About Network Data Collector

The Network Data Collector is a telnet and SNMP-based data collector for Cisco devices which is used by customers to collect data for Net Audits. It provides a robust method of not only collecting the data but also creating the device list, defining and verifying access for the devices, monitoring data collection with real-time statuses, and uploading the data to CCO for report generation.

Traditionally, the time consuming aspect of data collection has been the creation and validation of a device list. Network Data Collector provides an easy to use graphical interface capable of assisting the user in the creation of a device list.

The Network Data Collector is available from CCO for any customer entitled to a Net Audit. It will be designed to run on Windows NT and Windows 2000, and should be installed as administrator. The customer installs the tool on a Windows workstation and configure the software using a simple graphical user interface. Set up involves creating a device list either manually, by importing from an NMS, or by discovering the devices on their network. The user is able to set the telnet access for these devices, validate access to these devices, and schedule data collection. The software provides real-time feedback to allow monitoring of data collection. The software uploads the collected data to CCO.

Important Things to Know

The following are important facts to keep in mind about the Network Data Collector tool:

- It is a modular design; some modules can operate as standalone units

- Network Data Collector software can be uninstalled and re-installed

- Network Data Collector software is upgradable

- Authentication key with encoded Audit Id and Audit Type is supplied by CCO prior to installation

- Status, error, and debugging information (status log) is uploaded to CCO

- All GUI functionality is provided by Java Swing Applets

- Sybase is used for database tables

- The user is not be allowed to modify the command list

- There is no support for menu driven devices

- Historical data is provided until the software is uninstalled

- Ability to recover from workstation crash or shutdown

- Software expires after three months

Supported Audits

New audit types are frequently being added to Network Data Collector. The current set of audits supported are:

- Router Stability version 2.6

- Local Area Network Switch Stability version 2.0

- Voice Over IP Readiness (Phase 1)

The screenshots shown in this manual are based on a Router Stability Audit.

Network Data Collector Wizard

The Net Collection Wizard is an easy installation process for installing Network Data Collector on your computer. See Chapter 3, "Installing Network Data Collector", for more information.

Network Data Collector Components

Network Data Collector relies upon and maintains an ongoing relationship with the following Cisco utilities:

- CMF (Common Management Foundation)
- CiscoWorks 2000
- RME (Resource Manager Essentials)
- NATkit (Network Analysis Toolkit)

The following table displays the relationship between Network Data Collector and the above components.

Component	Relationship with Network Data Collector
CMF	The underlying framework of Network Data Collector.
CiscoWorks 2000	Network Data Collector uses the Process management (start/stop processes), User Management (add/delete user) and Device Connectivity (ping, trace route, etc.).
RME	Network Data Collector uses the device import code and database of RME. All Network Data Collector tables are added into the RME database. In addition, the access information for devices like passwords, etc. are taken from RME tables only.
NATkit	Network Data Collector uses NATkit's "Device Discovery" as one of the optional device import methods under the "Device Import" branch. Both NATkit and Network Data Collector use the same poller code.

The following sections provide a brief description of each of the above components.

CMF

The Common Management Foundation (CMF) is a collection of integrated subsystems, execution environments and shared libraries that provides services and infrastructure for web-based applications. CMF provides client and server components used by an increasingly broad spectrum of Cisco applications, including Network Data Collector.

CMF components include:

- Web server
    - — Apache 1.3.6 on both UNIX and NT
    - — SSL support added in release 1.2
- Servlet environment
    - — JRUN 2.3.3 Servlet engine (3rd party tool from Allaire Software)
- Desktop and Security services
    - — Application registry, navigation, launch
    - — User authentication (login to the CMF server)
    - — "Ticker" window (marketing messages)
    - — Shortcuts to frequently used application interfaces
    - — Client-side installation for Java classes for Web-based applications including support for the Java Plug-In in version 1.2.2_006
    - — Desktop is customizable to allow application-specific splash screens, and product overviews to be substituted at install time
- Process Management
    - — Provides reliable/ordered execution services for server processes
    - — Administrative Interfaces available from the CMF Desktop
    - — Command Line interfaces (mostly for debugging)
- Libraries
    - — CMF provides many widgets, class libraries and other shared libraries that are used at either build or run-time by CMF services or applications

- Help engine

- Java SNMP stack

- Supporting class libraries and execution environments

CiscoWorks 2000

CiscoWorks2000 is a family of Web-based, management platform-independent products for managing Cisco networks and devices. CiscoWorks2000 products provides inventory, configuration, and software management capabilities, traffic management, graphical device management, wide-area and VPN monitoring, automated user and network discovery (including VLANS, ATM, LANE), network topology maps, path trace analysis, as well as knowledge integration with Internet resources such as Cisco Connection Online (CCO).

CiscoWorks2000 currently supports three application suites. You can customize CiscoWorks2000 for your network to include any or all suites. For more information about specific CiscoWorks2000 products, refer to your online help or CCO.

The CiscoWorks2000 Server

The CiscoWorks2000 Server is a common set of management services which are shared by more than one management application. The CiscoWorks2000 Server is part of CD One in CiscoWorks2000.

CiscoWorks2000 Server Services

The CiscoWorks2000 Server is comprised of many technologies and services. These services include:

- Network device discovery via the ANI Server

- Database engine and utilities

- Desktop which provides security and application launch

- Online help system

- Cisco Management Connection (CMC)

- Job and resource management

- Process management
- Event management
- Web server

CiscoWorks2000 Server Design

The CiscoWorks2000 Server is designed as a three-tiered component that includes:

- Runtime services (which are enabled at installation include process management, security, and the help engine)
- System services (which include the database engine and utilities, as well as event distribution services and job management)
- Network services (which include device discovery)

Application suites enable the system and network services in order to make use of them. Runtime services are enabled by default. This occurs when a suite is installed and an application that requires the service enables it. Enabling network services also enables the system services component automatically. CiscoWorks2000 Server applications appear integrated in the CiscoWorks2000 desktop.

CiscoWorks2000 Desktop

CiscoWorks2000 operations are performed from a browser connected to the CiscoWorks2000 Server. The desktop provides a single access point to:

- All CiscoWorks2000 tasks

  CiscoWorks2000 tasks are designed to support procedures that fit the problem-solving approach used by administrative staff. By guiding you through management operations, dialog boxes hide the complexity of the tasks and reduce the errors associated with managing complex network environments.

- Online help

  Online help accompanies each CiscoWorks2000 package. The help describes, for example, how to:

  — Add or remove users

— Backup or restore your database

— Troubleshoot your devices

Online help also contains a search engine, which enables keyword searching on the help topics, an index, from which you can look up typical network tasks, and a glossary that defines CiscoWorks2000 terms.

Resource Manager Essentials

The Resource Manager Essentials (RME) package provides an enterprise solution to network management. This suite of web-based network management tools enables administrators to collect the monitoring, fault, and availability information needed to track devices that are critical to the network. RME also provides the administration tools needed to rapidly and reliably deploy and upgrade Cisco devices.

RME is based on a client/network architecture that connects multiple web-based clients to a server residing on the network. As the number of devices on the network increases, additional servers or collection points can be added to manage network growth with little impact on the client browser application.

By taking advantage of the scalability inherent in the intranet architecture, RME supports multiple users anywhere on the network. The web-based infrastructure gives network operators, administrators, technicians, Help Desk staff, IS managers, and end users access to network management tools, applications, and services.

RME Features

RME lets you do the following:

- Availability
    - Monitor the reachability and response time of user-selected devices on the network.
    - Collect fault and performance information for routers and switches.
- Change Audit
    - View and search a central repository of all network changes (for example, Inventory, Software Management, and so on), set up periods of time to monitor network changes, and maintain the repository.
- Device Configuration

- — Maintain an active archive of switch and router configuration files.

- — Search the archive for configuration files based on user-specified criteria.

- — Create custom reports for repetitive tasks.

- Inventory

  - — Import devices from databases or files.

  - — Add, delete, change, and list devices in your network inventory.

  - — Schedule polling and collection to update your network inventory.

  - — Display reports and graphs of your hardware and software inventory.

- Software Management

  - — Schedule, download, and monitor software image upgrades for Cisco devices on your network.

  - — Validate images with devices before initiating downloads, and define and monitor the progress of scheduled jobs.

- Syslog Analysis

  - — Troubleshoot and track device problems.

  - — View summaries of real-time reports on events that are being logged to syslog on behalf of a router.

  - — Process these messages to generate reports and statistical summaries.

  - — Configure automatic actions that occur when certain message types are received.

- System Administration

  - — Create, modify, and browse device views (groups of devices).

  - — Review your package options before installing or uninstalling task sets.

  - — Check log file status.

  - — Back up, move, and restore data.

  - — Manage user accounts.

  - — Start, stop, and check the status of processes running on the back-end server .

- Tools

  — CCO tools, including technical tips, troubleshooting, a bug toolkit, open forum, and connections to the TAC and CCO software.

  — Case Management links you to Cisco's Customer Service department for opening and querying cases.

  — Connectivity tools to check device connections to the RME server.

  — Contract Connection verifies which of your Cisco devices are covered by a service contract.

  — Device Navigator connects to the HTTP server running on a Cisco router or a Cisco access server.

- Management Connection

  — Create and install connection files that link RME to external applications.

- Troubleshooting

  — Collect server and self-test information.

  — View process failures.

  — Find error message log files.

Network Analysis Toolkit

Cisco's Network Analysis Toolkit (NATkit), a leading-edge enhancement to ANS support offerings, is based on the recognition that many network management operations are most efficiently handled with technology.

NATkit is a Web-based network problem avoidance and troubleshooting application that has built-in intelligence to help engineers prevent (or isolate and resolve) networking problems faster than ever before. NATkit performs as a proactive, real-time troubleshooting application that resides at the customer site.

NATkit delivers critical network information to ANS customers and to Cisco's ANS engineers, collecting network data through Simple Network Management Protocol (SNMP) requests, Telnet commands, and Syslog event messages to produce consolidated

informative reports accessible through a web browser. Network data is available onsite to the customer and is updated through customer-controlled task scheduling. Network data is also encrypted and downloaded daily to Cisco for analysis by ANS engineers.

As a result, NATkit enables Cisco customers to maintain a high level of network management process integrity. The information NATkit provides allows our ANS experts to become more knowledgeable about the daily activities on customer networks. NATkit enables ANS engineers to provide proactive support capabilities, in order to maintain a high level of preventive and remedial support. In turn, it helps optimize the network reliability, performance, and uptime of the customer.