



NetView for AIX Concepts

GC31-8160-00

**A General Information Manual**

Version 4

**Note**

Before using this product, read the general information under "Notices" on page vii.

**First Edition (July 1995)**

This document applies to IBM NetView for AIX (feature 5608), which is a feature of SystemView for AIX (5765-527). IBM NetView for AIX runs under the AIX operating system for RISC System/6000 Version 3 Release 2 (5756-030) or Version 4 Release 1 (5765-393). This product is based, in part, on Hewlett-Packard Company's OpenView product.

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## About This Book

*NetView for AIX Concepts: A General Information Manual* presents an overview of the NetView for AIX program and its network and system management functions. This book provides information to help you evaluate the capabilities of the program and decide how it can improve the efficiency of your networks in a Transmission Control Protocol/Internet Protocol (TCP/IP) environment. This book includes introductory information about the NetView for AIX program for all users; it does not provide detailed technical explanations about how the program works.

This book is intended to be an introduction for anyone who is responsible for evaluating the NetView for AIX program. The book presents an overview of the features and benefits the program provides for network and system management, information about the hardware and software requirements for installing and using this program, and a description of new features provided in this version.

This book answers the following basic, but important, questions:

- What is the NetView for AIX program?
- How can I use the NetView for AIX program?
- What new features are available in this version?
- What are the hardware and software requirements?

The NetView for AIX submaps shown in this book are examples; they may not match the submaps that will be displayed when you use the NetView for AIX program.

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## Where to Find More Information

The following list contains the names and order numbers of the publications in the NetView for AIX library:

### Diagnosis

- *NetView for AIX Diagnosis Guide*, SC31-8162

### General Information

- *NetView for AIX Concepts: A General Information Manual*, GC31-8160

### Installation and Configuration

- *NetView for AIX Installation and Configuration*, SC31-8163

### Usage and Administration

- *NetView for AIX User's Guide for Beginners*, SC31-8158
- *NetView for AIX Administrator's Guide*, SC31-8168
- *NetView for AIX Administrator's Reference*, SC31-8169

- *NetView for AIX and the Host Connection*, SC31-8161
- *NetView for AIX Database Guide*, SC31-8167

### Programming

- *NetView for AIX Programmer's Guide*, SC31-8164
- *NetView for AIX Programmer's Reference*, SC31-8165

### Related Sources of Information

The following sources provide specific information that is not documented in the NetView for AIX library:

- The `/usr/lpp/nv6000/README` file provides additional information about the NetView for AIX program.
- The online help facility provides task, dialog box, and graphical interface information to help you use this program.
- Many Internet Request for Comments (RFC) documents listed are shipped on the NetView for AIX program installation media and are installed in the `/usr/OV/doc` directory.
- NetView for AIX has a homepage on the World-Wide Web. If you have web access, point your web browser to <http://www.raleigh.ibm.com/nv6/nv6prod.html>.
- For more information about Simple Network Management Protocol (SNMP), Transmission Control Protocol/Internet Protocol (TCP/IP), and general network basics, the following list is recommended reading:

Rose, Marshall T. *The Simple Book: An Introduction to Management of TCP/IP-based Internets*. Englewood Cliffs, NJ: Prentice-Hall, 1994 (ISBN 0-13-177254-6)

Comer, Douglas. *Internetworking with TCP/IP: Principles, Protocols, and Architecture, Volume 1*. New York, NY: Prentice-Hall, 1991. (ISBN 0-13-468505-9)

Black, Uyles. *Network Management Standards. The OSI, SNMP, and CMOL Protocols*. New York, NY: McGraw-Hill, 1992. (ISBN 0-07-005554-8)

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## What Is NetView for AIX?

The NetView for AIX program is a comprehensive management tool for heterogeneous, multivendor devices on Transmission Control Protocol/Internet Protocol (TCP/IP) networks.

The NetView for AIX program provides configuration, fault, security, and performance management functions, along with many features that make it easy to install and use. It provides an open network management platform that enables the integration of Simple Network Management Protocol (SNMP) and Common Management Information Protocol (CMIP) applications. For cooperative management of TCP/IP networks, NetView for AIX uses the AIX NetView Service Point program to communicate with your host NetView program, either the NetView or the NETCENTER program.

The NetView for AIX program is a network and system management tool that provides distributed or central management for your network. It supports the IBM SystemView structure, IBM's strategy for system management and open network management structure.

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## Advantages of Using NetView for AIX

The NetView for AIX program can provide you with many advantages:

- Management of heterogeneous, multivendor networks
- Network configuration, fault, security, and performance management
- Dynamic device discovery
- Easy-to-use graphical interface
- Integration with relational databases
- Support of many third-party applications
- Distributed management
- Distribution of NetView for AIX graphical interface to clients
- IP monitoring and SNMP management
- Enablement of multiprotocol monitoring and management
- Management Information Base (MIB) management tools
- Application Programming Interfaces (APIs)
- Easy installation and maintenance
- Host connectivity
- Online information
- The NetView Association
- Support for industry standards and directions

## Heterogeneous Network Management

With the NetView for AIX program, you can manage distributed, multivendor, heterogeneous networks using TCP/IP-based management protocols. The program's graphical interface provides the ability to:

- Invoke network configuration, fault, security, and performance management functions
- Manage MIB information
- Monitor and graph network performance statistics
- View and modify network maps
- View problems and changes in the network as they occur
- Access online information

The NetView for AIX program meets the requirements of many network and system users. It manages a wide range of workstations, mainframes, bridges, routers, hubs, and other IP-addressable devices that include an SNMP agent. Also, it enables you to integrate multiprotocol applications with the NetView for AIX program and integrate multiprotocol topology with the TCP/IP submaps.

The NetView for AIX program manages SNMP MIBs, including other vendors' enterprise-specific MIBs, and provides support for applications that manage multiprotocol MIBs. Adding these MIB objects to the existing SNMP MIB database means that one manager, the NetView for AIX program, can manage multivendor, heterogeneous network devices and also provide support for the management of devices that do not have an IP address. Figure 1 on page 3 illustrates how the NetView for AIX program fits into a heterogeneous environment that supports centralized network management.

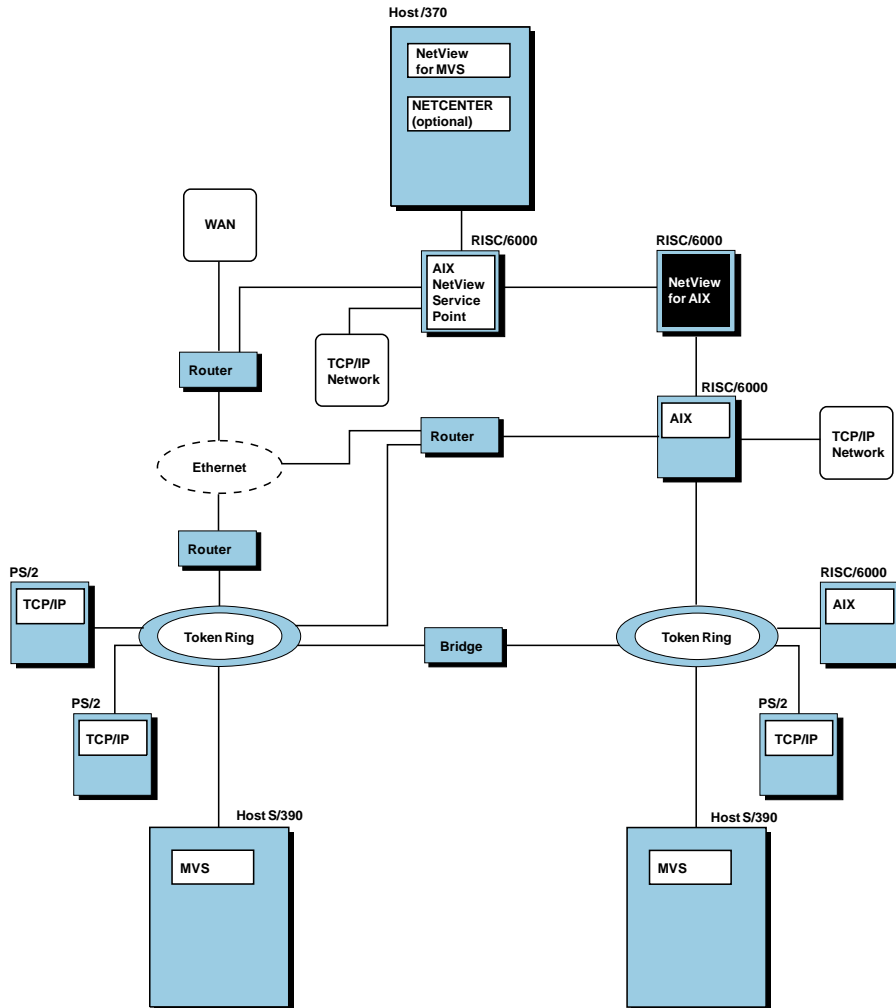


Figure 1. The NetView for AIX program working within a heterogeneous environment.

Small and large businesses can use this program to enhance network management capabilities, ensure network availability, and improve the productivity of their support staff.

## Distributed Management

You can use the NetView for AIX program with the IBM AIX Systems Monitor program to provide remote system management with Systems Monitor's filtering, thresholding, and automation functions. Using Systems Monitor, you can distribute some of the polling and monitoring tasks to the network nodes managed by the Systems Monitor program. Distributing these tasks reduces both process time at the network management platforms and the amount of network broadcast traffic, and optimizes processor

usage and disk capacity. You can also offload the data-collection function to a device in the network by using a &sm6k. subagent.

With the Agent Policy Manager, you can easily configure Systems Monitor thresholding and file monitoring from your NetView for AIX console. Threshold and file monitoring events are integrated into the graphic interface as icons and submaps. Rather than distributing configurations node by node, you can specify a policy for selecting a group of nodes and assign a threshold or file monitor condition to an entire group of nodes at once.

## **IP Monitoring and SNMP Management**

The NetView for AIX program monitors all IP-addressable devices and manages TCP/IP devices that include a Simple Network Management Protocol (SNMP) agent. The NetView for AIX program's filtering and thresholding capabilities provide even greater control over monitoring and management activities.

## **Enablement of Multiprotocol Network Monitoring and Management**

The NetView for AIX general topology manager expands the scope of NetView for AIX network management beyond SNMP. Because this program is enabled to support many protocols, you can create and integrate applications that will discover, monitor, and manage any network environment.

The general topology manager supports the storage and display of many protocol topologies. By converting topology information to the NetView for AIX program's generic MIB format, multiprotocol topologies can be integrated and correlated within the program's IP topology maps and event displays. For convenient access, multiprotocol management applications can be added to the NetView for AIX menu structure.

## **NetView for AIX Platform Security**

You can use NetView for AIX security services to define a security policy for your network. Security services authenticates each user, allowing access to NetView for AIX when the user logs in using a valid NetView for AIX user ID, group ID, and password. Additional login controls include restricting a user's access on specific days and times and to specific machines. You can also control a user's access to specific applications and functions.

Shift-in and shift-out functions allow for uninterrupted operation of the NetView for AIX graphical interface across a shift change. When a new operator logs in, the session and all processes are transferred to the new operator's ID.

Audit functions give you the ability to see a history of activity on the platform.

## **Easy-to-Use Graphical Interface**

The NetView for AIX graphical interface, based on OSF/Motif and X Window System standards, helps you monitor dynamic views of your networks and bring up additional windows when you need specific information about a network element. The graphical interface is designed both to reduce the number of actions you must take to identify failed devices and to provide efficient window management.

The graphical interface shows you geographical, physical, and logical representations of your network through dynamic topology maps, which contain hierarchies of submaps. The submap hierarchies include graphical representations of your internet network at several levels, including, but not limited to, internet, network, segment, and node levels. You can access submaps that are lower in a map hierarchy by clicking on symbols that represent another submap.

You can use the graphical interface to display more than one protocol topology, each with its own submap hierarchy. You can switch quickly between submaps that show various protocols for the same device.

The graphical interface supports several network layout algorithms, including ring, tree, bus, and star layouts, to meet your diverse network needs. Figure 2 shows how a sample internet submap might look.

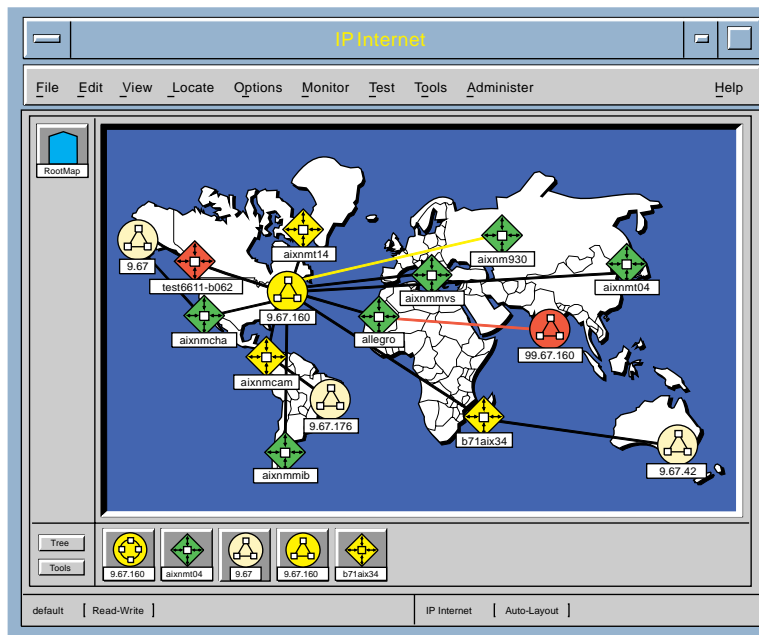


Figure 2. The NetView for AIX internet submap shows the IP networks and their connecting gateways.

You can edit the submaps to add, move, change, and delete objects from the appropriate submaps. These editing operations enable you to modify topology maps to represent information that cannot be dynamically discovered. For example, you can add a bridge that does not have its own IP address.

Use the graphical interface's Control Desk to group similar applications so you can easily move among them as you perform network management tasks.

The graphical interface's Tool Palette provides convenient access to applications or tools you use regularly. For example, you can open a new Control Desk window,

check SNMP or interface traffic, or print the contents of a particular window. You can customize the Tool Palette by adding your own applications and tools.

The Navigation Tree helps you keep track of your current position in a particular submap hierarchy. Each time you open a new submap, its corresponding icon appears in the Navigation Tree.

### **Network Status Shown by Color**

The graphical interface depicts potential or current problem areas in the network by using color changes, so you can find them quickly and take action. The submaps have color-coded icons to show the status of the various network elements. For example, by default, red indicates that the node is down, and yellow indicates that the node's status is marginal.

The NetView for AIX program updates the status of these icons at intervals that you specify, so you always have up-to-date information about resource availability and network topology. The program also propagates a node's status through the submap hierarchy using any of several customizable propagation methods. This lets you see the overall status of many devices at once.

### **Network Events Display**

The graphical interface displays network events as they are received from the network, in either a list or card format. For each event received, detailed information is available, including source enterprise number, event number, category, severity, source, time logged, and a user-defined description.

You can activate the MIB Browser tool to gather information about the resource to which the event applies, and include this information and other notes in the event card. You can click on a card button to open and display the submap that contains a symbol for the failed resource. By using the filtering and event correlation capabilities accessible through the graphical interface, you can prevent extraneous information from being processed. For example, you can specify that only certain kinds of events should be displayed. You can set up several dynamic workspaces to contain sets of events selected by a variety of criteria.

Figure 3 on page 7 shows a sample event-card display.



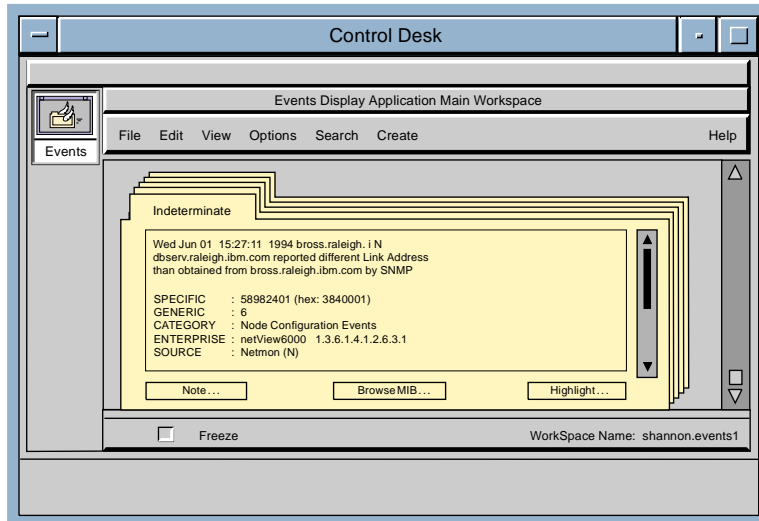


Figure 3. The NetView for AIX program's event display application.

## The Menu Bar

The NetView for AIX program operations are all available from the menu bar; some are also available from context menus. The point-and-click selection model of the graphical interface enables you to perform network management operations on specific objects. Look for the following operations on the menu bar:

File	Create new maps, make copies of maps, redisplay and work with the copies.
Edit	Manually change submaps and modify descriptions of maps, submaps, objects, and symbols.
View	See different aspects of a map and the network by opening submaps and viewing different protocol submaps.
Locate	Find objects in the network by searching on attributes such as selection name, comment, label, status, or type. You can also highlight the submap symbols that represent the objects.
Options	Customize the NetView for AIX program, including setting administrative domains, defining SNMP traps or SNMP configuration, and loading or unloading MIBs.
Monitor	Monitor pertinent information about the system, network, and devices on the network, and generate reports.
Test	Perform connectivity tests on selected objects in the network.
Tools	Manage MIB information by performing MIB-related operations, such as graphing network performance statistics, and define filters for events.

Administer	Access the operations needed to control, configure, and maintain the NetView for AIX program, and allow remote login to network devices.
Help	Access online information about the NetView for AIX program, installed applications, and the $\emptyset$ operating system.

### Customize the Graphical Interface

You can customize the graphical interface to meet your network management needs. You can change network maps to manage larger networks or device-specific networks. You can control users' access to maps and menu functions. You can integrate network maps with background graphics to depict maps, buildings, or devices according to your specific network.

You can customize the displayed view of the network. Adding or modifying existing icons lets you accurately represent network devices. You can also change the network map colors and the icon colors that indicate object status. The Help..Legend function shows you the meaning of the icons and the color codes.

Using the Collection Editor, you can create customized submaps of objects that have some characteristic in common (such as all routers) or of objects that you specify by IP address or selection name.

### Dynamic Device Discovery

The NetView for AIX program enables you to dynamically discover your network, including TCP/IP network resources, such as IP hosts, gateways, and networks. It also supports applications that discover devices on your network that use a protocol other than IP.

To dynamically display any changes discovered in your network, use the automatic-layout feature. As the NetView for AIX program tracks status, topology, and configuration changes throughout the network, this feature updates your network maps.

If you need to manually place newly discovered nodes on network maps, you can disable the automatic layout feature. The NetView for AIX program continues to discover nodes, but it places them in the New Object Holding Area instead of on the map, so you can add these nodes to the maps at your convenience.

To limit discovery, you can specify a *seed file*, which contains a list of nodes within your administrative domain. Once these discovered nodes have been placed on the map, you can disable the automatic-layout feature and manually place nodes discovered later.

### Network Configuration, Fault, and Performance Management

The NetView for AIX program provides configuration, fault, and performance management applications that you can access through the graphical interface's main menu bar or context menus. These applications reduce the need for human intervention in many network management tasks. You can use these applications to discover your network topology and maintain the topology information in a database, provide editing for network maps, and specify how often the map will be updated.

Fault management applications provided with this program help you detect network problems, test for connectivity with remote devices by running protocol tests, and customize the actions taken when an event is received.

The NetView for AIX program's performance management applications enable you to set and check thresholds, monitor network statistics, and display the statistics in line graph or tabular format. Sample report applications permit you to customize reports of network performance data.

### **Management Information Base (MIB) Management Tools**

The NetView for AIX program provides a set of MIB management tools to help you manage your network. You can add both standard and vendor-specific MIB objects, collect MIB information, and build applications to manage MIB information without any programming. You can display collected MIB information in table or line graph format, print the information, and export the information to a spreadsheet application.

MIBs are shipped with this program in the directory `/usr/OV/snmp_mibs`. Some MIBs are shipped preloaded, while others can be loaded with the MIB compiler, which is accessible through the Options..Load/Unload MIBs operation. For vendor-specific MIBs, contact the vendor.

### **Application Programming Interfaces (APIs)**

The application programming interfaces (APIs) enable you to provide applications without needing to know the underlying implementation details of data and functions specific to the NetView for AIX program. Using these APIs permits seamless integration with the NetView for AIX program of other management applications, including SNMP and CMIP applications, that enable you to manage a heterogeneous network. Several samples of application code are shipped with the NetView for AIX program for your convenience.

The NetView for AIX program's network management platform supports application development with the following industry-standard APIs:

#### **End-User Interface (EUI) API**

Enables seamless integration of vendor and customer applications with the program's graphical interface

#### **X/Open Management Protocols (XMP) API**

Provides SNMP and CMIP over TCP/IP (CMOT) application support based on the Open Software Foundation (OSF) Distributed Management Environment (DME) technology

**SNMP API** Provides SNMP application support

#### **Event Filtering API**

Provides filter definitions and thresholding of event information sent to the events display, the NetView program, NetView for AIX applications, or your registered applications

**Process Management API**

Controls the starting and stopping of agents, applications, and daemons

**Network Logging and Tracing API**

Permits applications to use the NetView for AIX program's logging and tracing facility for developing and testing applications or diagnosing NetView for AIX problems

**General Topology Manager (GTM) API**

Provides a socket interface to the General Topology Manager function, which enables you to display information about devices that use protocols other than IP.

The NetView for AIX program, in combination with the AIX NetView Service Point program, supports service point APIs that can be used to develop applications to help you manage non-SNA devices from the host. With this combination, currently installed non-IBM products or management tools that have non-IBM interfaces can work with the NetView or NETCENTER programs and can be managed through a single connection point.

**Easy Installation and Maintenance**

You can use the RISC System/6000 System Management Interface Tool (SMIT) tool to install, configure, control, diagnose, and maintain the NetView for AIX program. You can install the NetView for AIX program anywhere in the network it will be monitoring.

Using System Management Interface Tool (SMIT), you can install the NetView for AIX program quickly, and begin using the program's fault, configuration, and performance applications within minutes. System Management Interface Tool (SMIT) provides an easy, menu-driven installation procedure with help screens, prompts you for information needed to construct command strings, and presents appropriate predefined defaults. This eliminates the need to recall details of complex command syntax, valid parameter values, system command spellings, and customized shell-path names.

System Management Interface Tool (SMIT) offers real-time administrative change capabilities that permit the NetView for AIX program to continue managing your network while you change the program's operational parameters or start and stop processes. In addition, you can remotely log in to the NetView for AIX program and issue System Management Interface Tool (SMIT) commands.

**Host Connectivity**

The NetView for AIX program provides bidirectional communication between the program and a host NetView or NETCENTER program, enabling you to centrally manage your enterprise. For shared management of networks running TCP/IP and SNA protocols, the NetView for AIX program uses the AIX NetView Service Point program to communicate with the host program. See "Cooperative Management with Host Programs" on page 22 for more information about using the NetView for AIX program in concert with a host program.

## Online Information

The NetView for AIX graphical interface provides access to the program's online information. This online information includes task help, dialog box help, and the entire NetView for AIX library as listed in "Where to Find More Information" on page ix. In Version 4, the NetView for AIX help and online books are provided using the DynaText information browser. This hypertext tool presents help panels and online books with similar interfaces, which allows you to link between books and help panels to find related information. The browser has sophisticated navigation aids and search functions that enable you to find information quickly. You can use an annotation function to customize information by adding your own notes. To conserve space on your manager station, you can install the DynaText browser and online manuals on another machine and mount the directory from your manager station.

Reference information about NetView for AIX commands, daemons, and files is also provided as man pages, which can be accessed using the **man** command.

## The NetView Association from IBM and Digital

The NetView Association, established by IBM's Networking Systems Division and Digital Equipment Corporation, is a group of hardware, software, and service vendors who provide value-added function to enrich the management capabilities of the IBM NetView for AIX platform and the Digital POLYCENTER Manager on NetView. The NetView Association offers the following services:

- Testing services for MIBs and SNMP agents to ensure that an Associate's SNMP agent can interoperate effectively and reliably with the NetView for AIX program.
- Assistance for Associates who are porting or developing applications that enhance the NetView for AIX platform
- Helping other vendors to understand the value and function of the NetView for AIX program.
- Providing service vendors, educators, and consultants with early information about the NetView for AIX program.

The wide range of function provided by the NetView Association augments, enriches, and strengthens the NetView for AIX program.

## Support for Industry Standards and Directions

The NetView for AIX program supports the following industry standards, facilitating management of many devices:

- TCP/IP and OSI protocols, including SNMP and CMOT
- OSF Distributed Management Environment (DME)
- OSF/Motif
- X/Open Management Protocols (XMP) (based on draft 6 of the X/Open specification)

The NetView for AIX program is also compliant with many of the Internet standards that are described in the Internet Request for Comments documents. Copies of these documents are shipped with the program in the /usr/OV/doc directory.

Because the NetView for AIX program uses industry-standard SNMP and CMIP protocols, you can be sure of continued investment protection. Furthermore, through the use of standard interfaces to the host NetView program, the host interface should remain stable or be easily migrated with any new releases. The NetView for AIX program demonstrates IBM's commitment to provide industry-standard programs that satisfy your requirements for developing consistency with the OSF distributed management environment (DME), adherence to TCP/IP standards, and program support that is consistent with SystemView goals.

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## How Can I Use NetView for AIX?

The NetView for AIX program provides seamless and comprehensive distributed management of multivendor, heterogeneous networks running TCP/IP devices with SNMP agents. It also monitors IP-addressable devices that are not running SNMP agents by using Internet Control Message Protocol (ICMP) echo requests. For increased control of your networks, you can create applications to monitor and manage non-IP-addressable devices that are accessible through a proxy agent. By viewing all protocols on the graphical interface, you can assess the status of your entire system.

You can use the security, configuration, fault, and performance management functions of the NetView for AIX program to do the following:

- Control the access users have to NetView for AIX and its functions
- Set network topology
- Monitor your network
- Diagnose and correct network problems
- Measure network performance

These functions provide continuous monitoring of all TCP/IP devices and management of all devices with an SNMP Agent. In addition to these functions, the program provides a set of tools to help you manage MIB information.

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### Security Management

The NetView for AIX program's security management services control the access users have to NetView for AIX and its applications and creates a secure context for communication between servers and clients.

### Login Authentication

Users go through a separate login process when NetView for AIX security is turned on. If the password provided by the user matches the encoded password in the security database, the user gains access to NetView for AIX.

### Control of Access to NetView for AIX Resources

User permissions for accessing NetView for AIX resources, such as applications, executables, or menu items, are defined based on the NetView for AIX group to which the user belongs. The network administrator customizes these groups.

### Continuous, Auditable Network Management

Shift-in and shift-out functions allow for uninterrupted operation of the NetView for AIX graphical interface across a shift change. When a new operator logs in, the session and all processes are transferred to the new operator's ID.

## Audit Management

Security services collects audit data for configuration changes, function access, and user login and logout operations. The audit data is stored in a log file.

## Configuration Management

The NetView for AIX program's configuration-management applications reduce human intervention while providing dynamic, up-to-date network topologies. The functions provided enable the program to automatically discover your network and update the network maps according to your specifications. After a network map has been created, you can edit the map to meet your needs.

Other configuration-management functions enable you to:

- Configure and display events
- Browse and query MIB objects
- View and modify node descriptions
- Locate objects in maps

## Dynamic Device Discovery

One of the key attributes of the NetView for AIX program is its dynamic discovery capability. Figure 4 shows the results of the program discovering networks and their associated gateways.

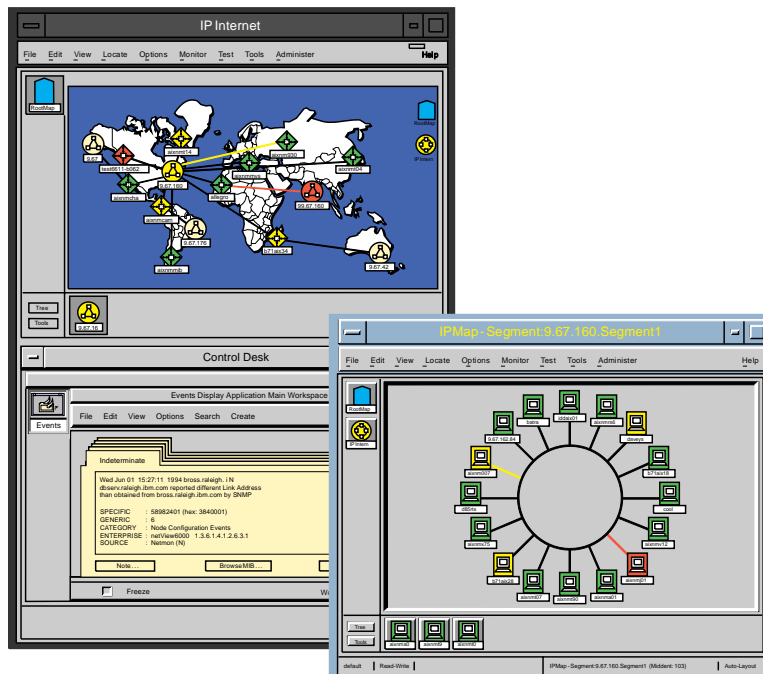


Figure 4. NetView for AIX dynamically adds new devices to the network map.



Network discovery can take several forms:

- The NetView for AIX program can discover all of the IP-addressable elements in the network.
- You can specify a seed file to define the initial set of IP-addressable nodes to be discovered.
- A discovery application can discover devices that do not have IP addresses and provide information about them to the NetView for AIX program.

In addition, you can limit the discovery of the network to selected nodes.

The NetView for AIX program automatically places the discovered nodes on submaps in the correct relationship to certain devices, such as on a token ring. The program can continue to find new devices as they are added to the network and can determine which devices have been deleted from the network. This continual discovery ensures that the network topology map is always current.

## **Editing Network Maps**

The NetView for AIX program supports manual editing of network maps to represent devices that cannot be dynamically discovered and to reposition devices on background graphics. Editing functions include adding, deleting, and moving objects and connections. You can also transfer objects between submaps, change the type of a particular object, or add a background map to a submap. You can save a map for planning future network configurations and diagnosing network problems.

## **Configuring and Displaying Events**

The NetView for AIX program provides user-configurable status changes that allow you to specify the meaning of status events for specific traps. For example, you can specify that one enterprise-specific trap indicates that a node is down, while another indicates a node is up. The status changes are reflected dynamically by a change in color in the network topology displays. You can also control status propagation on a per-map basis.

Configuration changes generate events that can be displayed on the graphical interface in the event cards or list.

## **Browsing and Querying MIB Objects**

You can retrieve MIB object values from supported and loaded standard and enterprise-specific MIBs, graph numerical objects in real time, and set values for appropriate objects through the graphical interface.

You can also create a MIB-data application and add it to the NetView for AIX menu. The query function helps you retrieve one or more MIB object values in table or real-time graph form.

## Viewing and Modifying Node Descriptions

You can modify node descriptions to provide information in addition to what is provided in the MIB definition, such as contact name and network location.

## Locating Map Objects

Locating map objects in a large network is important for network control. Various attributes can be used to locate specific map objects. Some attributes you can search on are the host name, link address, IP address, and object type.

---

## Fault Management

Fault management applications detect problems, assist in problem determination, and provide a mechanism for error recovery. The fault management applications provided by the NetView for AIX program include functions to help you identify problems in the network and recover from the problems as quickly as possible. The key attributes of these functions include:

- Monitoring the network map to detect problems
- Monitoring events to detect problems
- Locating problems in your network
- Solving problems in your network

## Monitoring the Network Map to Detect Problems

The network map plays a key role in locating problems in the network. The NetView for AIX program automatically and continually verifies that devices are connected. The status results are shown on a network map by color-coded symbols that represent the devices. Topology changes, such as the addition or deletion of network interfaces, are also reflected in the map.

Figure 5 on page 17 shows the results of some NetView for AIX functions.

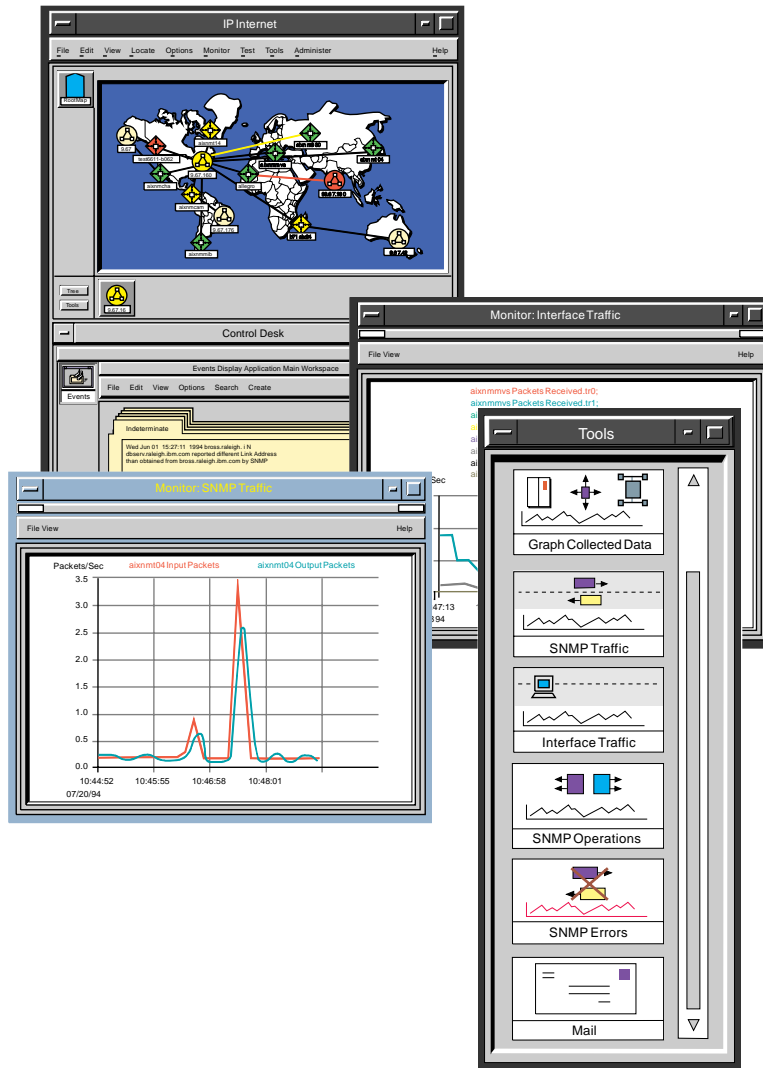


Figure 5. The graphical interface helps you monitor your network.

In Figure 5, the figure in the Control Desk shows a performance chart that graphs the SNMP traffic statistics for a few gateways in the network map. Performance charts provide clear displays of historical and real-time data for a particular network device, so you can assess the extent and duration of a problem and take effective action as quickly as possible.

You can take a snapshot of the current map and save it for comparison with later maps. The changes that are apparent when you look at both the snapshot and the current map can help you solve problems and plan future network efficiency.

## Monitoring Network Events to Detect Problems

You are also notified of network changes through event notifications that are displayed in event cards or list format in the graphical interface. Events are shown when errors occur on your network or thresholds are exceeded, and when network topology or node configuration and status changes are received by the program.

When certain errors occur on your network, an event is sent to the program and displayed by the Event Display application. You can also receive events by polling devices on the network and by establishing thresholds. You can actively poll device status by setting the program to send ICMP echo requests (Pings) and SNMP requests to devices. You can determine which thresholds are critical for your network and set the program to poll nodes for these thresholds. If a threshold is exceeded, the program sends an event to indicate that the threshold is exceeded.

You can select the events that you want to display by using the NetView for AIX program's filtering and correlation capabilities. Filtering criteria can be applied to event information that is received from the network, and can be used to search for specific events displayed on the graphical interface. You can dynamically display and change your choice of filtering options. Correlation rulesets can be defined to correlate or compare incoming events to event processing decisions and actions. The ruleset editor enables you to graphically create a rule comprised of event-processing decisions and actions that are represented by icons (nodes).

You can enter specific information about an event after it has been received and displayed. This information will be displayed on the event card along with other information about the event.

You can also specify what information will be shown for an event and specify what will happen as a result of the event's generation. For example, an event could initiate execution of a shell script that contains SNMP requests or a command to start a particular application. If you have a host connection, you can choose to have certain events converted to alerts and forwarded to a host NetView program.

The NetView for AIX program enhances the error-log management of RISC System/6000 AIX workstations through its trap generator function. This function converts the RISC System/6000 AIX workstation alertable error-log information to traps that are sent to the NetView for AIX program. You can install the trap generator function on any AIX Version 3 Release 2 or later RISC System/6000 workstation in the network so its alertable errors can be converted to traps and forwarded to the NetView for AIX program. The program can then manage these traps and also convert some of them to alerts if they need to be sent to a host.

## Performing Problem Determination and Diagnosis

After the NetView for AIX program detects an error in the network, the next step is to determine the cause of the problem. The two major types of errors are device errors and connectivity errors. Device errors are caused by a hardware or software failure inside a particular node. Connectivity errors are caused by a break in the connection between two or more nodes.

When a problem occurs in a network, the event indicates the location and description of the problem. You can locate the device causing the problem by searching on device attributes such as host name, link address, IP address, object type, and SNMP status. When the NetView for AIX program finds the designated device, it highlights the device's symbol in the appropriate submap.

The NetView for AIX program has several tools for diagnosing connectivity problems in your network. The Test operation includes the following functions that enable you to verify connectivity between the management station and the device at various protocol levels:

- IP test** Uses the Ping protocol to verify physical connectivity.
- SNMP test** Checks a node to determine whether it has an SNMP agent running.
- TCP test** Performs a TCP connection.

The Ping operation shows you the number of packets that have been lost between the local manager and the problem node. In addition, connectivity between two devices on the network can be verified by using the Remote Ping operation. This operation shows you whether packets can be successfully transmitted between any two nodes in the network. Also, you can use the Locate Route operation to highlight the path that is taken between two nodes.

For additional problem determination assistance, use the Monitor operation to remotely obtain information about an SNMP device. This information includes the gateway routing information, address translation information, the IP and link addresses, and the services available on the node.

To identify trends that can help you resolve network problems, the NetView for AIX program presents real-time network statistics in easy-to-read graphs.

## Resolving Network Problems

To quickly resolve problems, select the appropriate event card to see relevant information for the failing device, such as problem description, location, and vendor contact. You can select nodes from a map and choose menu items if you need additional pertinent information.

---

## Performance Management

Being able to find trends and pinpoint problems quickly, before serious problems occur, is the basis of the NetView for AIX program's performance management application.

The NetView for AIX program's performance management functions enable you to:

- Monitor your network
- Set and check thresholds
- Diagnose performance problems
- Gather historical data

These functions help you ensure that your network performance goals are maintained.

## Monitoring the Network

The NetView for AIX program helps you collect real-time network statistics in easy-to-read, graphical form. The information, provided in peaks and averages, identifies trends and helps you track problems.

## Setting and Checking Thresholds and Polling Intervals

You can set thresholds for critical areas of network performance and direct the NetView for AIX program to poll nodes at specified intervals to discover thresholds that have been exceeded. You can also specify status polling intervals for individual nodes so you can monitor critical devices more closely.

If a threshold is exceeded, the NetView for AIX program can generate a trap. If a host NetView program connection is available, and a filter is set to permit this kind of trap, the trap can be converted to an alert and forwarded to the host NetView program.

If you have Systems Monitor for AIX in your network, you can use the Agent Policy Manager to configure MLMs to monitor nodes in their domains and forward threshold information to NetView for AIX.

## Diagnosing Performance Problems

The NetView for AIX program's monitoring and graphing functions provide information that can indicate performance problems in such areas as CPU utilization or interface traffic. By monitoring and graphing this information, you can diagnose and resolve your network performance problems. You can also obtain MIB information to help you diagnose performance problems.

## Gathering Historical Data

You can use the NetView for AIX program's MIB data collection function to gather information about numerical MIB elements of SNMP devices. This collected information can be useful for diagnosing network problems.

Once you have collected the information, you can print it or save it for later use in a spreadsheet. You can also use the NetView for AIX program's graphing function to display this information.

---

## **MIB Information Management**

The NetView for AIX program can support standard and enterprise-specific MIB information for any device in a network so that multivendor, heterogeneous devices can be managed by one network manager.

The NetView for AIX program provides three tools to help you use MIB information in managing your network:

- MIB Application Builder
- MIB Browser
- MIB Data Collector

### **MIB Application Builder**

When you need to monitor specific MIB objects on a regular basis, you can use the MIB Application Builder to quickly build applications for standard and enterprise-specific MIB objects without any programming. Once an application is built, a menu item is automatically added to the NetView for AIX menu, permitting easy access to the new application.

You can use the MIB Application Builder to create applications that query and display MIB variables from selected network nodes. The graphing function can help you display either real-time or historical network information.

### **MIB Browser**

The MIB Browser queries devices that have been selected from the network map and gets MIB values for both standard and enterprise-specific MIB objects. The MIB Browser displays the MIB values and, if the values are numeric, can plot the values in line graph format.

### **MIB Data Collector**

The MIB Data Collector continually collects data and monitors devices or collections of devices in the network based on configurable polling parameters. It polls network nodes for information about numerical MIB elements of SNMP devices. You can access the information as soon as it has been collected, or save it for printing in an ASCII format or for use in a spreadsheet. The MIB Data Collector checks thresholds for collected MIB data and can issue an event the first time the threshold is exceeded. Collecting MIB data helps you plan the use of network and computer resources, as well as isolate network faults and performance problems.

## Cooperative Management with Host Programs

You can run the NetView for AIX program as a complete standalone solution in an SNMP environment. If you want cooperative management of TCP/IP networks, using both Systems Network Architecture (SNA) and TCP/IP protocols, the NetView for AIX program can use the AIX NetView Service Point program to communicate with the host NetView or NETCENTER program. The NetView for AIX program enables bidirectional communication between host NetView program and the NetView for AIX program, using AIX NetView Service Point as a bridge, as shown in Figure 6.

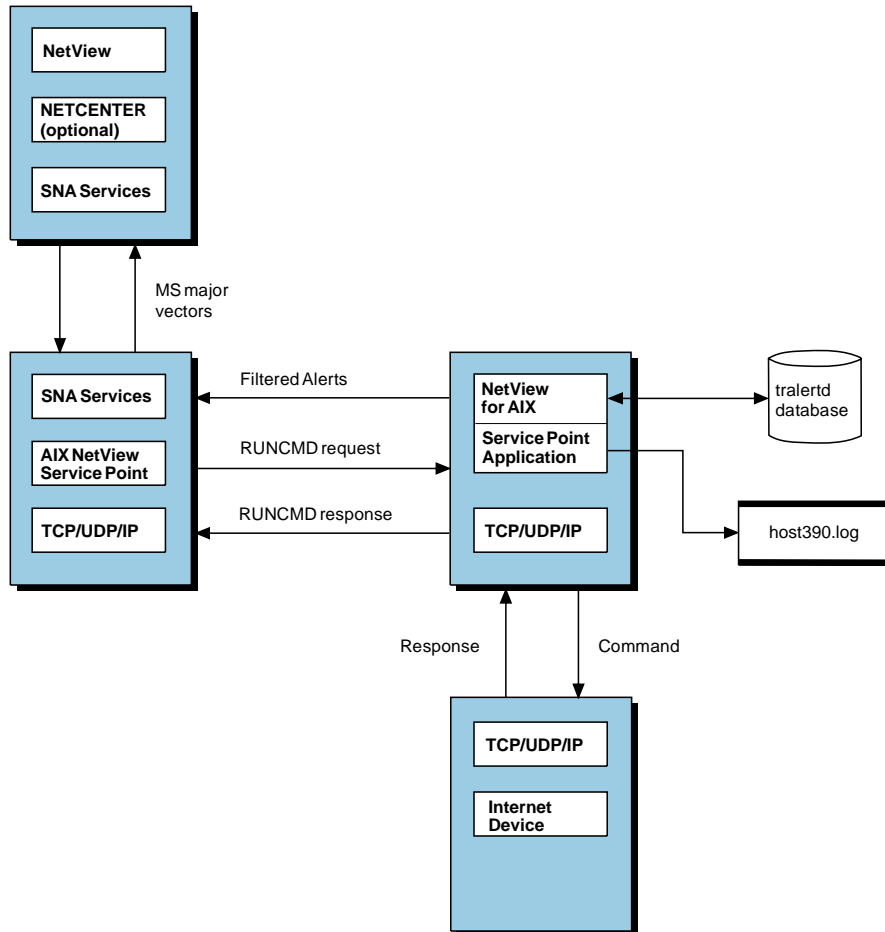


Figure 6. The main components of a NetView for AIX program host connection.

To communicate with the host NetView program, the NetView for AIX program filters the SNMP traps received from TCP/IP networks and converts them, on a user-selectable basis, to SNA alerts (management services major vectors) and sends them to the host NetView program.



The host connection also enables you to use host NetView automation facilities to invoke shell scripts or send SNMP network management commands with RUNCMDs through the AIX NetView Service Point program to the NetView for AIX program to monitor and manage your internet environment.

The host NetView connectivity functions enable you to customize the alert information sent to the host NetView program. The event filtering function enables you to define and activate filters that specify which events are sent to the host NetView program as alerts.

Using the cooperative management capabilities increases reliability by allowing timely recognition of network management information from different sources, so you can respond more quickly to error conditions or performance degradations.

The host NetView automation capabilities, used in conjunction with the NetView for AIX program's SNMP management functions, can provide faster responses to network conditions that would otherwise require the attention of an operator or a network administrator. The host NetView connection provides more specific and complete information about activity on the TCP/IP network and paves the way for cooperative network management that provides a comprehensive solution using installed host NetView products.

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## Using Relational Database Systems

You can store data from the NetView for AIX program into any of five leading relational database systems, and then use SQL commands to work with the data.



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## New Features in NetView for AIX Version 4

Version 4 of the NetView for AIX program provides several enhancements for managing your networks more easily and making productive use of management information. Many of these improvements are a result of customer feedback. This chapter describes the enhancements made in NetView for AIX Version 4.

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### Client/Server Environment

The client/server enabling of NetView for AIX provides the ability to distribute graphical applications (and the memory and CPU processing requirements associated with them) to client machines in the network. These clients connect to a server (the main management workstation) to receive topology information and other types of network management information. This offloads processing from the server and gives client users the advantage of running applications such as the MIB browser and grapher locally while maintaining centralized network discovery and status polling. Up to 20 clients can run from a single server, depending on configuration.

Much of the configuration information is shared between clients and the server through NFS mounts. Vendor MIBs are installed on the server machine. When a MIB is loaded, NetView for AIX makes the MIB available to clients by NFS mounting the /usr/OV/conf directory in read-only mode on the client machines. Any changes to the /usr/OV/conf directory on the server are immediately available to clients.

Administrators have two choices for how clients access map information. Map databases can either be shared through NFS mounts, or they can be stored locally on client machines. NFS-mounted maps ensure that all operators are working with the same set of maps, as in Version 2 or Version 3 of NetView for AIX. Maps stored locally on clients require more map administration, but this is offset by the improvement in response time that operators see when map data is stored locally.

Application developers can move into a client/server environment easily. The NetView for AIX APIs have been modified to work in a distributed environment with minimal impact to existing applications. Many applications will run in a Version 4 environment with no changes.

---

### Platform Security

NetView for AIX provides new security services for defining the access users have to NetView for AIX and its functions and related applications. NetView for AIX security services provide the following controls:

- Network authentication and identification. Users on client machines use nvlogin and nvlogout for gaining access to NetView for AIX. The NetView for AIX login is independent of operating system login.

- Protected network communication. All NetView for AIX communications (between clients, servers, and users) take place within a secure context that makes use of a security credential for validating communications and requests.
- Seamless takeover of sessions between shifts. The shift-in and shift-out functions allow you to switch operators (such as during a shift change) without stopping the NetView for AIX graphical interface. When an operator logs out, a window lock is activated, and NetView for AIX continues to run. When another operator uses the Shift-in operation, the graphical interface is restored. Ownership of any running NetView for AIX processes changes to the new operator, for audit and identification purposes.
- Audit management. NetView for AIX collects audit data for several different types of events, including configuration changes, function access changes, and users who have logged in or logged out.

---

## Event Correlation

Users can create rulesets that correlate or compare incoming events to event processing decisions and actions. Through the graphical editor, you can draw a picture of your ruleset. The rule consists of a network of event-processing decision points, and actions to be taken. The decision points and actions are represented by icons.

You can create rulesets to:

- Enhance the filtering capabilities for dynamic event displays. You can filter on MIB variables inside traps and defined thresholds based on event data.
- Use object database fields to correlate events.
- Automatically remove resolved events from the Events Display application.
- Override severity and object status associated with an event.
- Automatically issue a call to a pager.

---

## Collection Facility

The NetView for AIX Object Collection Facility provides a mechanism for grouping objects in the network based on a policy you define. The policy specifies characteristics for objects, such as physical location, object attribute, or IP address.

Collections are aggregated under a Collection icon and are displayed on the Root map. Submaps are created under the Root map for all the objects in the collection. These submaps are updated dynamically as objects in the collection disappear from the network, or as new nodes that fit the collection rule appear in the network.

Collections are defined through the Collection Editor graphical interface. You can create customized submaps for groups of objects by creating a collection of the objects through the Collection Editor, then double-clicking on the Collections icon on the root map to see the collection you defined.

A set of APIs has been provided for application developers to make use of collections in their applications.

---

## Agent Policy Manager

The Agent Policy Manager, or APM, works with the Collection Facility and Systems Monitor Version 2 to control the file monitoring and thresholding configurations for all Mid-Level Managers and System Information Agents in the network from a single central location. Thresholds and file monitoring definitions are distributed to groups of objects, rather than one object at a time. APM allows you to more easily manage thresholds and file monitoring conditions by:

- Providing the ability to distribute a threshold or file monitor configuration to groups of nodes as a single operation
- Automatically creating submaps and icons on the NetView for AIX root map for MLMs and their managed nodes
- Automatically creating icons on your root map to represent active threshold and file monitor settings
- Providing a pre-defined filter to open a dynamic workspace that only shows file monitor traps.
- Providing access to problem determination tools from the node-level view for thresholds and file monitoring icons.
- Dynamically updating the list of objects for which a threshold or file monitor condition is active as the network topology changes.

---

## End User Interface Enhancements

The following enhancements have been made to the NetView for AIX graphical interface:

- Items can be registered to the object menus and the Tools Window dynamically through APIs.
- A scroll bar has been added to the Control Desk window so that you can scroll through event cards.
- You can obtain the description for an object in one step by using the new Describe Object menu item on the object menu.
- You can select a section of a submap and zoom in on it with a single mouse-click.
- The Print Tool supports color printing.
- The navigation tree reflects the actual path a user takes through the graphical interface submaps.
- Objects can be selectively hidden.

---

## Enhancements to the Event Display Application

These are the improvements to the Event Display Application:

- Events have been enabled for a client/server environment. “Clear”, “Note added”, and “Severity/Category” changes to events are synchronized between a server and its clients.
- You can define rulesets to correlate events and take actions or filter events based on the correlation results.
- Event cards have color-coded tabs that indicate severity of the event.
- Dynamic workspaces have several enhancements:
  - Workspaces can be opened that mix and match different types of criteria for displaying events, including event category, severity, event source, correlation rule, and filters.
  - You can filter events from unmanaged nodes.
  - You can open a pre-defined workspace that displays only APM file monitor events.
  - You can show the event history for selected nodes on a map.

---

## Backup Manager Enhancements

These are the improvements to the backup manager function:

- You can have NetView for AIX discover and monitor remote NetView for AIX Version 4 managers.
- You can use the Managers icon on the NetView for AIX Root map to open a submap of manager nodes.
- Help has been added for determining which submap to close when a remote manager is re-established.
- You can manage containers without opening submaps.
- You can close all backup containers when a manager is re-established.
- You can select multiple containers for configuring manager associations.

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## Hardware and Software Requirements

To use the NetView for AIX program, you need specific hardware and software. This chapter lists the hardware and software required to support the NetView for AIX program. If you need more information, contact your IBM representative.

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### Hardware Requirements

To install and run the NetView for AIX program, you need the following hardware:

#### ***For Servers***

- A RISC System/6000 POWERstation or POWERserver or a POWERpc Model 40P or C10
- A minimum of 64MB of memory
- A minimum of 100MB of free disk space
- A minimum of 192MB of paging space
- A color display that supports X Window System Version 11 Release 5 and OSF/Motif Version 1 Release 2 and has the following characteristics:
  - Minimum number of colors: 256
  - Depth: 8 planes
  - Bits in color: 8 bits
  - Dimensions: 1280x1024 pixels
  - Resolution: 91x92 dots per inch
  - Video memory on adapter: minimum 1MB

The device must support 8-bit planes, or more, if you want to use background graphics for maps with the NetView for AIX program.

- An IBM or compatible mouse
- A TCP/IP network connection to use a domain name server (DNS)
- A tape drive, a CD-ROM drive, or an installable file image on a server to install the NetView for AIX program.
- For a host connection, AIX NetView Service Point Version 1 Release 2 and one of the following is required:
  - IBM Token-Ring High-Performance Adapter (#2970)
  - IBM X.25 Interface Co-processor/2 (#2960)
  - IBM 4-Port Multiprotocol Communication Controller (#2700)
  - Ethernet High Performance Network Adapter

#### ***For Clients***

- A RISC System/6000 POWERstation or POWERserver or a POWERpc Model 40P or C10
- A minimum of 32MB of memory (48MB is recommended)

- A minimum of 55MB of free disk space
- A minimum of 100MB of paging space
- A color display that supports X Window System Version 11 Release 5 and OSF/Motif Version 1 Release 2 and has the following characteristics:
  - Minimum number of colors: 256
  - Depth: 8 planes
  - Bits in color: 8 bits
  - Dimensions: 1280x1024 pixels
  - Resolution: 91x92 dots per inch
  - Video memory on adapter: minimum 1MB

The device must support 8-bit planes, or more, if you want to use background graphics for maps with the NetView for AIX program.

- An IBM or compatible mouse
- A TCP/IP network connection to use a domain name server (DNS)
- A tape drive, a CD-ROM drive, or an installable file image on a server to install the NetView for AIX client program.

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## Software Requirements

The following programs must be installed, configured, and operational in order to install and configure the NetView for AIX program:

- IBM AIX Version 3 Release 2.5 with PTF U428290 applied.
- AIXwindows Environment/6000 Version 1 Release 2 or later
- X Window System Version 11 Release 5
- X11 fonts
  - X11fnt.ibm850.pc.fnt
  - x11fnt.coreX.fnt
  - X11fnt.kanji.aixfnt (Japanese language only)
- OSF/Motif Version 1 Release 2 with all current PTFs
- SNMP agent
- TCP/IP
- NFS
- AIX base system locale of bs1.en\_US.pc.loc (for AIX 3.2.5) or bos.loc.pc\_compat.En\_US (for AIX 4.1)
- AIX Base System Compatibility/Service Aids Requirements, including AIX 3.2 to 4.1 compatibility links (for AIX 4.1)

To view the DynaText books, you must have installed the DynaText Browser for AIX 2.3.0 or greater. You do not need to install the DynaText Browser to access the online help.



For a host NetView connection, you must have the following software:

- NetView Version 2 Release 3 or later, or NetView Version 1 Release 2 or later for VSE
- Optionally, NETCENTER Version 1.
- IBM AIX System Network Architecture (SNA) Services/6000 Version 1 Release 2 or AIX SNA Server/6000 Version 2 Release 1 or later
- IBM AIX NetView Service Point Version 1 Release 2 Modification 0 to use with SNA Services/6000 or AIX NetView Service Point Version 1 Release 2 Modification 1 or later to use with SNA Server/6000

Multiple NetView for AIX programs can be connected to a single AIX NetView Service Point program. Individual performance requirements will dictate the number of applications you run on a single AIX NetView Service Point program.



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## Glossary

This glossary includes terms and definitions from:

- The *American National Standard Dictionary for Information Systems*, ANSI X3.172-1990, copyright 1990 by the American National Standards Institute (ANSI). Copies may be purchased from the American National Standards Institute, 11 West 42nd Street, New York, New York 10036. Definitions are identified by the symbol (A) after the definition.
- The ANSI/EIA Standard—440-A, *Fiber Optic Terminology*. Copies may be purchased from the Electronic Industries Association, 2001 Pennsylvania Avenue, N.W., Washington, DC 20006. Definitions are identified by the symbol (E) after the definition.
- The *Information Technology Vocabulary*, developed by Subcommittee 1, Joint Technical Committee 1, of the International Organization for Standardization and the International Electrotechnical Commission (ISO/IEC JTC1/SC1). Definitions of published parts of this vocabulary are identified by the symbol (I) after the definition; definitions taken from draft international standards, committee drafts, and working papers being developed by ISO/IEC JTC1/SC1 are identified by the symbol (T) after the definition, indicating that final agreement has not yet been reached among the participating National Bodies of SC1.
- The Network Working Group Request for Comments: 1208.
- The *IBM Dictionary of Computing*, New York: McGraw-Hill, 1994.
- The *Object-Oriented Interface Design: IBM Common User Access Guidelines*, Carmel, Indiana: Que, 1992.

The following cross-references are used in this glossary:

**Contrast with:** This refers to a term that has an opposed or substantively different meaning.

**Synonym for:** This indicates that the term has the same meaning as a preferred term, which is defined in its proper place in the glossary.

**Synonymous with:** This is a backward reference from a defined term to all other terms that have the same meaning.

**See:** This refers the reader to multiple-word terms that have the same last word.

**See also:** This refers the reader to terms that have a related, but not synonymous, meaning.

**Deprecated term for:** This indicates that the term should not be used. It refers to a preferred term, which is defined in its proper place in the glossary.

## A

**action.** (1) An operation on a managed object, the semantics of which are defined as part of the managed object class definition. (2) In the AIX operating system, a defined task that an application performs. An action modifies the properties of an object or manipulates the object in some way.

**active.** (1) The state of a resource when it has been activated and is operational. (2) In the AIX operating system, pertaining to the window pane in which the text cursor is currently positioned. (3) Contrast with *inactive* and *inoperative*.

**adapter.** A part that electrically or physically connects a device to a computer or to another device.

**Administrative Domain.** A collection of hosts and routers, and the interconnecting networks, managed by a single administrative authority.

**agent.** (1) In systems management, a user that, for a particular interaction, has assumed an agent role. (2) An entity that represents one or more managed objects by (a) emitting notifications regarding the objects and (b) handling requests from managers for management operations to modify or query the objects. (3) A system that assumes an agent role.

**AIX.** Advanced Interactive Executive.

**AIX NetView Service Point.** See *NetView for AIX Service Point*.

**AIX NetView/6000.** See *NetView for AIX*.

**AIX operating system.** IBM's implementation of the UNIX operating system. The RISC System/6000 system, among others, runs the AIX operating system.

**AIX SystemView NetView/6000.** See *NetView for AIX*.

**alert.** (1) A message sent to a management services focal point in a network to identify a problem or an impending problem. (2) In SNA management services (SNA/MS), a high priority event that warrants immediate attention.

**API.** Application programming interface.

**application programming interface (API).** The set of programming language constructs or statements that can be coded in an application program to obtain the specific functions and services provided by an underlying operating system or service program.

**ASCII (American National Standard Code for Information Interchange).** The standard code, using a coded character set consisting of 7-bit coded characters (8 bits including parity check), that is used for information interchange among data processing systems, data communication systems, and associated equipment. The ASCII set consists of control characters and graphic characters. (A)

**attribute.** (1) A characteristic that identifies and describes a managed object. The characteristic can be determined, and possibly changed, through operations on the managed object. (2) Information within a managed object that is visible at the object boundary. An attribute has a type, which indicates the range of information given by the attribute, and a value, which is within that range. (3) Variable data that is logically a part of an object and that represents a property of the object. For example, a serial number is an attribute of an equipment object.

**authentication.** (1) In computer security, verification of the identity of a user or the user's eligibility to access an object. (2) In computer security, verification that a message has not been altered or corrupted. (3) In computer security, a process used to verify the user of an information system or protected resources.

## B

**Berkeley Software Distribution (BSD).** Pertaining to any of the series of UNIX specifications or implementations distributed by the University of California at Berkeley. The mnemonic "BSD" is usually followed by a number to specify the particular version of UNIX that was distributed (for example, BSD 4.3). Many vendors use BSD specifications as standards for their UNIX products.

**bridge.** (1) A functional unit that interconnects two local area networks that use the same logical link control protocol but may use different medium access control protocols. (T) (2) A functional unit that interconnects multiple LANs (locally or remotely) that use the same logical link control protocol but that can use different medium access control protocols. A bridge forwards a frame to another bridge based on the medium access control (MAC) address. (3) In the connection of local loops, channels, or rings, the equipment and techniques used to match circuits and to facilitate accurate data transmission. (4) Contrast with *gateway* and *router*.

**broadcast.** Simultaneous transmission of data to more than one destination.

**browse.** To look at records in a file.

**BSD.** Berkeley Software Distribution.

**bus.** (1) A facility for transferring data between several devices located between two end points, only one device being able to transmit at a given moment. (T) (2) A computer configuration in which processors are interconnected in series.

**button.** (1) A mechanism on a pointing device, such as a mouse, used to request or initiate an action or a process. (2) A graphical device that identifies a choice. (3) A graphical mechanism that, when selected, performs a visible action. For example, when a user clicks on a list button, a list of choices appears. (4) See *mouse button*, *push button*, *radio button*, and *spin button*.

## C

**card.** In NetView for AIX, see *event card*.

**class.** (1) In object-oriented design or programming, a group of objects that share a common definition and that therefore share common properties, operations, and behavior. Members of the group are called instances of the class. (2) In the AIX operating system, pertaining to the I/O characteristics of a device. System devices are classified as block or character devices.

**click.** To press and release a button on a pointing device without moving the pointer off of the object or choice.

**client.** (1) A functional unit that receives shared services from a server. (T) (2) A user. (3) In an AIX distributed file system environment, a system that is

dependent on a server to provide it with programs or access to programs.

**client/server.** In communications, the model of interaction in distributed data processing in which a program at one site sends a request to a program at another site and awaits a response. The requesting program is called a client; the answering program is called a server.

**Close.** A choice that removes a window and all of the windows associated with it from the workplace. For example, if a user is performing a task in a window and a message appears, or the user asks for help, both the message and the help windows disappear when the user closes the original window.

**CMIP.** Common Management Information Protocol.

**CMOT.** Common Management Information Protocol over TCP/IP.

**command.** A request from a terminal for the performance of an operation or the execution of a particular program.

**Common Management Information Protocol (CMIP).** The OSI standard protocol defined in ISO/IEC 9596-1 for the interaction between managers and agents that use the Common Management Information Service Element (CMISE).

**Common Management Information Protocol over TCP/IP (CMOT).** An Internet Engineering Task Force (IETF) specification for the use of CMIP over a TCP/IP protocol stack.

**communication controller.** A type of communication control unit whose operations are controlled by one or more programs stored and executed in the unit. It manages the details of line control and the routing of data through a network.

**configuration.** (1) The manner in which the hardware and software of an information processing system are organized and interconnected. (T) (2) The devices and programs that make up a system, subsystem, or network.

**connection.** (1) In data communication, an association established between functional units for conveying information. (I) (A) (2) In Open Systems Interconnection architecture, an association established by a given layer between two or more entities of the next higher layer for the purpose of data transfer. (T) (3) In TCP/IP, the path between two protocol applications that provides reli-

able data stream delivery service. In the Internet, a connection extends from a TCP application on one system to a TCP application on another system. (4) In system communications, a line over which data can be passed between two systems or between a system and a device. (5) Synonym for *physical connection*.

**control desk.** In NetView for AIX, a component of the graphical user interface (GUI) that enables the network operator to group application program instances together.

## D

**data.** A representation of facts or instructions in a form suitable for communication, interpretation, or processing by human or automatic means. Data include constants, variables, arrays, and character strings.

**Note:** Programmers make a distinction between instructions and the data they operate on; however, in the usual sense of the word, data includes programs and program instructions.

**data set.** Synonym for *file*.

**default.** Pertaining to an attribute, condition, value, or option that is assumed when none is explicitly specified. (I)

**Delete.** A choice that removes a selected object. The space it occupied is usually filled by the remaining object or objects in the window.

**device.** A mechanical, electrical, or electronic contrivance with a specific purpose.

**dialog box.** In OSF/Motif, a collection of data fields and buttons for setting controls, selecting from lists, choosing from mutually exclusive options, entering data, and presenting the user with messages.

**disable.** To make nonfunctional.

**discovery.** In data communication, the automatic detection of network topology changes (for example, new and deleted nodes or new and deleted interfaces).

**display.** (1) A visual presentation of data. (I) (A) (2) To present data visually. (I) (A) (3) Deprecated term for *panel*.

**distributed management environment (DME).** A specification of the Open Software Foundation (OSF) for managing "open" systems.

**DME.** Distributed management environment.

**DNS.** Domain Name System.

**domain.** (1) That part of a computer network in which the data processing resources are under common control. (T) (2) In SNA, see *end node domain*, *network node domain*, and *system services control point (SSCP) domain*. (3) In Open Systems Interconnection (OSI), a part of a distributed system or a set of managed objects to which a common policy applies. (4) In a database, all the possible values of an attribute or a data element. (5) See *Administrative Domain* and *domain name*.

**domain name.** In the Internet suite of protocols, a name of a host system. A domain name consists of a sequence of subnames separated by a delimiter character. For example, if the fully qualified domain name (FQDN) of a host system is `ra1vm7.vnet.ibm.com`, each of the following is a domain name:

- `ra1vm7.vnet.ibm.com`
- `vnet.ibm.com`
- `ibm.com`

**Domain Name System (DNS).** In the Internet suite of protocols, the distributed database system used to map domain names to IP addresses.

**dynamic.** (1) In programming languages, pertaining to properties that can only be established during the execution of a program; for example, the length of a variable-length data object is dynamic. (I) (2) Pertaining to an operation that occurs at the time it is needed rather than at a predetermined or fixed time. (3) Contrast with *static*.

## E

**echo.** (1) In computer graphics, the immediate notification of the current values provided by an input device to the operator at the display console. (I) (A) (2) In data communication, a reflected signal on a communications channel. For example, on a communications terminal, each signal is displayed twice, once when entered at the local terminal and again when returned over the communications link. This allows the signals to be checked for accuracy.

**enable.** To make functional.

**end node domain.** An end node control point, its attached links, and its local LUs.

**end user.** A person, device, program, or computer system that utilizes a computer network for the purpose of data processing and information exchange. (T)

**end-user interface (EUI).** In NetView for AIX, synonym for *graphical user interface (GUI)*.

**error.** A discrepancy between a computed, observed, or measured value or condition and the true, specified, or theoretically correct value or condition. (I) (A)

**error log.** (1) A data set or file in a product or system where error information is stored for later access. (2) A form in a maintenance library that is used to record error information about a product or system. (3) A record of machine checks, device errors, and volume statistical data.

**Ethernet.** A 10-Mbps baseband local area network that allows multiple stations to access the transmission medium at will without prior coordination, avoids contention by using carrier sense and deference, and resolves contention by using collision detection and delayed retransmission. Ethernet uses carrier sense multiple access with collision detection (CSMA/CD).

**EUI.** End-user interface.

**event.** (1) An occurrence of significance to a task; for example, an SNMP trap, the opening of a window or a submap, or the completion of an asynchronous operation. (2) In the NetView and NETCENTER programs, a record indicating irregularities of operation in physical elements of a network. (3) See also *event report*.

**event card.** In NetView for AIX, a graphical representation, resembling a card, of the information contained in an event sent by an agent to a manager reflecting a change in the status of one of the agent's managed nodes.

**event report.** The unsolicited report that an event has occurred. When a managed object emits a notification, the agent uses one or more event forwarding discriminators (EFDs) to find the destinations to which the report is sent.

## F

**feature.** A part of an IBM product that may be ordered separately by the customer.

**file.** A named set of records stored or processed as a unit. (T) Synonymous with *data set*.

**filter.** (1) A device or program that separates data, signals, or material in accordance with specified criteria. (A) (2) In the NetView program, a function that limits the data that is to be recorded on the database and displayed at the terminal. (3) In the AIX operating system, a command that reads standard input data, modifies the data, and sends it to the display screen. (4) See also *recording filter* and *viewing filter*.

**FQDN.** Fully qualified domain name.

**fully qualified domain name (FQDN).** In the Internet suite of protocols, the name of a host system that includes all of the subnames of the domain name. An example of a fully qualified domain name is `ra1vm7.vnet.ibm.com`. See also *host name*.

## G

**gateway.** (1) A functional unit that interconnects two computer networks with different network architectures. A gateway connects networks or systems of different architectures. A bridge interconnects networks or systems with the same or similar architectures. (T) (2) In the AIX operating system, an entity that operates above the link layer and translates, when required, the interface and protocol used by one network into those used by another distinct network. (3) In TCP/IP, synonym for *router*.

**general topology manager (GTM).** In NetView for AIX, the component that accepts information about resources that are accessed through protocols other than the Internet Protocol (IP), stores this information in a database, and displays it to the user.

**GIF.** Graphical interchange format.

**graph.** A set of vertices and the set of arcs that link pairs of those vertices.

**graphical interchange format (GIF).** In NetView for AIX, the format used for the background pictures of a network topology map.

**graphical user interface (GUI).** (1) A type of computer interface consisting of a visual metaphor of a real-world scene, often of a desktop. Within that scene are icons, representing actual objects, that the user can access and manipulate with a pointing device. (2) In NetView for AIX, the integrating interface application program that provides the means for displaying submaps and for integrating network application programs. The graphical user interface is a single, consistent interface that enables the user to interact with multiple application programs. Synonymous with *end-user interface (EUI)*.

**GTM.** General topology manager.

**GUI.** Graphical user interface.

## H

**hardcopy.** (1) A permanent copy of a display image generated on an output device such as a printer or plotter, and which can be carried away. (T) (2) A printed copy of machine output in a visually readable form; for example, printed reports, listings, documents, and summaries. (3) Contrast with *softcopy*.

**Help.** A choice that gives a user access to helpful information about objects, choices, tasks, and products. A Help choice can appear on a menu bar or as a push button.

**help panel.** Information displayed by a system in response to a help request from a user.

**hierarchy.** The resource types, display types, and data types that make up the organization, or levels, in a network.

**host.** (1) In the Internet suite of protocols, an end system. The end system can be any workstation; it does not have to be a mainframe. (2) See *host processor*.

**host name.** In the Internet suite of protocols, the name given to a machine. Sometimes, "host name" is used to mean *fully qualified domain name (FQDN)*; other times, it is used to mean the most specific subname of a fully qualified domain name. For example, if `ra1vm7.vnet.ibm.com` is the fully qualified domain name, either of the following may be considered the host name:

- `ra1vm7.vnet.ibm.com`
- `ra1vm7`

**host processor.** (1) A processor that controls all or part of a user application network. (T) (2) In a network,

the processing unit in which the data communication access method resides.

**hypertext.** A way of presenting information online with connections (called hypertext links) between one piece of information and another.

## I

**ICMP.** Internet Control Message Protocol.

**icon.** (1) A graphic symbol, displayed on a screen, that a user can point to with a device such as a mouse in order to select a particular function or software application. (T) (2) A graphical representation of an object, consisting of an image, image background, and a label.

**ID.** (1) Identifier. (2) Identification.

**inactive.** (1) Not operational. (2) Pertaining to a node or device not connected or not available for connection to another node or device. (3) In the AIX operating system, pertaining to a window that does not have an input focus. (4) Contrast with *active*. (5) See also *inoperative*.

**Information/Management.** A feature of the Information/System licensed program that provides interactive systems management applications for problem, change, and configuration management.

**inoperative.** (1) The condition of a resource that has been active but is not currently active. A resource may be inoperative for reasons such as the following: (a) it may have failed, (b) it may have received an INOP request, or (c) it may be suspended while a reactivate command is being processed. (2) See also *inactive*.

**interface.** A shared boundary between two functional units, defined by functional characteristics, signal characteristics, or other characteristics, as appropriate. The concept includes the specification of the connection of two devices having different functions. (T)

**internet.** A collection of networks interconnected by a set of routers that allow them to function as a single, large network. See also *Internet*.

**Internet.** The internet administered by the Internet Architecture Board (IAB), consisting of large national backbone networks and many regional and campus networks all over the world. The Internet uses the Internet suite of protocols.

**Internet Control Message Protocol (ICMP).** The protocol used to handle errors and control messages in the Internet Protocol (IP) layer. Reports of problems and incorrect datagram destinations are returned to the original datagram source. ICMP is part of the Internet Protocol.

**Internet Protocol (IP).** A connectionless protocol that routes data through a network or interconnected networks. IP acts as an intermediary between the higher protocol layers and the physical network. However, this protocol does not provide error recovery and flow control and does not guarantee the reliability of the physical network.

**IP.** Internet Protocol.

**IP address.** The 32-bit address defined by the Internet Protocol, standard 5, Request for Comment (RFC) 791. It is usually represented in dotted decimal notation.

## L

**LAN.** Local area network.

**layout.** See *layout algorithm*.

**layout algorithm.** A method of arranging displayed or printed data.

**link.** The combination of the link connection (the transmission medium) and two link stations, one at each end of the link connection. A link connection can be shared among multiple links in a multipoint or token-ring configuration.

**local.** (1) Pertaining to a device accessed directly without use of a telecommunication line. (2) Contrast with *remote*.

**local area network (LAN).** (1) A computer network located on a user's premises within a limited geographical area. Communication within a local area network is not subject to external regulations; however, communication across the LAN boundary may be subject to some form of regulation. (T) (2) A network in which a set of devices are connected to one another for communication and that can be connected to a larger network. (3) See also *Ethernet* and *token ring*. (4) Contrast with *metropolitan area network (MAN)* and *wide area network (WAN)*.



## M

**MAN.** Metropolitan area network.

**Management Information Base (MIB).** (1) A collection of objects that can be accessed by means of a network management protocol. (2) A definition for management information that specifies the information available from a host or gateway and the operations allowed. (3) In OSI, the conceptual repository of management information within an open system.

**management services (MS).** (1) One of the types of network services in control points (CPs) and physical units (PUs). Management services are the services provided to assist in the management of SNA networks, such as problem management, performance and accounting management, configuration management, and change management. (2) Services that assist in the management of systems and networks in areas such as problem management, performance management, business management, operations management, configuration management, and change management.

**manager.** (1) In systems management, a user that, for a particular interaction, has assumed a manager role. (2) An entity that monitors or controls one or more managed objects by (a) receiving notifications regarding the objects and (b) requesting management operations to modify or query the objects. (3) A system that assumes a manager role.

**map.** In NetView for AIX, a database represented by a set of related submaps that provide a graphical and hierarchical presentation of a network and its systems.

**menu.** (1) A list of options displayed to the user by a data processing system, from which the user can select an action to be initiated. (T) (2) A list of choices that can be applied to an object. A menu can contain choices that are not available for selection in certain contexts. Those choices are indicated by reduced contrast.

**menu bar.** (1) The area near the top of a window, below the title bar and above the rest of the window, that contains choices that provide access to other menus. (2) In the AIX operating system, a rectangular area at the top of the client area of a window that contains the titles of the standard pull-down menus for that application.

**message.** (1) An assembly of characters and sometimes control codes that is transferred as an entity from

an originator to one or more recipients. A message consists of two parts: envelope and content. (T) (2) A communication sent from a person or program to another person or program.

**metropolitan area network (MAN).** A network formed by the interconnection of two or more networks which may operate at higher speed than those networks, may cross administrative boundaries, and may use multiple access methods. (T) Contrast with *local area network (LAN)* and *wide area network (WAN)*.

**MIB.** (1) MIB module. (2) Management Information Base.

**MIB object.** Synonym for *MIB variable*.

**MIB variable.** In the Simple Network Management Protocol (SNMP), a specific instance of data defined in a MIB module. Synonymous with *MIB object*.

**monitor.** (1) A device that observes and records selected activities within a data processing system for analysis. Possible uses are to indicate significant departure from the norm, or to determine levels of utilization of particular functional units. (T) (2) Software or hardware that observes, supervises, controls, or verifies operations of a system. (A)

**Motif.** See *OSF/Motif*.

**mouse.** A commonly used pointing device, containing one or more buttons, with which a user can interact with a product or the operating environment.

**mouse button.** A mechanism on a mouse pointing device used to select objects or choices, initiate actions, or directly manipulate objects; a user presses a mouse button to interact with a computer system. The button makes a "clicking" sound when pressed and released.

## N

**navigation tree.** In NetView for AIX, a component of the graphical user interface (GUI) that displays a hierarchy of open submaps illustrating the parent-child relationship. The navigation tree enables the network operator to determine which submaps are currently open and to close, restore, or raise the windows that contain submaps.

**NETCENTER.** A software product that assists the network operator and other technical personnel at a network control center in managing the network.

**NetView for AIX.** (1) Formerly known as *AIX SystemView NetView/6000* (or its abbreviated name, which is *AIX NetView/6000*). (2) An IBM licensed program for systems management in the AIX environment. NetView for AIX can use the NetView for AIX Service Point to communicate with the NetView and NETCENTER programs.

**NetView for AIX Service Point.** (1) Formerly known as the *AIX NetView Service Point*. (2) An IBM licensed program that operates in the AIX and UNIX environments. It functions as a gateway in an unattended environment.

**network.** (1) An arrangement of nodes and connecting branches. (T) (2) A configuration of data processing devices and software connected for information interchange. (3) A group of nodes and the links interconnecting them.

**network administrator.** A person who manages the use and maintenance of a network.

**Network File System (NFS).** A protocol developed by Sun Microsystems, Incorporated, that allows any host in a network to mount another host's file directories. Once mounted, the file directory appears to reside on the local host.

**network manager.** A program or group of programs that is used to monitor, manage, and diagnose the problems of a network.

**network node domain.** An APPN network-node control point, its attached links, the network resources for which it answers directory search requests (namely, its local LUs and adjacent LEN end nodes), the adjacent APPN end nodes with which it exchanges directory search requests and replies, and other resources (such as a local storage device) associated with its own node or an adjacent end node for which it provides management services.

**NFS.** Network File System.

**node.** (1) In network topology, the point at an end of a branch. (T) (2) The representation of a state or an event by means of a point on a diagram. (A) (3) In a tree structure, a point at which subordinate items of data originate. (A) (4) An endpoint of a link or a junction common to two or more links in a network. Nodes can be processors, communication controllers, cluster controllers, or terminals. Nodes can vary in routing and other functional capabilities.

## O

**object.** (1) In object-oriented design or programming, an abstraction consisting of data and the operations associated with that data. See also *class*. (2) An item that a user can manipulate as a single unit to perform a task. An object can appear as text, an icon, or both.

**Off.** A choice that appears in the cascaded menu from the Refresh choice. It sets the refresh function to off.

**On.** A choice that appears in a cascaded menu from the Refresh choice. It immediately refreshes the view in a window.

**online.** (1) Pertaining to the operation of a functional unit when under the direct control of the computer. (T) (2) Pertaining to a user's ability to interact with a computer. (A)

**online information.** Information stored in a computer system that can be displayed, used, and modified in an interactive manner without any need to obtain hardcopy.

**Open.** A choice that leads to a window in which users can select the object they want to open.

**Open Software Foundation (OSF).** A nonprofit research and development organization whose goals are (a) to develop specifications and software for use in an open software environment and (b) to make the specifications and software available to information technology vendors under fair and equitable licensing terms. For example, OSF developed the Distributed Computing Environment (DCE).

**Open Systems Interconnection (OSI).** The interconnection of open systems in accordance with standards of the International Organization for Standardization (ISO) for the exchange of information. (T) (A)

**Open Systems Interconnection (OSI) architecture.** Network architecture that adheres to that particular set of ISO standards that relates to Open Systems Interconnection. (T)

**Open Systems Interconnection (OSI) reference model.** A model that describes the general principles of the Open Systems Interconnection, as well as the purpose and the hierarchical arrangement of its seven layers. (T)

**operating system (OS).** Software that controls the execution of programs and that may provide services

such as resource allocation, scheduling, input/output control, and data management. Although operating systems are predominantly software, partial hardware implementations are possible. (T)

**operation.** In object-oriented design or programming, a service that can be requested at the boundary of an object. Operations include modifying an object or disclosing information about an object.

**operator.** (1) A person or program responsible for managing activities controlled by a given piece of software such as MVS, the NetView program, or IMS. (2) A person who operates a device. (3) A person who keeps a system running.

**OSF.** Open Software Foundation.

**OSF/Motif.** A graphical interface that contains a toolkit, a presentation description language, a window manager, and a style guideline.

**OSI.** Open Systems Interconnection.

## P

**packet internet groper (PING).** (1) In Internet communications, a program used in TCP/IP networks to test the ability to reach destinations by sending the destinations an Internet Control Message Protocol (ICMP) echo request and waiting for a reply. (2) In communications, a test of reachability.

**packet switching.** The process of routing and transferring data by means of addressed packets so that a channel is occupied only during transmission of a packet. On completion of the transmission, the channel is made available for transfer of other packets. (I)

**page.** (1) In a virtual storage system, a fixed-length block that has a virtual address and is transferred as a unit between real storage and auxiliary storage. (I) (A) (2) The information displayed at the same time on the screen of a display device.

**panel.** (1) See *window*. (2) A formatted display of information that appears on a display screen. See *help panel* and *task panel*. (3) In computer graphics, a display image that defines the locations and characteristics of display fields on a display surface.

**path.** The route used to locate files; the storage location of a file. A fully qualified path lists the drive

identifier, directory name, subdirectory name (if any), and file name with the associated extension.

**physical connection.** (1) A connection that establishes an electrical circuit. (2) A point-to-point or multi-point connection. (3) Synonymous with *connection*.

**PING.** Packet internet groper.

**polling.** (1) On a multipoint connection or a point-to-point connection, the process whereby data stations are invited, one at a time, to transmit. (I) (2) Interrogation of devices for such purposes as to avoid contention, to determine operational status, or to determine readiness to send or receive data. (A)

**port.** (1) An access point for data entry or exit. (2) A connector on a device to which cables for other devices such as display stations and printers are attached. (3) The representation of a physical connection to the link hardware. A port is sometimes referred to as an adapter; however, there can be more than one port on an adapter. There may be one or more ports controlled by a single DLC process. (4) In the Internet suite of protocols, a 16-bit number used to communicate between TCP or the User Datagram Protocol (UDP) and a higher-level protocol or application. Some protocols, such as File Transfer Protocol (FTP) and Simple Mail Transfer Protocol (SMTP), use the same well-known port number in all TCP/IP implementations. (5) An abstraction used by transport protocols to distinguish among multiple destinations within a host machine. (6) Synonymous with *socket*.

**problem determination.** The process of determining the source of a problem; for example, a program component, machine failure, telecommunication facilities, user or contractor-installed programs or equipment, environmental failure such as a power loss, or user error.

**processor.** In a computer, a functional unit that interprets and executes instructions. A processor consists of at least an instruction control unit and an arithmetic and logic unit. (T)

**program temporary fix (PTF).** A temporary solution or bypass of a problem diagnosed by IBM in a current unaltered release of the program.

**protocol.** (1) A set of semantic and syntactic rules that determine the behavior of functional units in achieving communication. (I) (2) In Open Systems Interconnection architecture, a set of semantic and syntactic rules that determine the behavior of entities in the same layer in performing communication functions. (T)

**proxy agent.** A process or entity that is both an agent to its manager and a manager for one or more objects. It satisfies requests from its manager by relaying those requests and translating them for the objects that it manages.

**PTF.** Program temporary fix.

**push button.** A button, labeled with text, graphics, or both, that represents an action that will be initiated when a user selects it.

## R

**radio button.** A circle with text beside it. Radio buttons are combined to show a user a fixed set of choices from which the user can select one. The circle becomes partially filled when a choice is selected.

**read-only.** A type of access to data that allows data to be read but not copied, printed, or modified.

**real time.** (1) In Open Systems Interconnection architecture, pertaining to the processing of data by a computer in connection with another process outside the computer according to time requirements imposed by the outside process. This term is also used to describe systems operating in conversational mode and processes that can be influenced by human intervention while they are in progress. (I) (A) (2) In Open Systems Interconnection architecture, pertaining to an application such as a process control system or a computer-assisted instruction system in which response to input is fast enough to affect subsequent input.

**recording filter.** In the NetView program, the function that determines which events, statistics, and alerts are stored on a database.

**reduced instruction-set computer (RISC).** A computer that uses a small, simplified set of frequently used instructions for rapid execution.

**relational database.** A database in which the data are organized and accessed according to relations. (T)

**remote.** (1) Pertaining to a system, program, or device that is accessed through a telecommunication line. (2) Contrast with *local*.

**Request for Comments (RFC).** In Internet communications, the document series that describes a part of the

Internet suite of protocols and related experiments. All Internet standards are documented as RFCs.

**resource.** Any facility of a computing system or operating system required by a job or task, and including main storage, input/output devices, the processing unit, data sets, and control or processing programs.

**response.** (1) In data communication, a reply represented in the control field of a response frame. It advises the primary or combined station of the action taken by the secondary or other combined station to one or more commands. (2) See also *command*.

**response time.** For response time monitoring, the time from the activation of a transaction until a response is received, according to the response time definition coded in the performance class.

**RFC.** Request for Comments.

**ring.** See *ring network*.

**ring network.** (1) A network in which every node has exactly two branches connected to it and in which there are exactly two paths between any two nodes. (T) (2) A network configuration in which devices are connected by unidirectional transmission links to form a closed path.

**RISC.** Reduced instruction-set computer.

**route.** (1) An ordered sequence of nodes and transmission groups (TGs) that represent a path from an origin node to a destination node traversed by the traffic exchanged between them. (2) The path that network traffic uses to get from source to destination.

**router.** (1) A computer that determines the path of network traffic flow. The path selection is made from several paths based on information obtained from specific protocols, algorithms that attempt to identify the shortest or best path, and other criteria such as metrics or protocol-specific destination addresses. (2) An attaching device that connects two LAN segments, which use similar or different architectures, at the reference model network layer. (3) In OSI terminology, a function that determines a path by which an entity can be reached. (4) In TCP/IP, synonymous with *gateway*. (5) Contrast with *bridge*.

**routing.** (1) The process of determining the path to be used for transmission of a message over a network. (T) (2) The assignment of the path by which a message is to reach its destination.

## S

**scroll.** To move a display image vertically or horizontally to view data that otherwise cannot be observed within the boundaries of the display screen.

**scroll bar.** A window component that shows a user that more information is available in a particular direction and can be scrolled into view. Scroll bars can be either horizontal or vertical.

**seed file.** In NetView for AIX, a file that contains a list of nodes within an Administrative Domain, which the automatic discovery function uses to accelerate the generation of the network topology map.

**segment.** (1) A portion of a computer program that may be executed without the entire computer program being resident in main storage. (T) (2) A group of display elements. (3) A section of cable between components or devices. A segment may consist of a single patch cable, several patch cables that are connected, or a combination of building cable and patch cables that are connected. (4) In the Enhanced X-Windows Toolkit, one or more lines that are drawn but not necessarily connected at the endpoints. (5) In LANs or WANs, a subset of nodes in a network or subnet that are connected by a common physical medium.

**select.** To explicitly identify one or more objects to which a subsequent choice will apply.

**selection.** The process of explicitly identifying one or more objects to which a subsequent choice will apply.

**server.** (1) A functional unit that provides shared services to workstations over a network; for example, a file server, a print server, a mail server. (T) (2) In a network, a data station that provides facilities to other stations; for example, a file server, a print server, a mail server. (A) (3) In the AIX operating system, an application program that usually runs in the background and is controlled by the system program controller. (4) In the Enhanced X-Windows Toolkit, a program that provides the basic windowing mechanism. It handles inter-process communication (IPC) connections from clients, demultiplexes graphics requests onto screens, and multiplexes input back to clients.

**service point (SP).** (1) An entry point that supports applications that provide network management for resources not under the direct control of itself as an entry point. Each resource is either under the direct control of another entry point or not under the direct

control of any entry point. A service point accessing these resources is not required to use SNA sessions (unlike a focal point). A service point is needed when entry point support is not yet available for some network management function. (2) In NetView for AIX, see *NetView for AIX Service Point*.

**shared.** Pertaining to the availability of a resource for more than one use at the same time.

**shell procedure.** In the AIX operating system, a series of commands, combined in a file, that carry out a particular function when the file is run or when the file is specified as a value to the SH command. Synonymous with *shell script*.

**shell script.** Synonym for *shell procedure*.

**Simple Network Management Protocol (SNMP).** In the Internet suite of protocols, a network management protocol that is used to monitor routers and attached networks. SNMP is an application layer protocol. Information on devices managed is defined and stored in the application's Management Information Base (MIB).

**SNA.** Systems Network Architecture.

**snapshot.** In NetView for AIX, a copy of a map that reflects the topology and status of the map's nodes and links at a given moment in time.

**SNMP.** Simple Network Management Protocol.

**socket.** (1) An endpoint for communication between processes or application programs. (2) Synonym for *port*.

**softcopy.** (1) A nonpermanent copy of the contents of storage in the form of a display image. (T) (2) One or more files that can be electronically distributed, manipulated, and printed by a user. (3) Contrast with *hardcopy*.

**spin button.** A component used to display, in sequence, a ring of related but mutually exclusive choices. A user can accept the value displayed in the entry field or can type a valid choice into the entry field.

**SSCP.** System services control point.

**static.** (1) In programming languages, pertaining to properties that can be established before execution of a program; for example, the length of a fixed length variable is static. (I) (2) Pertaining to an operation that occurs at a predetermined or fixed time. (3) Contrast with *dynamic*.

**station.** An input or output point of a system that uses telecommunication facilities; for example, one or more systems, computers, terminals, devices, and associated programs at a particular location that can send or receive data over a telecommunication line.

**status.** The condition or state of hardware or software, usually represented by a status code.

**subagent.** In the Simple Network Management Protocol (SNMP), something that provides an extension to the utility provided by the SNMP agent.

**submap.** In NetView for AIX, a particular view of some aspect of a network that displays symbols representing objects. The application program that creates a submap determines what part of the network the submap displays.

**symbol.** In NetView for AIX, a picture or an icon on a submap that represents an object (a network resource or an application). Each symbol belongs to a class, represented by the symbol's shape, and to a subclass, represented by the design within the shape. The symbol reflects characteristics of the object it represents, such as its status; it also has characteristics of its own, such as behavior.

**system services control point (SSCP).** A component within a subarea network for managing the configuration, coordinating network operator and problem determination requests, and providing directory services and other session services for end users of the network. Multiple SSCPs, cooperating as peers with one another, can divide the network into domains of control, with each SSCP having a hierarchical control relationship to the physical units and logical units within its own domain.

**system services control point (SSCP) domain.** The system services control point, the physical units (PUs), the logical units (LUs), the links, the link stations, and all the resources that the SSCP has the ability to control by means of activation and deactivation requests.

**Systems Network Architecture (SNA).** The description of the logical structure, formats, protocols, and operational sequences for transmitting information units through, and controlling the configuration and operation of, networks. The layered structure of SNA allows the ultimate origins and destinations of information, that is, the end users, to be independent of and unaffected by the specific SNA network services and facilities used for information exchange.

## T

**task.** In a multiprogramming or multiprocessing environment, one or more sequences of instructions treated by a control program as an element of work to be accomplished by a computer. (I) (A)

**task panel.** Online display from which you communicate with the program in order to accomplish the program's function, either by selecting an option provided on the panel or by entering an explicit command. See also *help panel*.

**TCP.** Transmission Control Protocol.

**TCP/IP.** Transmission Control Protocol/Internet Protocol.

**threshold.** In NetView for AIX, a setting that specifies the maximum value a statistic can reach before notification that the limit was exceeded. For example, when a monitored MIB value has exceeded the threshold, the data collector generates a threshold event.

**token.** (1) In a local area network, the symbol of authority passed successively from one data station to another to indicate the station temporarily in control of the transmission medium. Each data station has an opportunity to acquire and use the token to control the medium. A token is a particular message or bit pattern that signifies permission to transmit. (T) (2) In LANs, a sequence of bits passed from one device to another along the transmission medium. When the token has data appended to it, it becomes a frame.

**token ring.** (1) According to IEEE 802.5, network technology that controls media access by passing a token (special packet or frame) between media-attached stations. (2) A FDDI or IEEE 802.5 network with a ring topology that passes tokens from one attaching ring station (node) to another. (3) See also *local area network (LAN)*.

**tool palette.** In NetView for AIX, a component of the graphical user interface (GUI) that enables the network operator to open application program instances by using the mouse to drag-and-drop the icons that represent the application program.

**topology.** In communications, the physical or logical arrangement of nodes in a network, especially the relationships among nodes and the links between them.

**Transmission Control Protocol (TCP).** A communications protocol used in the Internet and in any network that follows the U.S. Department of Defense standards for internetwork protocol. TCP provides a reliable host-to-host protocol between hosts in packet-switched communications networks and in interconnected systems of such networks. It uses the Internet Protocol (IP) as the underlying protocol.

**Transmission Control Protocol/Internet Protocol (TCP/IP).** A set of communications protocols that support peer-to-peer connectivity functions for both local and wide area networks.

**trap.** In the Simple Network Management Protocol (SNMP), a message sent by a managed node (agent function) to a management station to report an exception condition.

## U

**user.** (1) Any person or any thing that may issue or receive commands and messages to or from the information processing system. (T) (2) Anyone who requires the services of a computing system.

## V

**value.** (1) A specific occurrence of an attribute; for example, "blue" for the attribute "color." (T) (2) A quantity assigned to a constant, a variable, a parameter, or a symbol.

**version.** A separately licensed program that usually has significant new code or new function.

**viewing filter.** In the NetView program, the function that allows a user to select the alert data to be displayed on a terminal. All other stored data is blocked.

## W

**WAN.** Wide area network.

**wide area network (WAN).** (1) A network that provides communication services to a geographic area larger than that served by a local area network or a metropolitan area network, and that may use or provide public com-

munication facilities. (T) (2) A data communication network designed to serve an area of hundreds or thousands of miles; for example, public and private packet-switching networks, and national telephone networks. (3) Contrast with *local area network (LAN)* and *metropolitan area network (MAN)*.

**window.** (1) A portion of a display surface in which display images pertaining to a particular application can be presented. Different applications can be displayed simultaneously in different windows. (A) (2) An area with visible boundaries that presents a view of an object or with which a user conducts a dialog with a computer system.

**workstation.** (1) A functional unit at which a user works. A workstation often has some processing capability. (T) (2) One or more programmable or nonprogrammable devices that allow a user to do work. (3) A terminal or microcomputer, usually one that is connected to a mainframe or to a network, at which a user can perform applications.

## X

**X Window System.** A software system, developed by the Massachusetts Institute of Technology, that allows the user of a display to concurrently use multiple application programs through different windows of the display. The application programs may execute on different computers.

**X.25.** (1) An International Telegraph and Telephone Consultative Committee (CCITT) recommendation for the interface between data terminal equipment and packet-switched data networks. (2) See also *packet switching*.

**X.25 interface.** An interface consisting of a data terminal equipment (DTE) and a data circuit-terminating equipment (DCE) in communication over a link using the procedures described in the CCITT Recommendation X.25.

## Z

**zoom.** In CUA architecture, to progressively increase or decrease the size of a part of an image on a screen or in a window.





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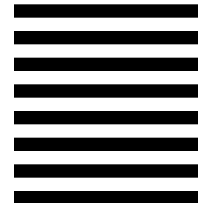
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