw Icons (continued)

Icon	Description
	Router not known to CiscoWorks Blue Maps (not discovered)
	Aggregated peer routers
	PU in a dependency view
	LU in a dependency view
	Physical connection
	Logical connection or aggregated link

Using the RSRB Application in Maps

This chapter describes the CiscoWorks Blue Maps remote source-route bridging (RSRB) application.

This chapter includes the following main sections:

If you prefer to view the RSRB information from a web browser, see Chapter 2, “Using the CiscoWorks Blue Home Page.”

Introducing RSRB Maps

The RSRB Maps application discovers Cisco IP-based, RSRB-enabled routers in your network and displays them in a map. Using the RSRB Maps application, you can do the following tasks:

- View your entire network or specific portions of your network
- View changes to peer states
- Get network traffic statistics for a peer
- Get peer information

RSRB Maps provides the following main views of your network devices:

- The global view shows all routers in the RSRB network with their virtual and associated rings.
- The virtual ring view shows a specific virtual ring with its associated routers. Peer routers are displayed on this map.
- The focus view shows the RSRB network from a specified router (focus router). The focus router, its peers, associated rings, and virtual rings appear on this map.
- The PU and LU dependency views show the devices in the network path from a PU or LU back toward the VTAM host.

From these RSRB map views, you can obtain additional RSRB-related information by selecting the popup menu associated with a device on the map.

Starting the RSRB Application

This section describes how to start the RSRB application. You can start the RSRB application from the following locations:

- Network management system
- Workstation system prompt
- Remote workstation

Starting RSRB from a Network Management System

To start RSRB from a network management system:

- On SunNet Manager, select **Tools** > **CWB-DLSW** from the menu bar.
- On HP-OV and NetView for AIX, select **CWBlue** > **DLSW** from the menu bar.

Starting RSRB from a System Prompt

You can start RSRB from any valid user account. The installation process establishes a sample default user account named cwblue. The user cwblue does not have a starting password. You can either assign a password to cwblue or log in as root and change to cwblue.

To start the RSRB application from a system prompt, enter the commands shown below:

cd /opt/CSCOcb/bin

./cwb start rsrb

Starting RSRB from a Remote Workstation

You can log in to a remote UNIX host from your local UNIX workstation, export the remote host display to your local workstation, and then run the application from the remote host. To start the remote host's RSRB application from your local workstation, use the following procedure:

Step 1 At your local UNIX workstation, enter the following command:

xhost +

Step 2 Log in to the remote UNIX host.

Step 3 Set your DISPLAY environment variable to export the display from the remote host to your local workstation. Depending on which shell you are using, enter the following commands:

- From the K shell (ksh):

  setenv DISPLAY

  export DISPLAY=*IP_address***:0.0**

- From the C shell (csh) or TC shell (tcsh):

  setenv DISPLAY *IP_address***:0.0**

Step 4 To start RSRB, enter the following commands:

cd /opt/CSCOcb/bin

./cwb start rsrb

Locating Devices on the RSRB Map

This section describes how to locate and select devices on the RSRB map. There are two methods for locating a device on the map:

- Select **View** > **Locate** from the menu bar if you know the IP address or host name of the device.
- Use the Locator window if you do not know the IP address or host name.

Locating a Device Using the View Menu

To locate a device from the View menu you must know the device's IP address or device name. Then use the following procedure:

Step 1 From the RSRB menu bar, select **View** > **Locate**.

Step 2 Select either **By Name** or **By IP Address**.

Step 3 Enter the IP address or name.

- If you enter a host name, you must specify the name in the same form shown on the map: the device name is case-sensitive. If you want to locate a device by name, that device name must be in either the seed file or the database. There is no domain-name lookup provided.
- If you enter an IP address, it can be any IP address configured on the device.

Step 4 Click **Locate**. RSRB displays the part of the map that contains the selected device and highlights the device.

Adding and Deleting Devices on an RSRB Map

If a set of devices on any map is not up-to-date because automatic update is disabled or set to an infrequent interval, and you have not chosen to list target devices in a seed file, you can add and delete devices manually. From the Edit menu, you can select either **Add Device(s)** or **Delete Device(s)**.

When you add or delete a device, RSRB prompts you for the device's host name or IP address and read community string. If the device is found to belong on this map, the application places a new device on the map or removes an existing device, depending on the menu item you selected.

If a Cisco device does not appear on the map, but you know that it exists in the network, add the device using **Edit > Add Device** from the Maps menu bar.

After you add or delete a device from the map, save that device in your seed file with the **cwb create seed** command:

cd /opt/CSCOcb/etc

./cwb create seed -s *seed_file_name*

Where *seed_file_name* is the name of the seed file.

Note The device appears on the RSRB map only if the RSRB protocol is running on the router and is at the prerequisite Cisco IOS release, and if it is appropriate to that view.

Displaying Popup Menus on an RSRB Map

Each icon on the RSRB map has an associated popup menu. To activate the menu, click the icon with the right mouse button. Table 6-1 lists the popup menus associated with each map icon.

Table 6-1 Popup Menus on the RSRB Map

Icon	Popup Menu Items
Router	**Focus View**—When selected from a known router in the global view, displays the focus view for the selected router. In the focus view for a known router, there is no popup menu for the router that is in focus. **Peer Info**—When selected from the focus view of a peer router, displays information about the focus router's peer router.
Real Ring (an oval)	**Ring Info**—When selected in the focus view for a router, displays information about the selected ring, such as bridge number, ring type, MAC address. **PU List**—Displays a dependency list of PU names: a list of PUs dependent on the selected ring.
Virtual Ring (a circle)	**Virtual Ring View**—When selected from the global view, displays a virtual ring view of the network: the routers and real rings that together make up the virtual ring. **Global View**—When selected from the virtual ring view, displays the global view.

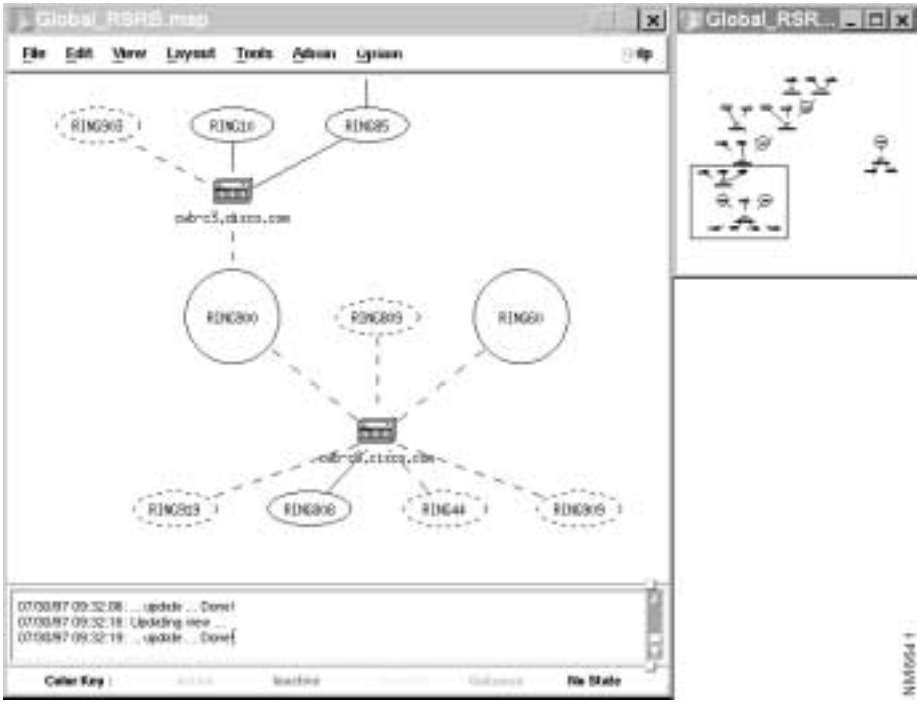
Viewing the Network Devices

RSRB presents a global (high-level) view of the applicable network devices. The global view presents an up-to-date view of virtual rings (displayed as circles), physical rings (displayed as ovals), pseudo-rings (displayed as dotted ovals), RSRB-enabled peers and their status, physical links (displayed as solid lines), and virtual links (displayed as dashed lines). Dashed lines also show connections to non-RSRB rings.

Displaying the Global View of the Network

The global view is displayed when you start the RSRB application. To display the global view at any other time, select **View** > **Global** from the RSRB menu bar. The global view is displayed, as shown in Figure 6-1.

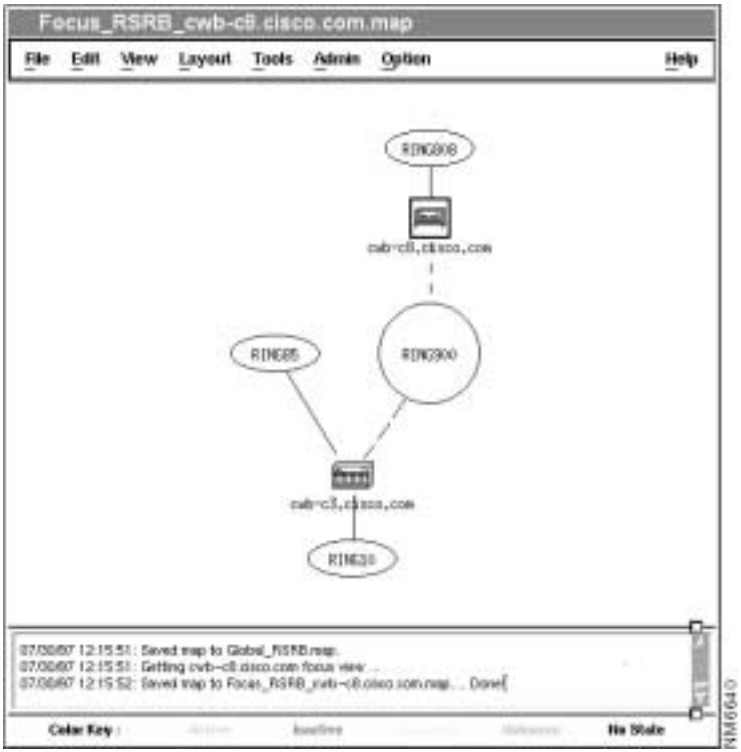
Figure 6-1 RSRB Global View



Displaying a Focus View of a Router

The focus view displays a subset of the network from the viewpoint of a single router, called the focus router. The following sections describe the ways you can display the focus view for a router. Figure 6-2 shows the focus view for router cwb-c8.cisco.com.

Figure 6-2 RSRB Focus View of a Router



Displaying the Focus View from a Popup Menu

To display the focus view for a router from the View menu, use the following procedure:

Step 1 Locate the router in the main window.

Step 2 Click the router with the right mouse button.

Step 3 From the popup menu, select **Focus View**.

Displaying the Focus View from the View Menu

To display the focus view for a router from the View menu, use the following procedure:

Step 1 From the RSRB menu bar select **View** > **Focus**. The Focus View Prompt window is displayed.

Step 2 In the Focus View Prompt window, enter the device name of the router.

Step 3 Click **OK**.

Displaying the Focus View from the View Menu with a Router Selected

To display the focus view for a selected router from the View menu, use the following procedure:

Step 1 Locate the router in the main window.

Step 2 Click the router with the left mouse button to select it.

Step 3 Select **View** > **Focus** from the menu bar. The Focus View Prompt window is displayed.

Step 4 In the Focus View Prompt window, click **OK**.

Displaying Information about a Peer

Once you locate a router on the map, you can find and display information about that router's peer routers in the network using the following procedure:

Step 1 Locate the router in the main window.

Step 2 Click the router with the left mouse button.

Step 3 Select **View** > **Focus**.

Step 4 Click **OK** in the Focus Peer Prompt window.

Step 5 In the focus view, select a peer router with the right mouse button.

Step 6 From the popup menu, select **Peer Info**.

Displaying a Virtual Ring View

A virtual ring is a defined combination of RSRB routers, the connections between them, and the real Token Rings attached to the routers. There are three ways to display the virtual ring view. You can display the virtual ring view from the popup menu or from the View menu, with or without the virtual ring selected.

Displaying the Virtual Ring View from a Popup Menu

To display the virtual ring view from a popup menu, use the following procedure:

Step 1 Locate a virtual ring (virtual rings are round) in the main window.

Step 2 Click the ring with the right mouse button.

Step 3 From the popup menu, select **Virtual Ring View**.

Displaying the Virtual Ring View from the View Menu

To display the virtual ring view from the View menu, use the following procedure:

Step 1 Select **View > Virtual Ring**. The Virtual Ring Prompt window is displayed.

Step 2 In the Virtual Ring Prompt window, enter the virtual ring's number.

Step 3 Click **OK**.

Displaying the Virtual Ring View from the View Menu with the Virtual Ring Selected

You can also display the virtual ring view from the View menu using the following procedure:

Step 1 Locate the virtual ring in the main window.

Step 2 Click the ring with the left mouse button.

Step 3 Select **View** > **Virtual Ring**. The Virtual Ring Prompt window is displayed.

Step 4 In the Virtual Ring Prompt window, click **OK**.

Displaying Token Ring Information

You can display information about each Token Ring in the network. The ring information includes the following items:

- Bridge number
- Ring type
- MAC address of the router interface to the Token Ring
- Local Token Ring indicator
- Interface index
- Number of packets transmitted

Before you display the ring information, you must display the focus view for the router to which the Token Ring is attached. To display the ring information, use the following procedure:

Step 1 In the main window, locate the router to which the Token Ring is attached.

Step 2 Click the router with the right mouse button.

Step 3 From the popup menu, select **Focus View**. The focus view is displayed.

Step 4 From the focus view, select the ring.

Step 5 Click the right mouse button.

Step 6 From the popup menu, select **Ring Info**. The Ring Information window is displayed.

Viewing Dependent PUs and LUs

You can retrieve the dependency view information for a PU or LU. Maps gets the PU and LU information from the VTAM at the mainframe and displays them. You can display information about specified PUs and LUs, and you can see their dependency paths through the network to the VTAM host. There are several ways to retrieve PU and LU information, depending on whether you know the PU or LU name, and on what you want to do with the PU or LU once you locate it.

Note PUs connecting to the mainframe using the RSRB protocol and a CIP or 3172 connection to the mainframe will not benefit from the correlation feature of Maps. Consequently, Maps will be unable to determine on which routers these PUs depend for connectivity to the mainframe.

- If you know the PU or LU name, and you want a quick path to the dependency view, you can select **PU** or **LU** from the View menu. This method is explained in the “Viewing PUs and LUs from the View Menu” section on page 6-13.
- Select **PU** or **LU** from the Tools menu and use the Filter window to select a PU or LU to view; you need not remember the PU or LU name. This method, which is explained in the sections “Viewing PUs from the Tools Menu” section on page 6-13 and “Viewing LUs from the Tools Menu” section on page 6-21, lets you display dependency views, as well as activate and deactivate the LUs and PUs.
- If you do not know the PU or LU name, and want to display just the PUs that depend on a specific Token Ring, you can display all the PUs on a ring. This method is explained in the “Viewing PUs from the Map Ring Icons” section on page 6-16.

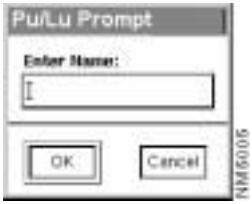
Viewing PUs and LUs from the View Menu

If you know the name of the PU or LU, you can use the View menu on the Maps menu bar to locate a PU or LU and display a dependency view. To view an LU or a PU from the View menu, use the following procedures:

Step 1 From the RSRB application's menu bar, select **View**. The View menu is displayed.

Step 2 From the View menu, select **PU** to view a PU, or select **LU** to view an LU. The PU/LU Prompt window is displayed, as shown in Figure 6-3.

Figure 6-3 PU/LU Prompt Window



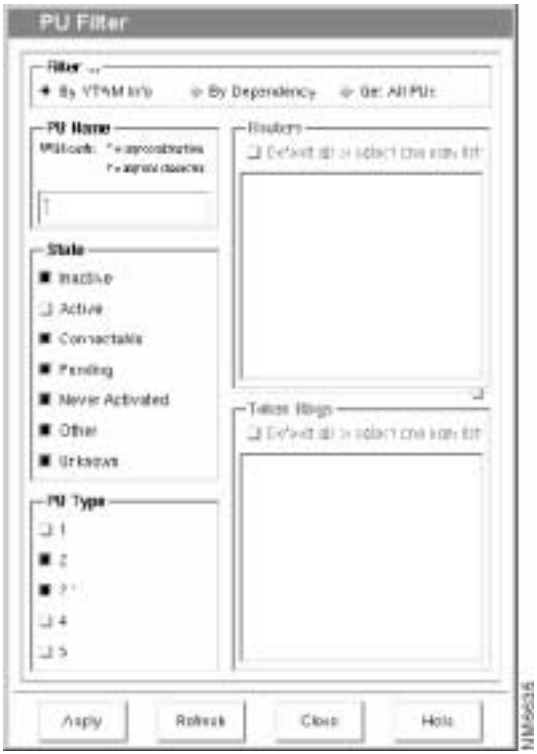
Step 3 In the PU/LU Prompt window, enter the PU name or LU name in the format *NAME.DOMAIN*.

Step 4 Click **OK**. Maps displays a Dependency view.

Viewing PUs from the Tools Menu

If you prefer to select the PU names from a filtered list, you can use the **PU** item on the Tools menu. This menu lets you set up filtering criteria to search for a PU name based on VTAM information or on its router or Token Ring dependency. From the Maps application's menu bar, select **Tools** > **PU** to display the PU Filter window, as shown in Figure 6-4.

Figure 6-4 PU Filter Window



Filtering the PU List

The PU Filter window (Figure 6-4) lets you configure a filter to use when selecting the PUs to display in a PU List window. Select PUs the following ways:

- **By VTAM Info** to configure the filter to select PUs based on VTAM criteria.
- **By Dependency** to configure the filter based on the routers on which the PUs are dependent.
- **Get All PUs** to get all discovered PUs.

The PU List window is displayed, showing all the PUs filtered as you requested. The PU List window is described in the “Using the PU List Window” section on page 6-16.

Filtering PUs by VTAM Information

You can filter the PU List based on the PU name, PU state, and PU type.

Step 1 From the PU Filter window, select **By VTAM Information**.

Step 2 In the PU Name field, enter all of a PU name, or just part of a PU name and wildcards. The PU List will contain PUs with names that match the filter criteria:

- Use *NAME.DOMAIN* to search for a specific PU in a specific domain.
- Use *NAME.** or *NAME* to get a list of PUs with the same name in all domains.
- Use *NAM** to get a list of PU names that start with the same characters (NAM, in this case) in all domains.

Step 3 In the PU State field, select one or more PU states. The PU window will contain the names of PUs that match one of the PU states you select.

Step 4 In the PU Type field, select one or more PU types. The PU window will contain PUs whose type matches one of the PU types you select.

Step 5 Click **Apply**.

Filtering PUs by Dependency

Use the following procedure to filter PUs by dependency:

Step 1 From the PU Filter window, select **By Dependency** to filter the PU List based on the router dependency.

Step 2 Select one or more routers from the Routers field in the PU Filter window.

Step 3 Click **Apply**. The PU List window displays the PUs dependent on the selected routers or Token Rings.

Getting all PUs

You can select **Get All PUs** to display a PU List that contains all PUs discovered by SNA View.

Viewing PUs from the Map Ring Icons

You can view the list of all PUs that depend on a specific Token Ring in your network. You must know which Token Ring supports the PU, and you must first display the focus view for the router to which that Token Ring is attached. Then you can use the Token Ring's popup menu to display a PU List window. To display the PU List window from a Token Ring, use the following procedure:

Step 1 In the global view, select the router to which the Token Ring is attached.

Step 2 Click the router with the right mouse button.

Step 3 From the popup menu, select **Focus View**.

Step 4 In the focus view, select the Token Ring (an oval) whose PUs you want to view.

Step 5 Click the right mouse button.

Step 6 From the Token Ring's popup menu, select **PU List**. The PU List window is displayed as described in the "Using the PU List Window" section on page 6-16.

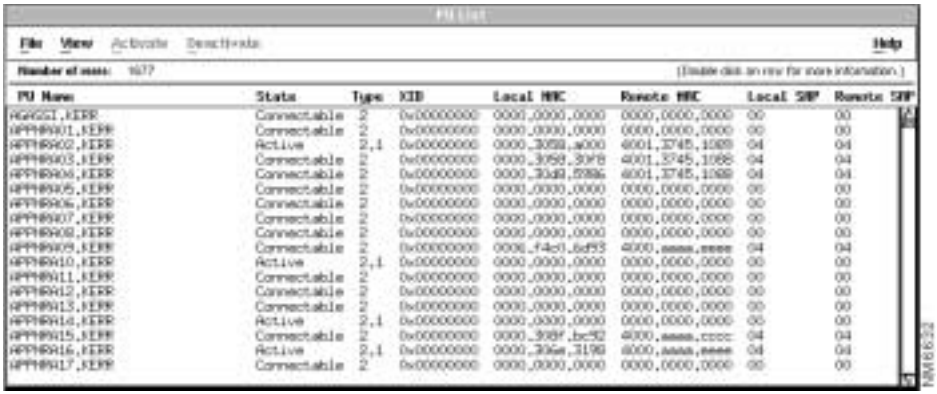
Using the PU List Window

This section describes how to use the functions of the PU List window, shown in Figure 6-5. The PU List window shows a list of all the PU names that satisfy a set of PU filter criteria.

The PU List window is static; select **View** > **Refresh** to update the status.

Note Some nodes may appear in the PU list with an unknown type and status. This happens when VTAM returns the IST453I message in response to the **D NET,ID** command for a node. Message IST453I indicates that the node is unknown to VTAM, and can occur when a major node is inactivated or when a node is activated, but VTAM is not ready to return information when Maps queries it. This situation should not occur for switched PUs, unless the switched PU major node is inactivated.

Figure 6-5 PU List Window



From the PU List window, you can perform the following tasks:

- Activate a PU, as described in the “Activating a PU” section on page 6-17.
- Deactivate a PU, as described in the “Deactivating a PU” section on page 6-18.
- List the LUs dependent on a PU, as described in the “List the LUs Dependent on a PU” section on page 6-19.
- Display a dependency view from a PU to the VTAM host, as described in the “Displaying a Dependency View for an LU” section on page 6-26.
- Choose another set of PUs to display in a PU List window, as described in the “Choosing Another PU Set” section on page 6-21.
- Update the current filter information by selecting **View > Refresh**.

Activating a PU

You can activate a PU from the PU List window. This action is comparable to using the VTAM command **VARY NET,ACT,ID=***PU_name*.

Note Before you activate a PU, you must enable PU activation. An SPO subtask must be running in the mainframe, as described in the *CiscoWorks Blue Maps and SNA View Workstation Installation and*

Administration Guide. Notify your network administrator. After you enable PU and LU activation, select a PU or LU to activate the menu. Otherwise it remains inactive.

To activate a PU from the PU List window, use the following procedure:

Step 1 Select an inactive PU from the PU List window.

Step 2 From the PU List window menu bar, select **Activate**.

Step 3 From the Activate menu, select one of the following:

- **Default** activates the PU as if you had issued the VTAM **VARY NET,ACT,SCOPE=COMP,ID=***PU_name*.
- **All** activates the PU and its LUs regardless of the ISTATUS value, which is the status with which the PU was configured through VTAM.
- **Only** activates the selected PU but no LUs regardless of their ISTATUS values, the status with which the LU was configured through VTAM.

Deactivating a PU

You can deactivate an active PU from the PU List window. This action is comparable to issuing the VTAM command **VARY NET,INACT,ID=***PU_name*. To activate a PU from the PU List window, use the following procedure:

Step 1 Select an active PU from the PU List window.

Step 2 From the PU3 Activate menu, select one of the following:

- **Quiesce** deactivates the PU and any subordinate resources when all current sessions are terminated.
- **Immediate** deactivates the PU and any subordinate resources immediately, disrupting active sessions.
- **Forced** deactivates the PU forcibly; this action is recommended for PUs that do not respond to other deactivation methods.

List the LUs Dependent on a PU

From the PU List window, display a list of LUs attached to a PU using the following procedure:

Step 1 Select a PU from the PU List window.

Step 2 From the PU List menu bar, select **View** > **Show LU List**. The LU List window is displayed.

Displaying a Dependency View for a PU

From the PU List window, you can display a dependency view of the path from the PU back toward the VTAM host. To display a dependency view, use the following procedure:

Step 1 Select a PU from the PU List window.

Step 2 From the PU List menu bar, select **View** > **Dependency**. Maps displays the PU dependency view, as shown in Figure 6-6.

Step 3 The PU dependency view is static. Select **View** > **Refresh** to update the status.

Figure 6-6 PU Dependency View

The PU dependency view shows the network components from the PU itself, back toward the mainframe to the host network connection. The PU dependency view shown in Figure 6-6 includes the following network components, from the top down:

- Host network connection
- Ring between the peer router and the host network connection
- First peer router
- Virtual ring
- Second peer router
- Ring between the PU and the peer router
- PU (NIMPU2.CPAC)

Choosing Another PU Set

From the PU List window, you can configure a new PU filter to display a new set of PU names in the PU List window. To configure a new PU List filter, use the following procedure:

Step 1 From the PU List menu bar, select **View > Filter**.

Step 2 Select your filtering option:

- **By VTAM Info** to configure the filter to select PUs based on VTAM criteria
- **By Dependency** to configure the filter based on the routers on which the PUs are dependent
- **Get All PUs** to get all discovered PUs

Step 3 Click **Apply**.

Viewing LUs from the Tools Menu

You can use the **LU** item on the Tools menu to set up filtering criteria to search for an LU name based on VTAM information or on its router or Token Ring dependency. From the Maps application's menu bar, **Tools > LU** to display the LU Filter window, as shown in Figure 6-7.

Figure 6-7 LU Filter Window

Filtering the LU List

The LU Filter window, shown in Figure 6-7, lets you configure a filter to use when selecting the LUs to display in an LU List window. Select LUs in the following ways:

- **By VTAM Info** to configure the filter to select LUs based on VTAM criteria.
- **By Dependency** to configure the filter to select LUs based on the routers on which the LUs are dependent.
- **Get All LUs** to get all the discovered LUs.

Filtering LUs by VTAM Information

You can filter the LU List based on the LU name, PU name, or LU state.

Step 1 From the LU Filter window, select **By VTAM Information**.

Step 2 In the LU Name field, enter all or part of an LU name (and wildcards). The LU List contains LUs with LU names that match the filter criteria:

- Use *NAME.DOMAIN* to search for a specific LU in a specific domain.
- Use *NAME.** or *NAME* to get a list of LUs with the same name in all domains.
- Use *NAM** to get a list of LU names that start with the same characters (NAM, in this case) in all domains.

Step 3 In the LU State field, select one or more LU states. The LU window will contain the names of LUs that match one of the LU states you select.

Step 4 In the LU Type field, select one or more LU types. The LU window will contain LUs whose type matches one of the LU types you select.

Step 5 Click **Apply**.

Filtering LUs by Dependency

You can filter the LU List based on the router or Token Ring dependency. From the LU Filter window, select **By Dependency**. Then select one or more routers from the Routers field in the LU Filter window, or select one or more Token Rings from the Token Ring box. The LU List window will contain the LUs dependent on the selected routers or Token Rings.

Getting all LUs

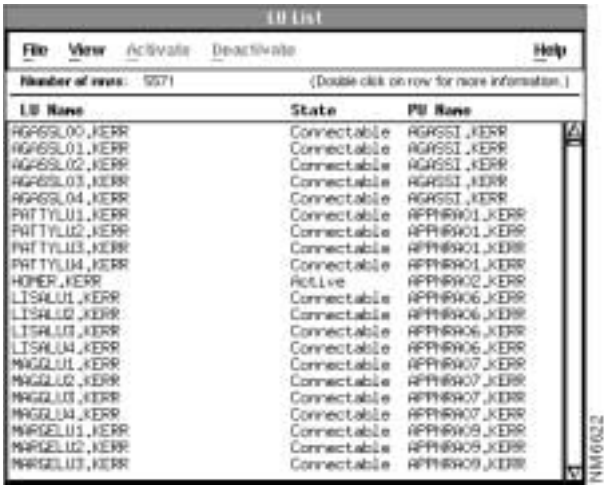
You can select **Get All LUs** to display an LU List that contains all LUs discovered by SNA View.

Using the LU List Window

This section describes how to use the functions of the LU Filter window, shown in Figure 6-8. The LU List window shows a list of all the LU names that satisfy the same LU filter criteria.

The LU List window is static; select **View > Refresh** to update the status.

Figure 6-8 LU List Window



From the LU List window, you can perform the following tasks:

- Activate an LU, as described in the “Activating an LU” section on page 6-25.
- Deactivate an LU, as described in the “Deactivating an LU” section on page 6-26.
- Display a dependency view from an LU to the VTAM host, as described in the “Displaying a Dependency View for an LU” section on page 6-26.
- Choose another set of LUs to display in an LU List window, as described in the “Choosing Another LU Set” section on page 6-28.
- Refresh the current filter information by selecting **View > Refresh**.

Activating an LU

You can activate an inactive LU from the LU List window. This action is comparable to issuing the VTAM command **VARY NET,ACT,ID=***LU_name*.

Note Before you can activate an LU, enable LU activation. An SPO subtask must be running in the mainframe, as described in the *CiscoWorks Blue Maps and SNA View Workstation Installation and Administration Guide*. Notify your network administrator. After you enable PU and LU activation, select a PU or LU to activate the menu. Otherwise it remains inactive.

To activate an LU from the LU List window, use the following procedure:

Step 1 Select an inactive LU from the LU List window.

Step 2 From the LU List menu bar, select **Activate**.

Step 3 From the Activate menu, select one of the following:

- **Default** to activate an LU as if issuing the VTAM command **VARY NET,ACT,SCOPE=COMP,ID=***LU_name.*
- **All** to activate the LU regardless of its ISTATUS value.

Deactivating an LU

You can deactivate an active LU from the LU List window. This is comparable to issuing the VTAM command **VARY NET,INACT,ID=***LU_name*. To deactivate an LU from the LU List window, use the following procedure:

Step 1 Select an active LU from the LU List window.

Step 2 From the LU List menu bar, select **Deactivate**.

Step 3 From the Deactivate menu, select one of the following:

- **Quiesce** to deactivate the LU when all current sessions are terminated.
- **Immediate** to deactivate the LU immediately, disrupting active sessions.
- **Forced** to deactivate the LU forcibly; this action is recommended for LUs that do not respond to other deactivation methods.

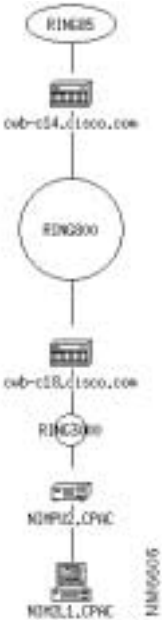
Displaying a Dependency View for an LU

From the LU List window you can display a dependency view of the path from the LU back toward the VTAM host. To display an LU dependency view, use the following procedure:

Step 1 Select an LU from the LU List window.

Step 2 From the LU List menu bar, select **View > Dependency**. Maps displays the LU dependency view, as shown in Figure 6-9.

Figure 6-9 LU Dependency View



Step 3 Because the LU dependency view is static, select **View** > **Refresh** to update the status.

The LU dependency view shows the network components from the LU, back toward the mainframe to the host network connection. The LU dependency view shown in Figure 6-9 includes the following network components, from the top down:

- Host-connected Token Ring
- First router
- Virtual ring
- Second router
- Ring between the PU and the second router
- PU (NIMPU2.CPAC)
- LU (NIM2L1.CPAC)

Choosing Another LU Set

From the LU List window, you can configure a new LU filter to display a new set of LU names in the LU List window. To configure a new LU List filter, use the following procedure:

Step 1 From the LU List menu bar, select **View** > **Filter**. The LU Filter window is displayed.

Step 2 Select a filtering option:

- **By VTAM Info** to configure the filter to select LUs based on VTAM criteria.
- **By Dependency** to configure the filter based on the routers on which the LUs are dependent.
- **Get All LUs** to see all discovered LUs.

Step 3 Click **Apply**.

Interpreting Colors and Symbols on a Map

The colors and symbols on an RSRB map are explained below:

- Green—Device or link is up and running
- Red—Device or link is down
- Yellow—Device or link performance is degraded or pending
- Black—Physical link; no status is reported
- Blue—Status of device or link is unknown
- Solid line—Physical link
- Dashed line—Logical link

RSRB Icons

Table 6-2 shows the icons that can appear on an RSRB map.

Table 6-2 RSRB Icons

Icon	Description
	Virtual ring
	Token Ring
	Unknown ring
	Pseudo-ring
	Peer router managed by CiscoWorks Blue Maps
	Focus router in a focus view
	Peer router not managed by CiscoWorks Blue Maps
	PU in a dependency view
	LU in a dependency view

Table 6-2 RSRB Icons (continued)

Icon	Description
_____	Physical connection
_ _ _ _ _ _ _ _ _	Logical connection

Using the APPN/SNASw Application in Maps

This chapter describes the CiscoWorks Blue Maps Advanced Peer-to-Peer Networking (APPN/SNASw/SNASw) application.

This chapter includes the following main sections:

If you prefer to view the APPN/SNASw information from a web browser, see Chapter 2, “Using the CiscoWorks Blue Home Page.”

Introducing APPN/SNASw Maps

The APPN/SNASw application displays a global map of the APPN/SNASw network topology. The global map is made up of the APPN/SNASw network nodes (NNs), branch extender network nodes (BrNNs), and the transmission

groups (TGs) between them. The network nodes and the TGs make up the backbone of the APPN/SNASw network. From the global map, you can display more detailed maps that show the APPN/SNASw end nodes (ENs) and low-entry network (LEN) nodes along with the NNs and the TGs.

All APPN/SNASw network nodes store identical information about the backbone APPN/SNASw network. At startup, the APPN/SNASw application must access the network information that is stored in any one APPN/SNASw network node. APPN/SNASw needs the information from the APPN/SNASw Management Information Base (MIB) before it can display an APPN/SNASw map. The network node that supplies this network information is called the network topology agent.

APPN/SNASw network nodes are named in the format *NETID.CPNAME*, rather than by IP address or device name. For example, a node with NETID=NETA and CPNAME=IBUPU3 would be displayed as **NETA.IBUPU3**.

However, the APPN/SNASw application needs IP addresses or device names for it to manage the APPN/SNASw routers using SNMP. APPN/SNASw uses its discovery process to correlate the APPN/SNASw names with the IP addresses or device names.

SNA Switching Services

Maps and SNA View support the SNA Switching Services feature of the Cisco IOS software. The SNA Switching Services feature identifies a new APPN/SNASw branch extender network node (BrNN) and includes a new APPN/SNASw stack in the Cisco IOS software. To support SNA Switching Services, the Cisco routers must be running Cisco IOS Release 12.0(5)XN or Release 12.1 or later. These product changes support the following SNA Switching Services:

- New Degraded TG Status in APPN/SNASw, page 7-3
- New Branch Extender Network Node Type, page 7-3
- APPN/SNASw Startup Change, page 7-3

New Degraded TG Status in APPN/SNASw

The Maps and SNA View Release 2.1 APPN/SNASw web interface now shows a new transmission group (TG) status: degraded TG. For a degraded TG, the CP-CP session is defined but not active.

New Branch Extender Network Node Type

The APPN/SNASw web interface now reports BrNNs, which provide SNA Branch Extender functionality. A BrNN looks like a network node to downstream nodes, but looks like an end node to upstream nodes.

APPN/SNASw Startup Change

The APPN/SNASw Motif application no longer displays the Startup Query to prompt you to designate a network topology agent. If you want a network topology agent, you can designate one in the *cwbinit* file. When you first start the APPN/SNASw Motif application, you should run discovery once to correlate IP addresses and CP names. Then, each time you start APPN/SNASw, it polls all discovered routers for APPN/SNASw information.

The APPN/SNASw application displays a global map of the APPN/SNASw network topology. The global map is made up of the APPN/SNASw network nodes (NNs), BrNNs, Virtual Routing Nodes (VRNs), and the TGs among them.

Starting APPN/SNASw

You can start the APPN/SNASw application from the workstation system prompt, from a remote workstation, or from a network management system, such as NetView for AIX.

You can start APPN/SNASw in one of the following ways:

- Use the **cwb start appn** command from the system prompt, as described in the “Starting APPN/SNASw from the System Prompt” section on page 7-4.
- Use the **cwb start appn** command from a remote workstation, as described in the “Starting APPN/SNASw from a Remote Workstation” section on page 7-4.

- Start APPN/SNASw from a network management system, as described in the "Starting the APPN/SNASw Application from a Network Management System" section on page 7-6.

Starting APPN/SNASw from the System Prompt

You can start APPN/SNASw from any valid user account. The installation process establishes a sample default user account named cwblue. The user cwblue does not have a starting password. You can either assign a password to cwblue or log in as root and change to cwblue.

To start the APPN/SNASw Maps application from a workstation system prompt, enter these commands:

cd /opt/CSCOcb/bin

./cwb start appn [**-f** *devicename* [**-r** *read_community_string*]] [**-v**] [**-h**]

Where:

-f *devicename* specifies the host name or IP address of an APPN/SNASw node to be used as the network topology agent.

-r *read_community_string* specifies the read community string for the router specified by `devicename`. APPN/SNASw uses the `read_community_string` value when communicating with an APPN/SNASw node. If you do not enter a read community string, the APPN/SNASw application uses the default read community string specified in the *cwbinit* file or, if there is not one there, the default string "public."

-v displays version information.

-h displays online help.

Starting APPN/SNASw from a Remote Workstation

You can log in to a remote UNIX host from your own local UNIX workstation, export the remote host display to your local workstation, and then run the application from the remote host. To start the remote host's APPN/SNASw application from your local workstation, use the following procedure:

Step 1 At your local UNIX workstation, enter the following command:

xhost +

Step 2 Log in to the remote UNIX host.

Step 3 Set your DISPLAY environment variable to export the display from the remote host to your local workstation. Depending on which shell you are using, enter one of these commands:

- From the K shell (ksh):

  setenv DISPLAY

  export DISPLAY=*IP_address***:0.0**

- From the C shell (csh) or TC shell (tcsh):

  setenv DISPLAY *IP_address***:0.0**

Step 4 To start APPN/SNASw, enter the following commands:

cd /opt/CSCOcb/bin

./cwb start appn [**-f** *devicename* [**-r** *read_community_string*]] [**-v**]

Where:

-f *devicename* specifies the host name or IP address of an APPN/SNASw node to be used as the network topology agent. APPN/SNASw displays a global view at startup. For the name of a network topology agent, see your network administrator.

-r *read_community_string* specifies the read community string for the router specified by *devicename*. APPN/SNASw uses the *read_community_string* value when communicating with APPN/SNASw nodes. If you do not enter this value, the program uses the default read community string “public,” unless another default string is specified in the *cwbinit* file.

-v displays version information.

Starting the APPN/SNASw Application from a Network Management System

To start APPN/SNASw from a network management system:

- On SunNet Manager select **Tools > CWB- APPN/SNASw** from the menu bar.
- On HP-OV and NetView for AIX select **CWBlue > APPN/SNASw** from the menu bar.

Starting APPN/SNASw with No Options

If you start APPN/SNASw from NetView, or if you do not enter any options with the **cwb start appn** command, the APPN/SNASw application looks in its preferences file, *$CWBROOT/etc/cwbinit*, for the control point (CP) name, or for an IP address or device name (and read community string) of a network topology agent. If a network topology agent is not defined, APPN/SNASw polls all routers for APPN/SNASw topology.

Suppressing Session List Fields

You can use the Session Field Suppression variables in the *cwbinit* file to configure fields to be suppressed from the SNA View web Sessions tables and Session Connectivity displays.

```
# SNA View Sessions and Session Connectivity Field Suppression
#
# The following allow the indicated field name and the related
# contents to be suppressed in the Sessions table and on the Session
# Connectivity display. By default all fields and their associated
# values are displayed.
# To suppress a field and its contents uncomment the field entry. You
# may want to do this to reduce the Sessions table width or to block
# sensitive data from being displayed to SNA View users.
# To turn on the field name suppression set the associated variable =
# on.
## Valid values: on/off. default value: off.

##suppressLUName = on
##suppressPU2Name = on
##suppressFEPName = on
##suppressLogicalLineInfo = on
##suppressPhysicalLineInfo = on
##suppressClientIP = on
##suppressMACSAP = on
##suppressIDBLKNUM = on
##suppressCPName = on
##suppressDLURName = on
##suppressDLUSName = on
##suppressNodeName = on
```

Use the "SNA View Sessions and Session Connectivity Field Suppression" variables to configure the following:

- Fields that can be suppressed on the SNA View Sessions tables
- Information that is suppressed in a Session Connectivity display

Initially the session suppression entries are set as comments so they are not active. Each value lets you suppress one or more related fields. For example, to suppress the display of the IDBLK/IDNUM field, you would uncomment the *suppressIDBLKNUM* line, as shown below:

```
suppressIDBLKNUM = on
```

You can suppress display of fields as shown in the following table:

This parameter...	Suppresses these fields...
suppressLUName = on	LU Name
suppressPU2Name = on	PU2 Name
suppressFEPName = on	FEP Names
suppressLogicalLineInfo = on	Logical Line PU field and logical line information
suppressPhysicalLineInfo = on	Physical line information
suppressClientIP = on	Client IP address
suppressMACSAP = on	Client MAC/SAP and Destination MAC/SAP or MAC1/SAP1 and MAC2/SAP2
suppressIDBLKNUM = on	IDBLK/IDNUM
suppressCPName = on	CPNAME
suppressDLURName = on	DLUR Name
suppressDLUSName = on	DLUS Name
suppressNodeName = on	Node Name

Locating Nodes on the APPN/SNASw Map

This section describes how to locate and select nodes on the APPN/SNASw map.

Locating a Node

There are two methods for locating a node on the APPN/SNASw map:

- If you know the CP name, the IP address, or the host name of the node, you can select **View > Locate** from the menu bar.
- If you do not know the CP name, the IP address, or the host name of the node, you can use the Locator window.

Locating a Node Using the View Menu

To locate a node from the View menu you must know the node's CP name, IP address, or host name. Then use the following procedure:

Step 1 Select **View > Locate** from the APPN/SNASw menu bar.

Step 2 Select either **By CP Name** or **By IP Address or Device Name**.

Step 3 Enter the CP name, IP address, or host name of an APPN/SNASw node.

- If you enter a CP name, specify the APPN/SNASw control point name in *NETID.CPNAME* format.
- If you enter a device name, you must first correlate the device name with the CP name. If you want to locate a device by its device name, that name must be in either the seed file or the network management database. There is no domain-name lookup provided.
- If you enter an IP address, it can be any IP address configured on the device.

Step 4 Click **Locate**. APPN/SNASw displays the portion of the map that contains the selected device and highlights the device.

Displaying the APPN/SNASw Popup Menu Items

Each icon on the APPN/SNASw map has an associated popup menu. To activate the menu, click the icon with the right mouse button. Table 7-1 lists the popup menus associated with the APPN/SNASw map icons.

Table 7-1 APPN/SNASw Popup Menu Items

Icon	Popup Menu Items
Network node, branchextender network node, end node, host node, or LEN node	**Information**—Displays information about the selected node, including the device type, the node type, and its capability. **List LUs**—Lists the LUs associated with the selected node. For network nodes, lists LUs in this domain. For end nodes and LEN nodes, lists the LUs associated with this node. **Get Directory**—Queries the selected node to compile a directory of LUs. **Get Local Topology**—Gets the connection and port information, the DLUR information (including PUs), and adjacent node information from the selected network node. **Show Adjacent Nodes**—Displays the nodes adjacent to the selected node. **Ports and Links**—Displays the ports on the selected node and shows the links from the ports to adjacent nodes. **Telnet**—Starts a Telnet client.
Port	**Port Info**—Displays information about the selected port, including the port name and status, the data-link control type, and the MAC and SAP addresses.

Table 7-1 APPN/SNASw Popup Menu Items (continued)

Icon	Popup Menu Items
Link	**Link Info**—Displays information about the selected link, including the link name, CP names at either end of the link, link addresses, and link capacities.
Virtual routing node	**Information**—Displays information about the selected node, including the device type and node type, and its capability. **Show Adjacent Nodes**—Displays the nodes adjacent to the selected node. **Telnet**—Starts a Telnet client.

Viewing the Network Devices

The APPN/SNASw map presents a global (high-level) view of the applicable network devices, an up-to-date view of the APPN/SNASw-enabled network nodes, and their status and the TGs that connect them. From the APPN/SNASw menu bar, select **View** to display the following views:

- Global view—Described in the "Displaying the Global View of the Network" section on page 7-11.
- Adjacent nodes view—Described in the "Viewing Adjacent Nodes" section on page 7-15.
- Ports and links view—Described in the "Viewing Ports and Links" section on page 7-15.

Displaying the Global View of the Network

The global view is displayed when you start the APPN/SNASw application. To display the global view at another time, select **View > Global** from the APPN/SNASw menu bar. The global view is displayed, as shown in Figure 7-1. The global view is updated as new information is available from the network topology agent, subject to the polling interval (defined by the **nettopopoll** parameter in the *cwbinit* file).

The global view displays devices and connections from the APPN/SNASw network topology database as viewed from the network topology agent. The global view shows the network nodes and virtual routing nodes and the TGs between them. The TGs are aggregated so that one line between two nodes represents one or more TGs between the nodes.

If a node has unknown status, APPN/SNASw has determined that the network topology agent is not receiving updates from that node. This problem may be caused by inactive TGs or no CP-CP sessions to carry the updates.

ENs do not appear in the APPN/SNASw global view. To see ENs, select an NN and choose the Adjacent Nodes view or Ports and Links view. If you know the EN name but not its connected NN. Select **View** > **Adjacent Nodes** from the menu bar and enter the EN name.

Viewing a Connection

To view information about the connections between the nodes, use the following procedure from the global view, as shown in Figure 7-1.

Step 1 From the APPN/SNASw global view, point to a TG (the line that connects the two nodes).

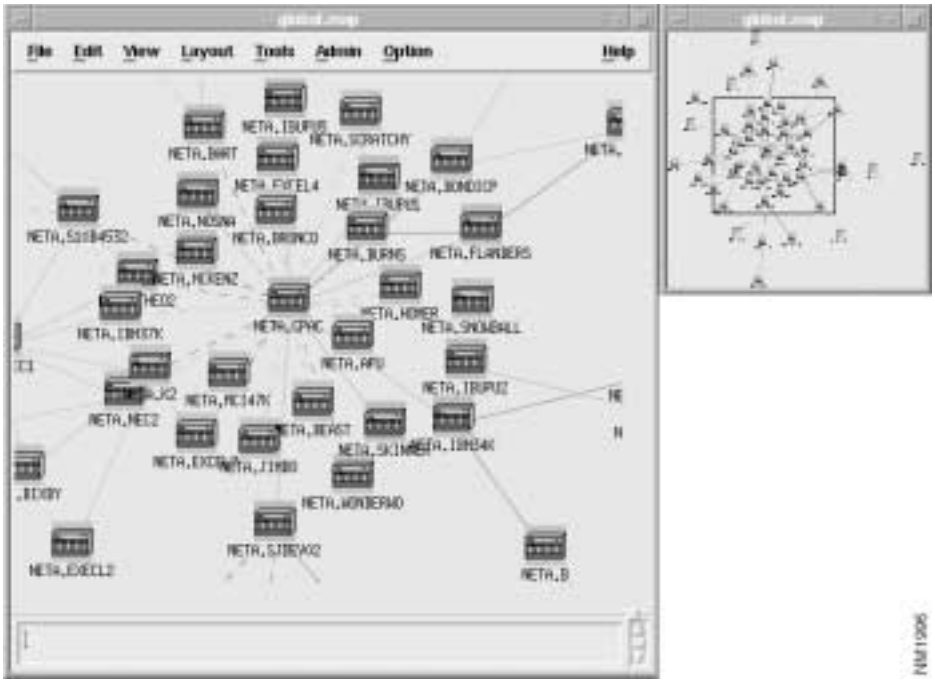
Step 2 Press the right mouse button.

Step 3 Select one of the following items from the popup menu:

- **Aggregate TG Info** displays information about the aggregated TG.
- **List TGs and Links** displays a list of the individual TGs and links represented by the aggregated TG. The list of links in the lower part of the window is associated with the TG highlighted in the upper part of the window.

Step 4 Select **Info** from the popup menu to display details about the TG or link that you selected.

Figure 7-1 Global View of an APPN/SNASw Network with Locator Window



Viewing Network Node Information

To view network node information, use the following procedure:

Step 1 Point to a node.

Step 2 Press the right mouse button.

Step 3 Select **Information**.

APPN/SNASw displays information about that node, including its CP name, device type, and node type, as shown in Figure 7-2.

Figure 7-2 Network Node Information Window

Viewing Supported LUs

To view the supported LUs, you must first collect directory information from the network. Use the following procedure:

Step 1 Select a network node.

Step 2 Press the right mouse button.

Step 3 Select **Get Directory** from the popup menu.

Step 4 Press the right mouse button again.

Step 5 Select **List LUs** from the popup menu. The List LUs window displays a list of LU names supported by the selected network node. For each LU in the list, APPN/SNASw displays the control point where the LU resides, the network node server, and the LU's directory type.

Viewing Adjacent Nodes

To view adjacent nodes, use the following procedure:

Step 1 From the APPN/SNASw global view, point to a node.

Step 2 Press the right mouse button.

Step 3 Select **Show Adjacent Nodes**.

The adjacent nodes view shows a subset of the APPN/SNASw network that includes the following nodes:

- Those network nodes that are one hop away from the selected node
- APPN/SNASw end nodes and LEN nodes, connected to the selected node, if the selected node's IP address is known and if local topology is collected

Note If the APPN/SNASw application does not know the IP address and read community string of the APPN/SNASw node you selected, it will prompt you to enter this information.

Viewing Ports and Links

To view the ports and links information, use the following procedure:

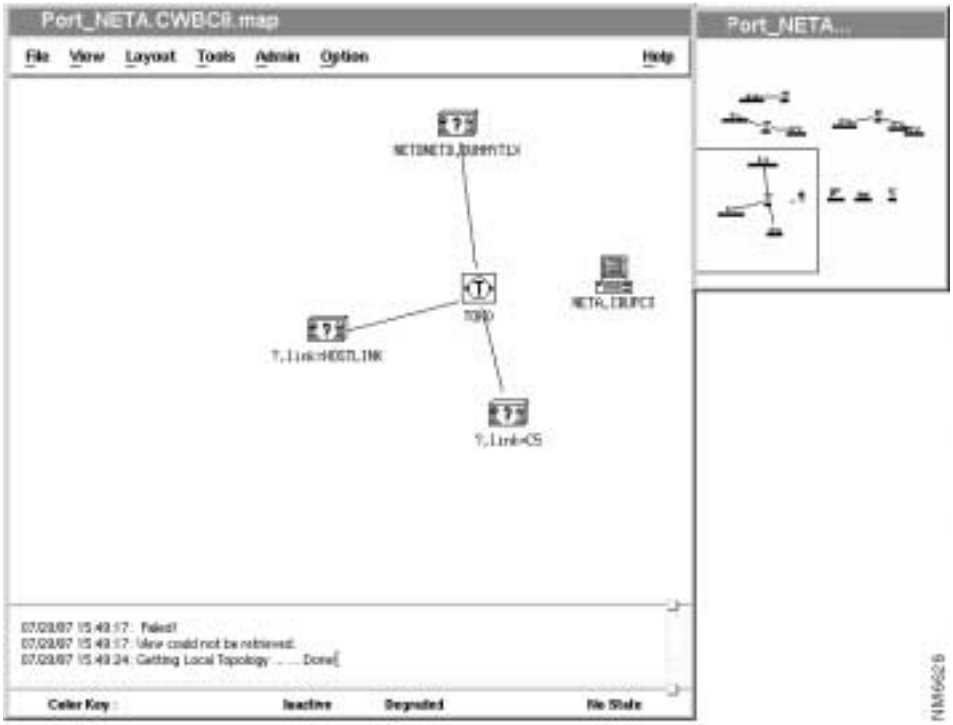
Step 1 Point to a node.

Step 2 Press the right mouse button.

Step 3 Select **Ports and Links**.

The ports and links view, shown in Figure 7-3, is a view of all the logical ports on the selected node and the links from those ports to adjacent nodes. Each adjacent node is displayed with its network ID (NETID) and control point name (CPNAME) in the format *NETID.CPNAME*.

Figure 7-3 Ports and Links View



If there is an inactive link and the node does not have the adjacent CP name defined, APPN/SNASw displays the node with the text “link=linkname” in place of the node’s APPN/SNASw name, as shown in Figure 7-4.

Figure 7-4 Unknown Node

This label indicates that the link is inactive and the destination node of the link is not known to the selected APPN/SNASw node.

The quotation mark (?) indicates that the node’s name also is not known. The text “link=linkname” indicates the link between the known APPN/SNASw node and the unknown node.

The ports and links view can depict the following port types:

- Ethernet
- Token Ring
- Synchronous Data-Link Control (SDLC)
- Other ports, including DLSw, Frame Relay, and RSRB

Viewing Port Information

To display detailed information about a port on a network node, use the following procedure:

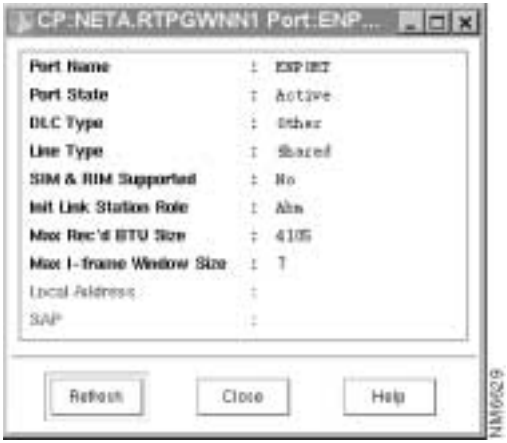
Step 1 From the ports and links view, select a port icon.

Step 2 Press the right mouse button.

Step 3 Select **Port Info**.

The APPN/SNASw application displays the port information window, shown in Figure 7-5, which includes the port name, port state, data-link control (DLC) type, and line type.

Figure 7-5 Port Information Window



Viewing Link Information

To display detailed information about link, use the following procedure:

Step 1 From the ports and links view, select a link icon.

Step 2 Press the right mouse button.

Step 3 Select **Link Info**.

The APPN/SNASw application displays the Link Information window, as shown in Figure 7-6.

Figure 7-6 Link Information Window

Viewing PUs and LUs

This section describes how to use the Tools menu to view PUs and LUs in the APPN/SNASw network. APPN/SNASw collects the PU information from the DLUR MIB on the router, and LU information from the directory table in the APPN MIB.

Viewing PUs from the Tools Menu

You can select **Tools > PU** from the menu bar to configure filtering criteria to be used when searching the database for PUs. To locate PUs from the Tools menu, use the following procedure:

Step 1 From the Map application's menu bar, select **Tools > PU**. The PU Filter window is displayed, as shown in Figure 7-7.

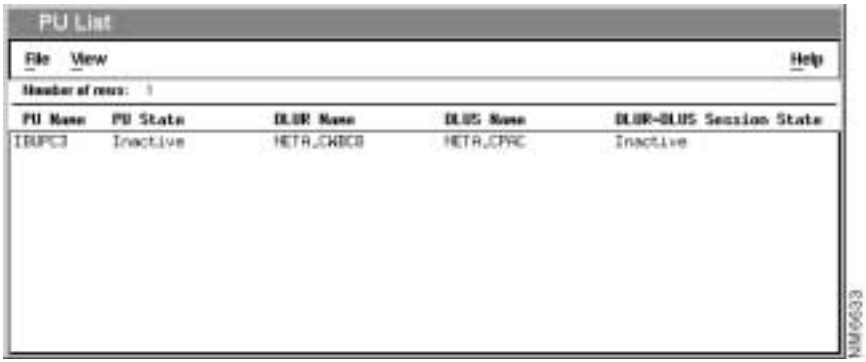
Figure 7-7 PU Filter Window

Step 2 In the PU Filter window, select one of the following methods for filtering the PU names:

- **By Selected Info** filters the list based on the PU name, Dependent LU Requester (DLUR) name, Dependent LU Server (DLUS) name, PU state, and DLUR-DLUS session state. For more information about filtering PUs, see the "Filtering the PU List" section on page 7-21.
- **Get all PUs** creates a list of all PUs in the domain.

Step 3 Click **Apply**. The PU List window is displayed, showing the PU names, filtered as you requested, as shown in Figure 7-8.

Figure 7-8 PU List Window



The PU List window displays the DLUR name, the DLUS name, and the DLUR-DLUS session state for each PU.

Filtering the PU List

When you select **Tools > PU** from the menu bar, the APPN/SNASw application displays the PU Filter window to let you configure a filter to be used when selecting the PUs to be displayed. You can get all PUs, or you can configure the filter to select PUs based on applied criteria. You can filter the names in the PU List based on the PU name, DLUR name, DLUS name, PU state, and DLUR-DLUS session state.

Getting all PUs

To display all PUs, select **Get All PUs** to display a PU List that contains all PU names in the network.

Filtering PUs by PU Name

To display PUs based on their PU names, enter all or part of a PU name in the form *NAME*. You can use a wildcard, such as PU*, to display a list of PU names that begin with the same characters. The PU List will contain PUs whose PU names match the filter criteria.

Filtering PUs by DLUR Name

To display PUs based on the DLUR name, enter all or part of a DLUR name. You can also use wildcards in this name. The PU List will contain PUs whose DLUR names satisfy the filter criteria.

Filtering PUs by DLUS Name

To display PUs based on the DLUS name, enter all or part of a DLUS name. You can also use wildcards in this name. The PU List will contain PUs whose DLUS names satisfy the filter criteria.

Filtering PUs by PU State

To display PUs based on their PU state, select one or more PU states. The PU List window will contain the names of PUs that match one of the selected PU states. The possible PU states are Inactive, Active, Pending Active, and Pending Inactive.

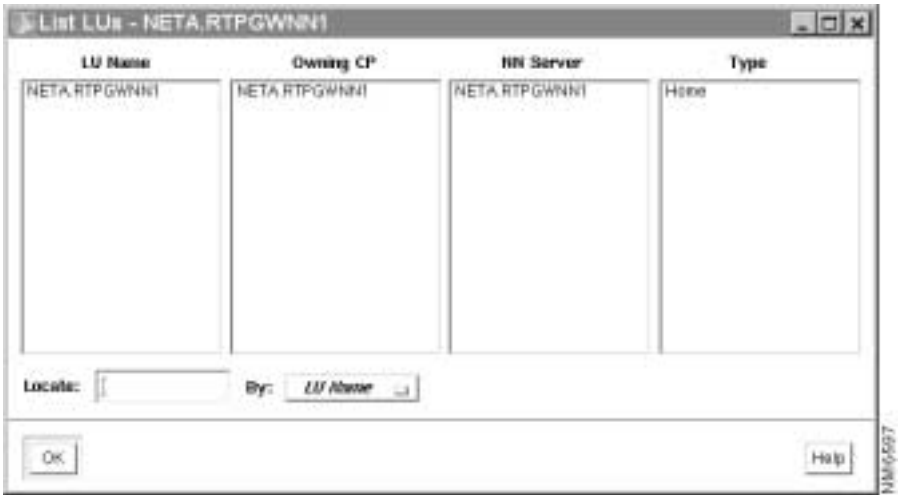
Filtering PUs by DLUR-DLUS Session State

To display all PUs based on the DLUR-DLUS session state, select one or more DLUS session states. The DLUS session state indicates the status of the CPSVRMGR control session between the DLUR node and the DLUS node. The PU List window will contain the names of PUs that match one of the selected DLUR-DLUS session states. The possible DLUR-DLUS session states are Inactive, Active, Pending Active, and Pending Inactive.

Viewing LUs from the Tools Menu

To display a list of all LUs, select **Tools > LU** from the menu bar. The LU List window is displayed, as shown in Figure 7-9.

Figure 7-9 LU List Window



The LU List window displays a row of information for each independent or dependent LU. Each row contains the following items:

- LU name
- Name of the owning CP
- Name of the network node server
- LU type:
  - Home—LU is local to the queried node
  - Registered—LU is at a served end node or LEN node
  - Cache—LU is learned by a network search and is not necessarily current

Interpreting Colors and Symbols on the APPN/SNASw Map

The colors and symbols on the APPN/SNASw map are explained below:

- Green—A node or connection is up and running.
- Red—A node or connection is down.
- Yellow
  - A node is quiescing or congested or has DLUR defined but no active DLUR-DLUS session. A connection is a mix of active and inactive TGs.
  - A link or a port is in pending-active or pending-inactive state.
- Blue or Purple—The status of a node or connection is unknown.
- Solid line—CP-CP connection, CP-CP TG, or CP-CP link.
- Dashed line—Non-CP-CP connection, non-CP-CP TG, or non-CP-CP link.

Using APPN/SNASw Icons

Table 7-2 identifies the icons displayed on an APPN/SNASw map.

Table 7-2 APPN/SNASw Icons and Descriptions

Icon	Description
	Known APPN/SNASw network node.
	Managed APPN/SNASw network node; the check mark above the icon shows that the network node is managed by CiscoWorks Blue Maps.
	APPN/SNASw network topology agent in a global view. Focus node in an adjacent node or ports and links view.

Table 7-2 APPN/SNASw Icons and Descriptions (continued)

Icon	Description
	APPN/SNASw end node.
	APPN/SNASw LEN node.
	Port on an APPN/SNASw network node. The letter in the circle indicates the port type: T—Token Ring E—Ethernet S—SDLC ?—Other
	Unknown or unmanaged node.
	Host node (VTAM mainframe).
	Virtual routing node (connection network).

Symbols

Numerics

A

B

C

D

E

F

G

H

I

K

L

M

N

O

P

R

S

T

U

V

W

X

Y

Z

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General Information

1 Years of networking experience _____ Years of experience with Cisco products _____

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☐ Other: _____

3 I have these Cisco products: ☐ Switches ☐ Routers
☐ Other: Specify model(s) _____

4 I perform these types of tasks: ☐ H/W Install and/or Maintenance ☐ S/W Config
☐ Network Management ☐ Other: _____

5 I use these types of documentation: ☐ H/W Install ☐ H/W Config ☐ S/W Config
☐ Command Reference ☐ Quick Reference ☐ Release Notes ☐ Online Help
☐ Other: _____

6 I access this information through: ____% Cisco Connection Online (CCO) ____% CD-ROM
____% Printed docs ____% Other: _____

7 Which method do you prefer? _____

8 I use the following three product features the most:

_____

_____

Document Information

Document Title: CiscoWorks Blue Maps and SNA View User Guide, Release 3.0.1

Part Number: 78-11351-02 S/W Release (if applicable): Release 3.0.1

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