



COMMAND Network Documentation System

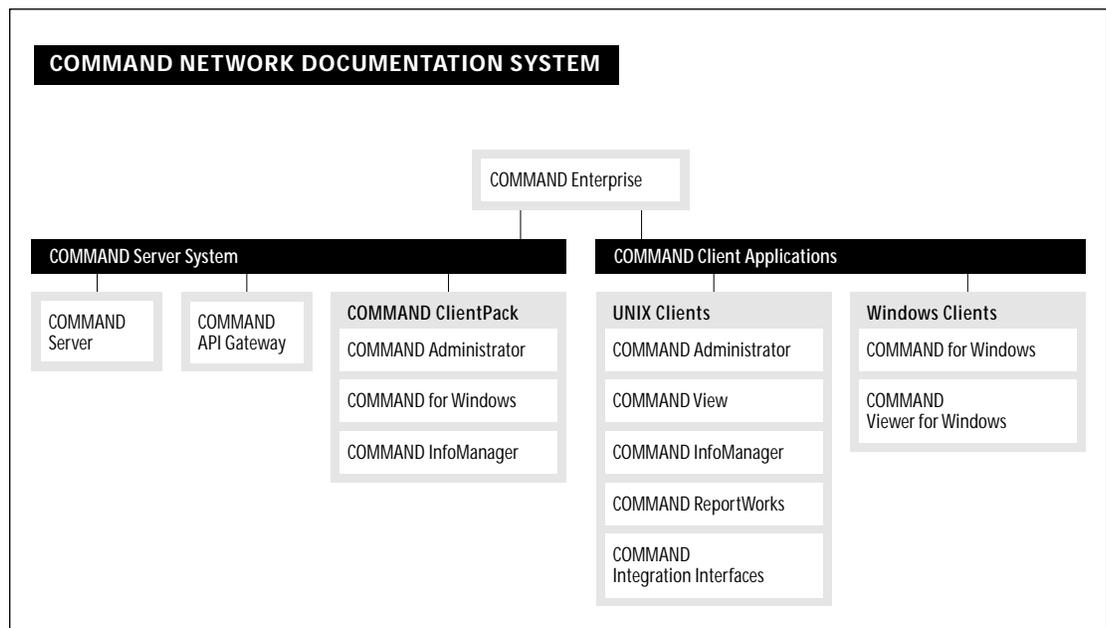
The Case for Enterprise Network Documentation

In recent years, large organizations have invested heavily in distributed computing. Enterprise networks have grown to become complex, heterogeneous environments spanning multiple locations and platforms throughout an organization. Such a sophisticated and valuable resource requires proper documentation in order to control costs and to successfully plan, design, support, and manage your network infrastructure. In fact, having current and complete network documentation is no longer an option—it's become an absolutely essential part of your overall information management strategy.

- **The enterprise network model is far too vast, varied, and complex to be understood completely without comprehensive documentation.** As with any complex system, documentation is

essential for operating, changing, or analyzing today's sophisticated networks with their various components, interdependencies, and capabilities. Complexity requires documentation that is sharable and available to all those who are responsible for maintaining the distributed system. No single individual or "brain trust" group, no matter how capable, can possibly retain all the details of a complex network model in human memory. Such information must be recorded, consolidated, and standardized in objective documentation, then made available throughout the organization to all those who need it, whenever they need it.

- **Organizations are becoming increasingly dependent on the network infrastructure for core business processes.** Enterprise networks have become the vehicle for many mission-critical applications. As reliance on the enterprise network increases, so does the cost of system fail-



ures and network downtime. The longer the interruption, the greater the loss and the more detrimental to customer, supplier, and employee relationships. The pressure is on network help desk staff, engineers, and field technicians to fix problems quickly—the first time. However, costly delays result when support personnel urgently scramble to find the information they need to isolate, diagnose, and repair the problem. Typically, 80% of their time is spent determining the cause of the problem and 20% is spent implementing the solution. Detailed documentation about the entire network infrastructure is therefore absolutely essential to ensure prompt repairs, sustain high system availability, and reduce support costs.

- **Network costs are out of control and difficult to quantify.** The infrastructure of an enterprise network typically consists of a wide variety of geographically-distributed assets—circuits, equipment, connections, and other components—that have been purchased from multiple suppliers during rapid expansion. Lacking a centralized knowledge base of network assets, management does not know what’s “out there” and therefore cannot effectively understand and streamline real costs—by replacing older assets with cheaper and better alternatives, reallocating existing assets to increase resource utilization and performance, managing expenses in third-party relationships (warranty, outsource and service agreements, and leases), and eliminating cost redundancy.

- **Top technical talent is increasingly expensive, hard to find, and hard to keep.** Capable network specialists command top dollar in today’s competitive, highly mobile technical labor market. Network operations staffs are reduced to cover the rising salaries of “free agent” talent. Accelerated changes in systems technology and a growing diversity of network products will only increase labor costs as network specialists recoup their hard-won training investment in highly sophisticated but ephemeral technical expertise. Intimate knowledge about your company’s network infrastructure *must be documented* before it walks out the door to a competi-

tor or before it reappears on your doorstep as an even more highly-paid contractor.

- **Business changes and regulatory compliance demand improved asset reporting systems.**

Documenting your network assets is no longer an option—it’s a *business and regulatory necessity*. Company reorganizations, relocations, mergers, and acquisitions involve complex asset spin-offs or consolidations that require close accounting of mission-critical network resources. In addition, government agencies are requiring organizations to maintain current, accurate, and complete documentation of their network infrastructure (a) as part of mandated backup and disaster recovery plans for key business services, and (b) for financial accounting, lifecycle management, and tax reporting.

Cambio’s Solution for Network Documentation

Cambio’s COMMAND Network Documentation System is a centralized, comprehensive, interactive suite of tools for capturing, tracking, finding, and analyzing crucial information about all network components—and relationships among components—within an enterprise network. COMMAND consolidates physical, topological, and geographical modeling information in a central repository that is universally accessible to authorized users throughout the network, including field technicians, help desk personnel, designers, planners, and other network support staff. COMMAND increases management control over a distributed, valuable, and mission-critical asset in the following ways:

- **Enables rapid data entry to reduce startup costs and get useful information quickly.** The system streamlines the initial entry of network information through a variety of features, including standard component forms and automated application wizards that validate data entry, consolidation and simple execution of repetitive data entry tasks, drag-and-drop editing, and importing from spreadsheets or databases to leverage existing network information.

- **Expedites network troubleshooting to minimize costly system downtime.** Help desk and other support staff can quickly isolate, diagnose, and resolve system problems by easily retrieving the information they need about the network. The system supplements popular fault management and help desk applications by providing detailed physical, logical, geographic, and connectivity information about network components throughout the enterprise.
- **Puts crucial network information in the hands of those who need it, when they need it.** The system consolidates the fragmented knowledge of the network model in a central location, then distributes the complete model to authorized support staff throughout the enterprise. For example, technicians can load, update, and retrieve crucial network information from any Windows 95 / NT desktop or laptop machine connected to the network via TCP/IP.
- **Represents network resources and connectivity from many perspectives.** The system provides extensive views, reports, and queries of the network model that allow support staff to inspect the network model from perspectives that best support the task at hand. Graphics and network data are linked implicitly, which enables the intuitive visualization of and easy navigation through a complex collection of varied and interdependent network components.
- **Facilitates proactive network planning, analysis, and cost control.** Network architects must be able to explore a comprehensive network model at many levels to gain a better understanding of network costs, topologies, capacities, throughputs, utilization, and performance.
- **Delegates data entry to the front-line technicians.** The system delegates data entry and maintenance tasks to the front line field technicians who directly service the network components on site, enabling them to document adds, moves, and removals as they are made, which ensures that the information in the central repository is accurate, current, and complete.
- **Simplifies asset management, audits, and change tracking.** The system provides a baseline inventory of network assets required for regulatory compliance and reporting. It maintains a log of network changes to provide an audit trail of modifications to the infrastructure and to generate Work Orders or Network Change Reports.

System Requirements

- **UNIX platforms and operating systems:** Hewlett-Packard with HP-UX, Sun with Solaris
- **PC platforms** (COMMAND for Windows and COMMAND Viewer for Windows only): Windows 95 or Windows NT 3.51 or later
- **Databases:** Sybase, Oracle, Informix
- **Network connectivity:** TCP/IP

Related Services

Cambio Networks Customer Services and affiliated Cambio Partners can help your organization install, load, and maintain your COMMAND Network Documentation System. Our professionals offer key support services, including project management, data entry, technical telephone support, system customization, training, and operations outsourcing.

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COMMAND Server System

The **COMMAND Network Documentation System** is a comprehensive, interactive, interoperable suite of tools for capturing, tracking, finding, and analyzing crucial information about the network components—and relationships among components—within an enterprise network. It consolidates physical, topological, and geographical modeling information in a central repository that is universally accessible to authorized users throughout the enterprise, including field technicians, help desk personnel, designers, planners, and other network support staff.

The **COMMAND Server System** provides the most important Cambio tools for delivering this functionality, including the **COMMAND Server** for database services and network connectivity, the **COMMAND API Gateway** for integration with third-party network management applications, and one license each for the three client applications (**COMMAND Administrator**,

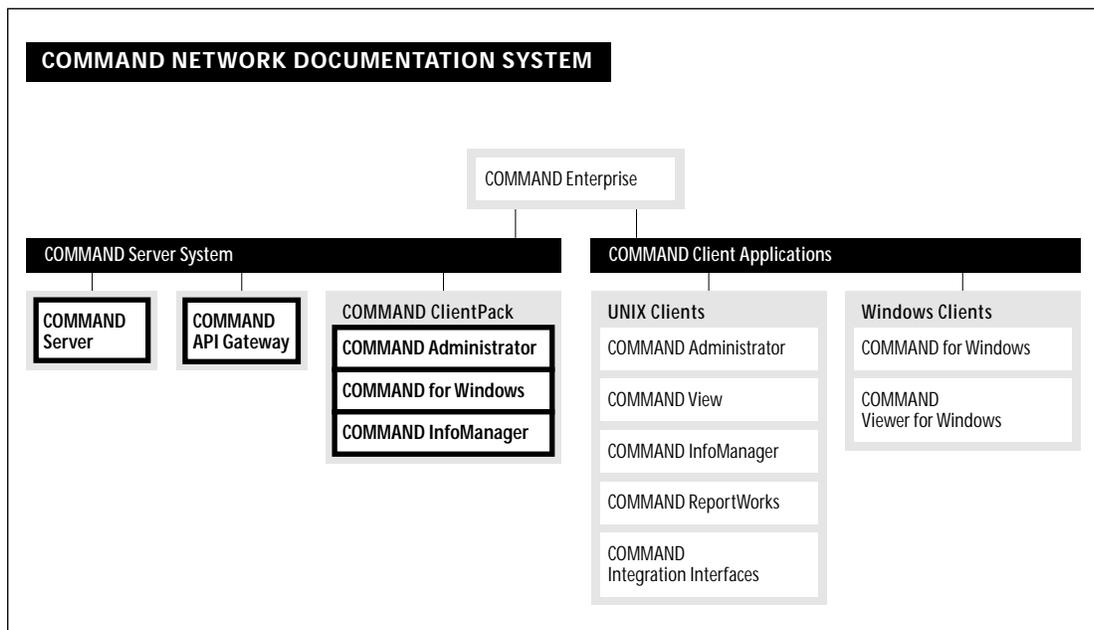
COMMAND InfoManager, and **COMMAND for Windows**) needed for creating, loading, maintaining, and reporting on the network model. Additional client licenses can be purchased as needed.

Key Components

COMMAND Server—Central Data Repository and Coordination with Client Applications

The **COMMAND Server** is the central application that coordinates and integrates the various components of the **COMMAND Network Documentation System**.

The **COMMAND Server** manages the **COMMAND database**, which is the central repository of network modeling information that is stored on a database server machine connect-



ed to a TCP/IP network. The database runs on the most popular relational database management systems, including Oracle, Sybase, and Informix.

In addition, the COMMAND Server manages the shared library of associated network views, drawings, macros, and graphical symbols, which can be stored with the central database repository or, alternatively, distributed to multiple sites on the TCP/IP network for transparent remote access. For example, floorplans for a facility in Los Angeles could be stored locally on a Los Angeles server and loaded transparently from other locations, such as COMMAND Administrator users in New York or Chicago.

The COMMAND Server also manages communication and data exchange between the COMMAND database and various COMMAND client applications. For the COMMAND for Windows clients, it acts as the application server that stores and processes the application logic, such as retrieving or updating network documentation. Finally, the COMMAND Server manages COMMAND's centralized licensing system for client installations on UNIX and Windows workstations.

COMMAND API Gateway—Links with Third-Party Network Management Applications

The COMMAND Server System includes the COMMAND API Gateway, which is an extensible application programming interface that allows developers to quickly and seamlessly link network management software with the network model stored in the COMMAND Network Documentation System. Individual application-specific interfaces work with the API Gateway to provide access to the repository from the application's own menu. COMMAND currently inter-operates with popular third-party network management products such as HP OpenView, SunNet Manager, Cabletron Spectrum, HP OEMF, Remedy ARS, and offerings from other Cambio Integration Partners.

COMMAND Administrator—Setup, Data Entry, and Visualization of the Network Model

The COMMAND Server System includes one license for COMMAND Administrator, which is a powerful data entry, search, analysis, reporting, and administration tool for network information stored in Cambio's COMMAND Network Documentation System.

COMMAND Administrator runs on UNIX workstations and helps network professionals visualize and understand complex network models from various perspectives. It provides fast, visual, and interactive access to detailed information about distributed network components—via intuitive graphical and tabular formats—that allows network troubleshooters to isolate, diagnose, and resolve system problems quickly. It provides administrative tools for creating and customizing the network information stored in the COMMAND database, including component types, component attributes, and graphical links. It documents all components of an enterprise network, including network devices (switches, multiplexors, routers, hubs, workstations, phones, and equipment racks), ports, cables connecting devices (including cable pairs or pair groupings), cableways through which cables travel in the physical plant, circuits, central offices, and links among them. Finally, it provides pertinent information about the network model to widely-used fault management and help desk applications.

COMMAND InfoManager—Environment for Creating Custom Queries, Reports, and Forms

The COMMAND Server System includes one license for COMMAND InfoManager, which is a graphical, intuitive, front end query, report, and form generation environment for viewing and updating information about the network model stored in Cambio's COMMAND Network Documentation System, as well as other popular relational database management systems. It runs on UNIX workstations and helps network professionals quickly extract and update focused information about the network model.

With a few mouse clicks and drag and drop editing, users can create simple or complex queries and reports, as well as visually appealing data entry forms, without writing a single line of SQL. Queries, reports, and forms can be created for ad hoc, one time use as well as for reuse, packaging them into individual client applications for deployment throughout the enterprise. COMMAND InfoManager gives network professionals a *virtual database repository* of network information by offering a single entry and consolidation point for information collected in separate databases throughout the enterprise.

COMMAND for Windows— Distributed Data Entry and Reporting for Windows 95/NT Clients

The COMMAND Server System includes one license for COMMAND for Windows, which is a data entry, search, and analysis tool for enterprise network information that runs on Windows 95 and Windows NT. It provides interactive access to Cambio's COMMAND Network Documentation System from any Windows desktop or laptop connected to a TCP/IP network. COMMAND for Windows reduces support costs and increases system availability by

providing authorized network technicians with fast, powerful access to detailed documentation about the network infrastructure.

System Requirements

- **UNIX platforms and operating systems:** Hewlett-Packard with HP-UX, Sun with Solaris
- **PC platforms** (COMMAND for Windows only): Windows 95 or Windows NT 3.51 or later
- **Databases:** Sybase, Oracle, and Informix
- **Network connectivity:** TCP/IP

Related Services

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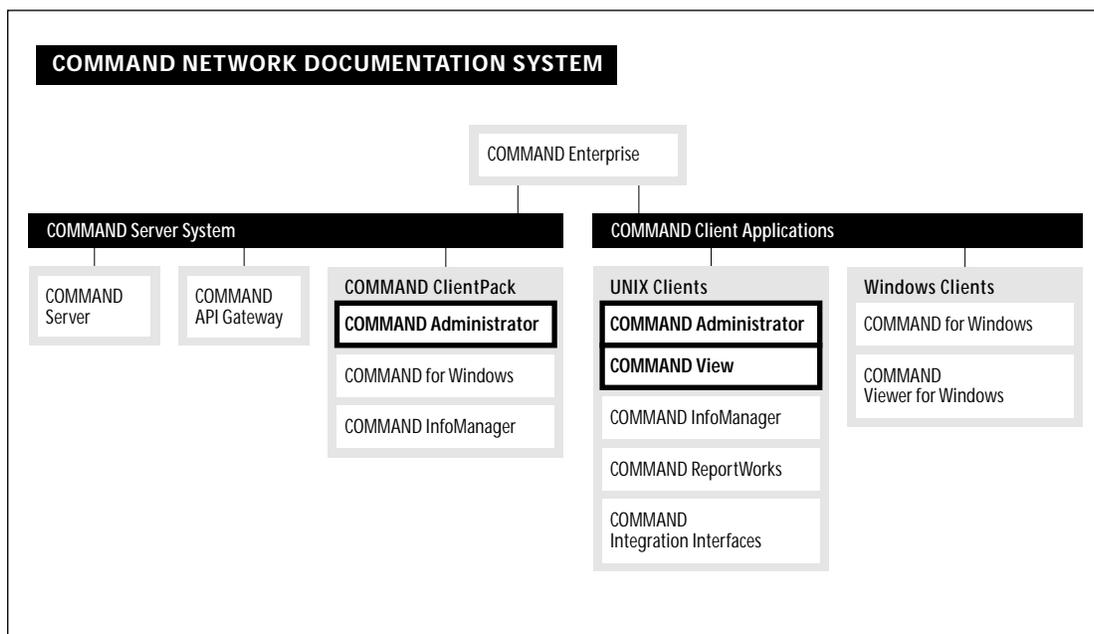
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graphical formats. It also interoperates with popular third-party network management products such as HP OpenView, SunNet Manager, Cabletron Spectrum, HP OEMF, Remedy ARS, and offerings from other Cambio Integration Partners.

Key Features

Fast Installation and Customization of the COMMAND Network Documentation System

COMMAND Administrator provides administrative tools for creating and customizing the network information stored in the COMMAND database. A system administrator can use utilities in COMMAND Administrator to build the standard COMMAND database on an Oracle, Sybase, or Informix database server. An administrator can then define and configure the types of network components that COMMAND will capture and store.

In addition, an administrator can easily customize the database by defining additional custom component attributes, such as specifications (capacity or throughput rates), agreements (warranties, service contracts, licenses, lease agreements), and so on. Certain components, such as network devices, require a graphical representation. Administrators can link component data with standard graphical elements that come with the COMMAND Symbol Library, which includes many predefined, industry standard equipment symbols from equipment manufacturers, or they can create and link their own graphics as needed.

Smart, Intuitive Graphic Visualization of the Network Model

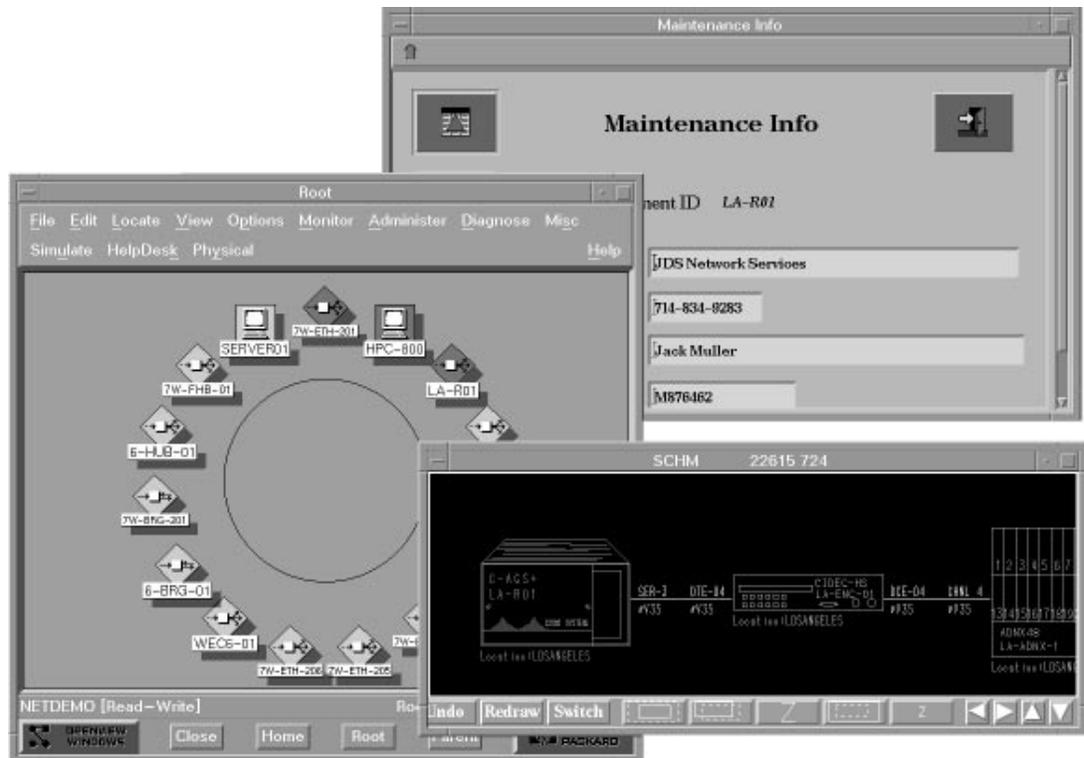
COMMAND Administrator displays the network infrastructure in a visually rich graphical model that is easy to navigate on screen, enabling users to drill down from a high-level topology view of the network to detailed floorplans containing network devices and connections. Geographical locations and spatial relationships are represented hierarchically through maps and drawings (such as premise floorplans segmented into smaller zones for offices or cubicles, cable channel diagrams, and closet layouts) that can

be created from templates or imported from other drawing or computer aided design (CAD) applications.

Network components such as equipment, circuits, nodes, central offices, and cableways, have associated graphical symbols that can be used from the COMMAND Symbol Library, created from templates, or imported from other drawing applications. Administrators define the association between network documentation in the database and its graphic representation on screen so that the link is dynamic and changes are synchronized. For example, elements that are moved to a map or floorplan automatically inherit the properties of that physical location. Similarly, the current display can be refreshed to reflect changes (adds, moves, and deletes) that other users have made to the database. Also, COMMAND Administrator provides a connectivity trace feature that lets users select a connection to generate and display its graphic representation, then navigate visually through associated devices and circuits along the connection.

Enables Rapid Data Entry to Reduce Startup Costs and Get Useful Information Quickly

COMMAND Administrator greatly reduces startup effort and costs by streamlining the task of loading network information into the Network Documentation System. With QuickStart, COMMAND Administrator leverages existing network information by importing from ASCII flat files and generating the corresponding graphical elements automatically. It provides standard forms and templates for fast and validated data entry. Users can easily update the attributes for individual network components. Loading network data can proceed in phases, starting with the most critical portions of the network and expanding over time to include the entire network infrastructure—the Network Documentation System is scalable to handle documentation for all network components distributed throughout the enterprise, capturing such granular details as ports on a device, pairs on a cable, or channels on a circuit. Once entered into the database, this information becomes instantly available to everyone who needs it, anywhere on the TCP/IP network.



Easy Data Maintenance and Change Tracking

COMMAND Administrator provides a familiar UNIX interface that is visually intuitive and easy-to-use. Network professionals can easily create and move network components using graphical editing tools. It streamlines data entry tasks through such features as component entry forms, cut-and-paste editing for equipment moves, adding and routing circuits, and cable connects/disconnects. In addition, users can write custom rules using macros that automate repetitive tasks, combine operations into sequential procedures, and enforce business rules.

COMMAND Administrator maintains a log of network changes using unique change identifiers to capture such activities as adds, moves, removals, reconfigurings, connects and disconnects, and servicings. The change log provides an audit trail of changes made to the network infrastructure. Log data can also be used for generating Work Orders to authorize changes or Network Change Reports to provide an audit trail of changes made to particular locations or component categories.

Extensive Views and Queries

COMMAND Administrator provides numerous

views, queries, and reports that help users understand the complex network model from a variety of viewpoints. Users can display or drill down to various levels of detail within the network hierarchy, from a high-level network or location overview to a detailed list of attributes for a single component. Users can list network equipment in ways that support the administrative task at hand, such as by location, equipment type, subnet, connection status, and so on.

For example, through connectivity traces, users can display and search through an extended view of the relationships among linked devices, such as equipment, ports, cables, and circuits along a connection. Similarly, network troubleshooters can see the links that are affected by the loss of a facility circuit, allowing quick identification of the services that must be rerouted to restore network access. Finally, COMMAND Administrator runs custom queries, reports, and forms created by COMMAND InfoManager and COMMAND ReportWorks.

Easy, Seamless Integration with Popular Fault Management and Help Desk Applications

COMMAND Administrator provides pertinent information about the network model to widely-

used fault management and help desk applications. This additional information helps to minimize system downtime by enabling network troubleshooters to isolate, diagnose, and resolve system problems quickly. It delivers detailed information about the network model, such as location, asset, maintenance, and support data, as well as physical circuit connectivity information. Users can view the real-time status of network devices through COMMAND Administrator's graphical interface. When used in combination with the COMMAND HelpDesk (based on Remedy's Action Request System), COMMAND Administrator supplements trouble tickets with key component information, such as device manufacturer, model, circuit type, bandwidth and connectivity data. Additional integration is available from Cambio Integration Partners.

Read-only Access

COMMAND View is the read-only UNIX client for users who need to view the network documentation for troubleshooting, planning network changes, running reports, and creating workorders. It provides users the same visual and intuitive graphical interface as COMMAND

Administrator to view floorplans and maps, locate network devices, see connectivity and attribute information, as well as run management reports. COMMAND View can also access the integration with fault management, helpdesk and workflow partner products, making it especially useful for troubleshooting.

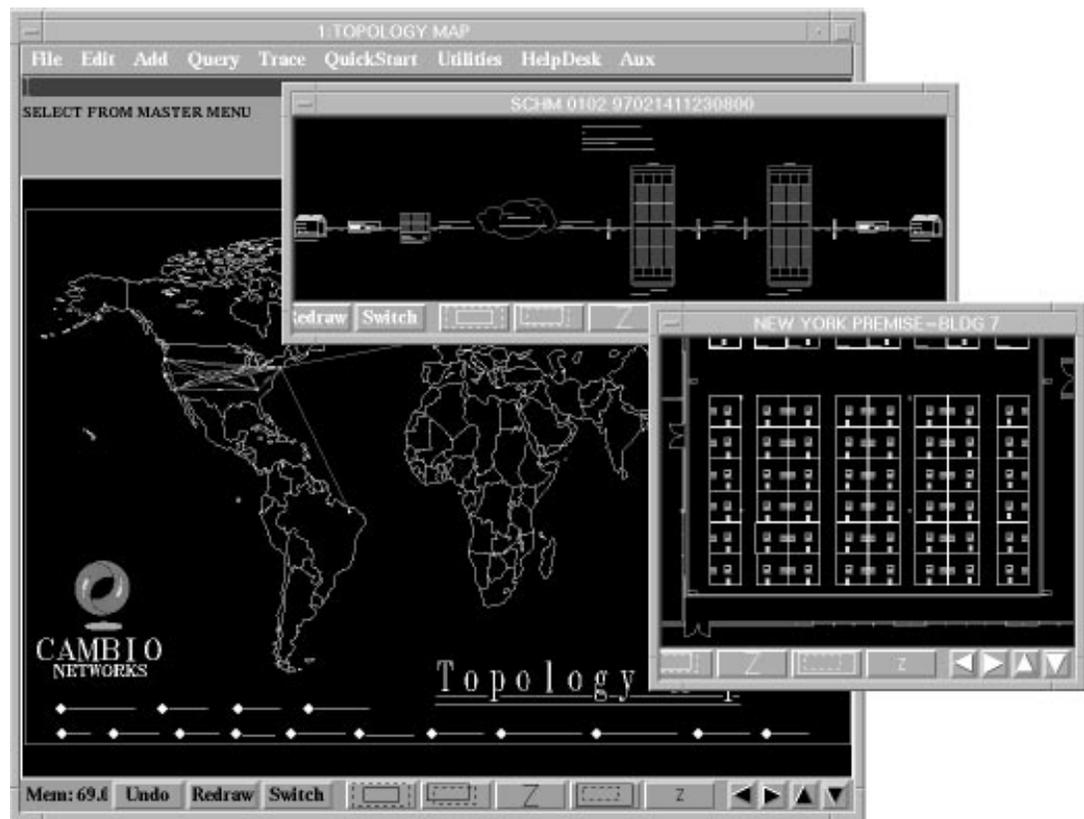
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Related Products and Services

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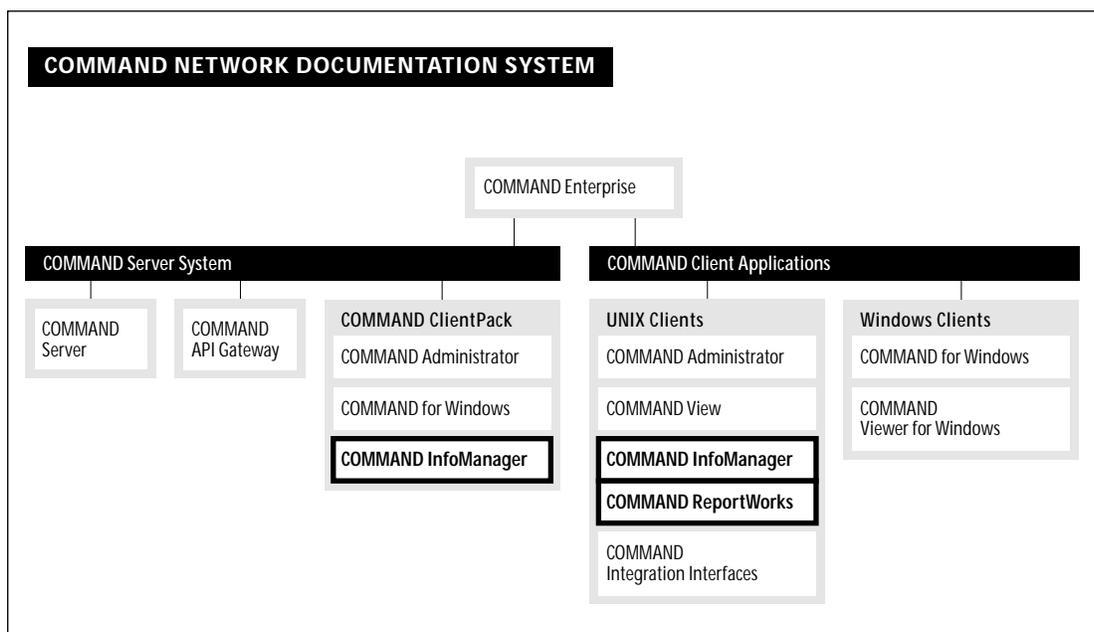
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Cabletron Spectrum, HP OEMF, Remedy ARS, and offerings from other Cambio Integration Partners.

Key Features

Intuitive Graphical Tools For Sophisticated Reporting Without SQL Programming

COMMAND InfoManager provides powerful and easy to use visual tools and templates for creating custom queries and reports on network documentation stored in the COMMAND Network Documentation System and other data sources. Users can quickly create simple or complex queries (including retrievals and updates) by dragging graphical elements on a quick start template or from scratch. Sophisticated querying features are supported, including multi-table and multi-database joins, transaction processing, and invoking stored procedures.

With a few mouse clicks, users can specify report headers and footers, field titles, fonts, lines, boxes, subtotals, advanced calculations (such as averages), and the overall report layout. Users can send reports to screen (print preview) or to a printer. No SQL coding is required—InfoManager generates and executes the SQL code, as needed, in the background. In addition, users can define a report hierarchy and “report actions” that automate runtime selection criteria or launch other forms and reports. InfoManager is ideal for ad hoc, “on the fly” reporting as well as for creating a library of reusable reports that can be saved, packaged, and deployed to the COMMAND Administrator users who need them.

Fast and Easy Form Generation

COMMAND InfoManager provides graphical tools and templates for creating forms for COMMAND Administrator. Users can quickly create simple or complex data entry forms—including adds, changes, and deletions for multiple rows, tables, and databases—by dragging graphical elements on a quick start template or

from scratch. With a few mouse clicks, users can specify form icons, fonts, colors, and screen layout. For example, users can create or modify data entry forms for editing attribute information for network equipment and circuits. Logic for adding, updating, and deleting information in the database is included and selectable. Forms can be saved, packaged, and deployed to the COMMAND Administrator users who are responsible for loading and maintaining network documentation.

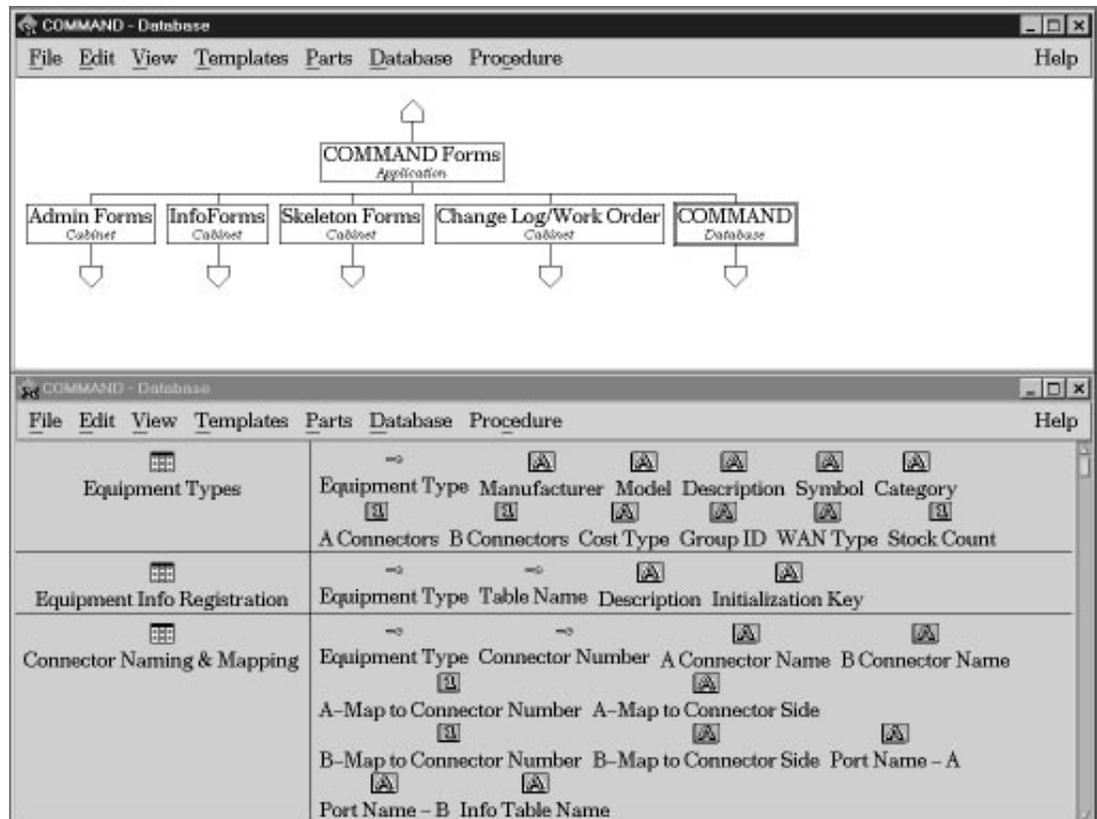
Today’s Virtual Database Repository

Information about the network model is often stored in a number of separate data sources by one or more network management applications, resulting in data fragmentation and redundancy. Although industry efforts are underway to consolidate such information into a standard, common database repository, deployable solutions are not yet available.

However, COMMAND InfoManager delivers a *virtual database repository* today by providing a single, graphical, point-and-click interface directly to the COMMAND Network Documentation System as well as to other popular relational database management systems distributed throughout the enterprise. Users can easily create and run queries across multiple tables and databases, from multiple vendors, that consolidate fragmented network information into unified reports.

COMMAND ReportWorks Provides Read-only Access to Network Documentation

COMMAND ReportWorks is a separate ad hoc query and reporting tool for the COMMAND Network Documentation System, as well as other network management databases, that delivers a subset of COMMAND InfoManager functionality. It provides read-only access (no data update capabilities) to users who need to create reports of network documentation. COMMAND InfoManager can read reports created in ReportWorks and package them for end-user deployment.



System Requirements

- **UNIX platforms and operating systems:** Hewlett-Packard with HP-UX, Sun with Solaris
- **Databases:** Sybase, Oracle, and Informix
- **Network connectivity:** TCP/IP

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COMMAND for Windows

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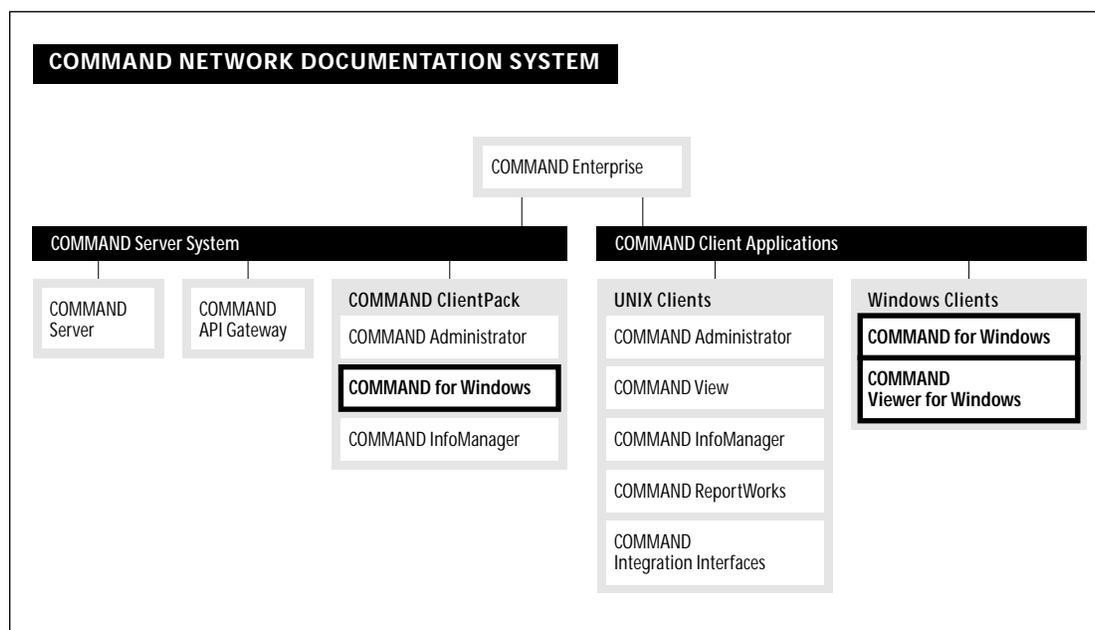
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Key Features

Familiar Windows 95/NT User Interface

COMMAND for Windows is visually intuitive and easy-to-use. It offers familiar Windows navigation aids such as drop-down lists, tree controls, spreadsheets, and drag-and-drop editing.



The screenshot shows the COMMAND for Windows application window. The title bar reads "COMMAND for Windows - [\\OLLIE\NETDEMO]". The menu bar includes "File", "Edit", "View", "Components", "Tools", and "Help". The toolbar contains various icons for file operations and navigation. The main window is divided into two panes. The left pane shows a tree view of network locations, including "LOST&FOUND", "ATLANTA PREMIS", "BSC PREMISE", "BSC1 - CELL SITE:", "CHICAGO PREMIS", "DENVER PREMIS", "LA PREMISE", "LONDON PREMIS", "MSC1 PREMISE", "NEW YORK PREM", and "NEW YORK PREM". The right pane displays a table titled "Equipment" with the subtitle "In 1 locations. All equipment". The table has columns for "ID", "Drawing", "Location", "Type", and "Description".

Equipment					
In 1 locations. All equipment					
	ID	Drawing	Location	Type	Description
13	7W-E1	NEW YORK	7WA-IDF-1	BIXMODV	6 BIX CONNECTORS
14	7W-BRG-201	NEW YORK	7WA-IDF-1	BRIDGE	
15	7W-BRG-202	NEW YORK	7WA-IDF-1	BRIDGE	
16	DDM-703	NEW YORK	7WA-IDF-1	DDM1000	
17	DSX-A71	NEW YORK	7WA-IDF-1	DSX18	
18	DSX-B71	NEW YORK	7WA-IDF-1	DSX18	
19	7W-ETH-201	NEW YORK	7WA-IDF-1	ETWHUB	Ethertwist Hub
20	7W-ETH-202	NEW YORK	7WA-IDF-1	ETWHUB	Ethertwist Hub
21	7W-ETH-203	NEW YORK	7WA-IDF-1	ETWHUB	Ethertwist Hub
22	7W-ETH-204	NEW YORK	7WA-IDF-1	ETWHUB	Ethertwist Hub
23	7W-ETH-205	NEW YORK	7WA-IDF-1	ETWHUB	Ethertwist Hub
24	7W-ETH-206	NEW YORK	7WA-IDF-1	ETWHUB	Ethertwist Hub
25	7W-ETH-207	NEW YORK	7WA-IDF-1	ETWHUB	Ethertwist Hub
26	7W-ETH-208	NEW YORK	7WA-IDF-1	ETWHUB	Ethertwist Hub
27	7W-ETH-209	NEW YORK	7WA-IDF-1	ETWHUB	Ethertwist Hub
28	7W-ETH-210	NEW YORK	7WA-IDF-1	ETWHUB	Ethertwist Hub
29	7W-ETH-211	NEW YORK	7WA-IDF-1	ETWHUB	Ethertwist Hub
30	7W-FHB-01	NEW YORK	7WA-IDF-1	FBRHUB	Fiber Hub
31	7W-FHB-02	NEW YORK	7WA-IDF-1	FBRHUB	Fiber Hub
32	FSX-001	NEW YORK	7WA-IDF-1	FIBRPP	64 Port Fiber Patch P
33	FSX-002	NEW YORK	7WA-IDF-1	FOM	Fiber Optic MLIX

Portable Throughout the Network

With COMMAND for Windows installed on a laptop machine, front-line network technicians can easily plug into the network from any access point and quickly obtain the information they need to carry out support tasks. When tasks are completed, network technicians can remotely update any changes in the database to ensure that all users have the latest information. COMMAND for Windows thus becomes an indispensable tool in technicians' virtual toolkit, alongside their diagnostic, testing, and fault isolation software.

Rapid Data Entry

COMMAND for Windows greatly reduces startup effort and costs by streamlining the task of loading network information into the Network Documentation System. It leverages existing network information by importing directly from spreadsheets and databases. It offers bulk loading capabilities for quickly generating large volumes of similar network information. It provides standard forms for fast and validated data entry. Loading network data can proceed in phases, starting with the most critical portions of the

network and expanding over time to include the entire network infrastructure—the Network Documentation System is scalable to handle documentation for all network components distributed throughout the enterprise, capturing such granular details as ports on a device or pairs on a cable.

Distributed Data Entry

With COMMAND for Windows, documentation and data entry tasks can be delegated to the network technicians who directly service the components. Network technicians can update the system remotely, entering component adds, moves, removals, and fixes immediately after they occur. Database maintenance is closely linked to the activity that causes the data to change.

Once entered into the central database, this information becomes instantly available to everyone who needs it, anywhere on the TCP/IP network. By distributing data entry tasks, highly-skilled experts in the central LAN/WAN support center can focus their attention instead on using the information for more advanced tasks such as network planning, analysis, design, and administration.

Easy Data Maintenance and Change Tracking

COMMAND for Windows streamlines data entry tasks through such features as component entry forms, bulk updates, drag-and-drop editing for equipment moves, and cable connects/disconnects. It maintains a log of network changes using unique change identifiers to capture such activities as adds, moves, removals, reconfigurations, connects and disconnects, and servicings. The change log provides an audit trail of changes made to the network infrastructure. Log data can also be used for generating Work Orders to authorize changes or Network Change Reports to summarize changes made to particular locations or component categories.

Extensive Views and Queries

COMMAND for Windows provides numerous views and queries to help users understand the complex network model from a variety of viewpoints. Users can display or drill down to various levels of detail within the network hierarchy, from a high-level network or location overview to a detailed list of attributes for a single component. Users can list network equipment in ways that support the administrative task at hand, such as by location, equipment type, connection status, and so on. Using third-party query and reporting tools, users can quickly find very focused information. Through connectivity traces, users can display and search through an extended view of the relationships among linked devices, such as equipment, ports, and cables along a connection.

Read-only Access

COMMAND Viewer for Windows is the read-only Windows client for users who need to view the network documentation for troubleshooting, planning network changes, and referencing network information. Users have access to the same fast, visual and intuitive interface as

COMMAND for Windows, providing extensive views and queries that can be tailored for the task at hand. Views can be filtered by location, equipment type, connection status and so on, and attribute information can be viewed providing details such as asset or maintenance data. COMMAND Viewer for Windows is designed for users who require access to the network documentation but are not responsible for creating or maintaining the information.

Minimum System Requirements

- Cambio's COMMAND Server System version 5.0 or later running on Sun Microsystems or Hewlett Packard UNIX based systems
- Intel 486 desktop or laptop machine (Pentium 90 or higher is recommended) with 16MB of RAM
- VGA display (17" SVGA display with 800x600 resolution or higher is recommended)
- Windows 95 or NT 3.51 or later
- Network adapter and connection
- TCP/IP protocol stack (Microsoft's TCP/IP protocol stack is recommended)
- 10MB of available disk space (20MB is recommended)

Related Products and Services

Cambio Networks Customer Services and affiliated Cambio Partners can help your organization install, load, and maintain your COMMAND Network Documentation System. Our professionals offer key support services, including project management, data entry, technical telephone support, system customization, training, and operations outsourcing.

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COMMAND 5.0 Specifications

COMMAND for Windows

	MINIMUM	RECOMMENDED
CPU	486	Pentium 90
Monitor	VGA	17" SVGA with 800x600 resolution or higher
Memory	16MB	16MB for Windows 95 32MB for Windows NT
Disk Space	10MB	20MB
Network	Adapter and Connection	Adapter and Connection
Windows Version	Windows 95 Windows NT 3.51 or higher	Windows 95 Windows NT 3.51 or higher
TCP/IP Stack	TCP/IP stack that supports Windows Sockets 1.1, such as the TCP/IP stack provided with Windows 95 or NT	TCP/IP stack that supports Windows Sockets 1.1 such as the TCP/IP stack provided with Windows 95 or NT
Media Choices	CD-ROM (can also be installed from a network server or floppy disks created from the CD-ROM)	CD-ROM (can also be installed from a network server or floppy disks created from the CD-ROM)

COMMAND Online Documentation

The COMMAND Online Documentation is optional. It can be accessed from a CD-ROM drive or installed on the hard disk of a central network server. If installed on a network server, the following disk space requirements apply.

	MINIMUM	RECOMMENDED
Disk Space	35MB	35MB

COMMAND Server System

HEWLETT PACKARD

Operating Systems	9.05*, 10.01, 10.20 * Note: Be sure to verify that the selected hardware uses one of the supported operating system versions.
Operating System Modules/Parameters	<ul style="list-style-type: none"> • Shared Memory • Long Filenames • Runtime HP-UX Configuration (not Minimal) • For HP-UX 10.X, the Fileset Upgrade.UPG-TLLINK
Base Server Memory (RAM)	64 MB (at least) is recommended to support the COMMAND Server and either: <ul style="list-style-type: none"> • 2 UNIX Client Accesses run on Server System (telnet/Xsession) • 1 UNIX Client Accesses run on Server System (telnet/Xsession) plus 4 Command for Windows clients
Additional Server Memory (RAM)	In addition to base system memory, install the following RAM: <ul style="list-style-type: none"> • 6MB for each concurrent COMMAND for Windows Client Access • 0.5MB for each NFS mount of UNIX Client Applications • 32MB for each concurrent COMMAND UNIX Client Access run on the Server System (telnet/Xsession)
Swap Space	Specify a swap space that is twice the size of the total server RAM
Disk Space	<ul style="list-style-type: none"> • 215MB for COMMAND Server System Software • 200MB for COMMAND Online Documentation (optional) Note: Additional disk space is required for database software, network management applications, and documentation data.
Media Choices	CD-ROM (standard) or 4mm DAT (special order at additional cost)
Hardware	HP 9000. Recommend server models employing PA-7100, PA-7100LC, PA-7200 RISC Processors. Listed models for comparison purposes; other HP selections may apply. Contact your HP dealer for additional information.
Server Models	<ul style="list-style-type: none"> • Light Use: D200, D210, E25 • Medium Use: D250, D350, E35 • Heavy Use: D350*, E55 * Note: Graphics capability with server model D350 only. Required when running UNIX applications on the server console.
Monitor	17" (minimum). Color graphics required if the server is hosting COMMAND UNIX applications directly, such as Xsession.
Monitor Resolution	Minimum: 800 x 640 Recommended: 1280 x 1024
Window Manager	Motif, VUE (required if the server is hosting COMMAND UNIX applications directly, such as Xsession)

COMMAND Server System (continued)

SUN

Operating Systems	Solaris 2.4, 2.5 Note: Be sure that the selected hardware uses one of the supported operating system versions.
Operating System Modules/Parameters	Shared Memory
Base Server Memory (RAM)	64 MB (minimum) is recommended to support the COMMAND Server and either: <ul style="list-style-type: none"> • 2 UNIX Client Accesses run on Server System (telnet/Xsession) • 1 UNIX Client Access run on Server System (telnet/Xsession) plus 4 Command for Windows clients
Additional Server Memory (RAM)	In addition to base system memory, install the following RAM: <ul style="list-style-type: none"> • 6MB for each concurrent COMMAND for Windows Client Access • 0.5MB for each NFS mount of UNIX Client Applications • 32MB for each concurrent COMMAND UNIX Client Access run on the Server System (telnet/Xsession)
Swap Space	Specify a swap space that is twice the size of the total server RAM
Disk Space	<ul style="list-style-type: none"> • 200 MB for COMMAND Server System Software. • 200 MB for COMMAND OnLine Documentation (optional) Note: Additional disk space is required for database software, network management applications, and documentation data.
Media Choices	CD-ROM (standard), 8mm DAT, or 4mm DAT (special order at additional cost)
Hardware	Sun SPARCII, SuperSPARC, and UltraSPARC. Recommendations include server models employing SPARCII, Super SPARC, and UltraSPARC Processors. Listed models for comparison purposes; other Sun selections may apply. Contact your Sun dealer for additional information.
Server Models	<ul style="list-style-type: none"> • Light Use: SPARCserver 20/50 • Medium Use: Ultra Ent. 150 • Heavy Use: Ultra Ent. 3000
Monitor	17" monitor (minimum). Color graphics required if the server is hosting COMMAND UNIX applications directly (such as Xsession)
Monitor Resolution	Minimum: 800 x 640 Recommended: 1152 x 900
Window Manager	OpenLook, Motif, CDE

COMMAND Server System (continued)

UNIX Client Application Workstations

HEWLETT PACKARD

Memory (RAM)	32MB for each concurrent COMMAND UNIX Client Note: RAM specification includes concurrent usage of applications typically run by a UNIX user, such as COMMAND Administrator, COMMAND InfoManager, and so on.
Monitor	17" Color Graphics Monitor (minimum)
Monitor Resolution	Minimum: 800 x 640 Recommended: 1280 x 1024
Window Manager	Motif, VUE
Hardware	HP 9000. Recommendations include workstation models employing PA-7100, PA-7100LC, PA-7200 RISC Processors. Listed models for comparison purposes; other HP selections may apply. Contact your HP dealer for additional information.
Workstation Models	<ul style="list-style-type: none"> • Light Use: 712/100 • Medium Use: 715/100 • Heavy Use: J-Class

SUN

Memory (RAM)	32MB for each concurrent COMMAND UNIX Client Note: RAM specification includes concurrent usage of applications typically run by a UNIX user, such as COMMAND Administrator, COMMAND InfoManager, and so on.
Monitor	17" Color Graphics Monitor (minimum)
Monitor Resolution	Minimum: 800 x 640 Recommended: 1152 x 900
Window Manager	OpenLook, Motif, CDE
Hardware	Sun SPARCII, SuperSPARC, and UltraSPARC. Recommendations include server models employing SPARCII, Super SPARC, and UltraSPARC Processors. Listed models for comparison purposes; other Sun selections may apply. Contact your Sun dealer for additional information.
Workstation Models	<ul style="list-style-type: none"> • Light Use: SPARCstation 5/85 • Medium Use: SPARCstation 5/110 • Heavy Use: Ultra/140

Supported Databases

DATABASE SYSTEM	HP-UX 9.X	HP-UX 10.X	SOLARIS 2.4	SOLARIS 2.5
Oracle 7.1.6	•	•	•	•
Oracle 7.2.2.3	•	•		
Oracle 7.2.2.4			•	•
Oracle 7.3.2.1		•	•	•
Sybase 10.0.2	•	• (requires HP Patch SWR 5236)	• (requires Solaris Patch EBF 4433)	• (requires Solaris Patch EBF 4433)
Sybase 11	•	•	•	•
Sybase 11.0.2		•	•	•
Informix 7.11.UC1	•	•	•	•

Required Database Software Applications/Options

DATABASE SYSTEM	REQUIRED APPLICATIONS/OPTIONS
Sybase	<ul style="list-style-type: none"> • SQL Server • Open Client/C
Oracle	<ul style="list-style-type: none"> • Oracle 7 Server/RDBMS • Oracle 7 Procedural Option (PL/SQL) • Oracle 7 SQL* Plus • Oracle 7 SQL* Net V1 or V2 (if the database is remote from the COMMAND Server System)
Informix	<ul style="list-style-type: none"> • Base package, including Dynamic Server and ESQL • dbaccess (must be installed on the COMMAND Server System if the Dynamic Server is remote from COMMAND)

Supported Partner Applications

APPLICATION	HP	SOLARIS
Remedy ARS	2.1.3, 3.0	2.1.3, 3.0
HP OpenView	3.3, 3.4, 4.0, 4.1, 5.0	3.3, 3.4, 4.0, 4.1, 5.0
SunNet Manager		2.2.2
Cabletron Spectrum		3.1, 4.1
HP OEMF/FMP	3.0	