ALCATEL **5520**

SNMP ELEMENT MANAGER | REL. 1.0

The Alcatel 5520 SNMP Element Manager (EM), formerly the 45020 Element Manager*, is the element-level management component of the Alcatel management family of solutions. It can operate as a standalone element manager, operating on HP OpenView, or with Release 2.0 of the Alcatel 5620 Network Manager (NM), formerly the 46020 Network Manager*, as part of a complete network and element management solution.

As a standalone device, operating with HP OpenView, the 5520 provides scalable element management and monitoring of SNMP devices such as access devices and routers.

As an integrated element manager, working seamlessly with the 5620, the 5520 provides element management of SNMP devices through the same platform that provides powerful management of TDM, X.25, frame relay and ATM connectivity.

Full-featured element management of SNMP devices

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5520 Overview

The 5520 Element Manager provides remote configuration and monitoring of SNMP nodes through a point-and-click graphical user interface. The 5520 provides effective management in a variety of configurations to provide the level of management support required.

The 5520 application includes interfaces to manage Alcatel and third party nodes. Other SNMP objects may be managed using the 5520 development system to add these objects to the 5520 database.

The 5520 can run on one of two platforms: HP OpenView, or the 5620 Network Manager.

On HP OpenView, the 5520 runs as a standalone SNMP element manager providing a graphical user interface to manage Alcatel nodes, along with third party SNMP devices.

When the 5520 runs on the 5620 system, 5620 network operators can manage SNMP devices, accessing 5520 element management capabilities through the 5620 GUI. In this way, the 5620 provides a seamless presentation environment for end-to-end management across SNMP devices.

The 5520 can be launched from the VIVID System Manager for integration with LAN management.

The 5520 complies with the HP OpenView Applications Programming Interface (API) specification.

Ease of use

With the Alcatel 5520 Element Manager, configuring and monitoring any SNMP device is simple and intuitive.

Users can navigate through the network and open drawings, configuration forms, tables and menus by clicking the mouse. Pull-right menus are organized hierarchically to help users open forms and tables quickly. By default, each form shows only those attributes that require configuration. Alternatively, an extended form is available that includes all attributes. All of the 5520 menus and configuration forms are available when running the 5520 on the 5620 platform, or on HP OpenView.

Nested drawings that represent physical equipment, such as a node or router can be opened to reveal the lower-level configurable elements of that device – such as a shelf or card slot. A card slot can be opened to display a port on that card. Field labels in tables are dynamically generated to provide meaningful labels, derived from the MIB (management information base), to display index values in a table. Queries can be generated from a pull-right menu for columns, groups, tables and models.

Checks can also be done from a similar menu for individual elements or for all elements using one menu choice.

Integration with the 5620 Network Manager

For integrated management of Siemens/ Alcatel WANs, the 5520 Element Manager supports direct interface with the 5620, Release 2.0.

With the integration of the 5520 and 5620, SNMP objects are made available to network operators through the 5620 GUI.

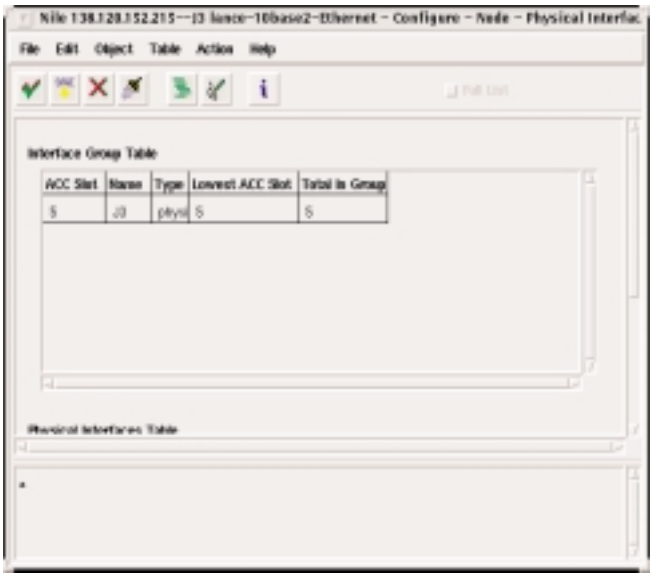
5620 users can use the path management capability of the 5620 for SNMP devices managed by the 5520 to connect paths and PVCs (permanent virtual circuits). The 5520 can be launched through the 5620 GUI simply by clicking on a 5520-managed element on the 5620 network map.

The 5520 can respond to object creation and deletion requests from the 5620. The 5620 can also retrieve all information from the 5520 necessary to support path management. For third party SNMP devices, the 5620 can manage non-crossconnected frame relay PVCs. ATM paths can also be managed through the 5620/5520 interface. For crossconnected paths, only connected endpoints can be managed through this release of the 5520/5620 integrated system.

The network operator can add 5520-managed elements to the 5620 database by simply creating a new node on the network map, then executing a "get" command to retrieve information from the 5520 database.

Information on 5520-managed devices is maintained in the 5620 database and is therefore accessible through the same interfaces that can access the 5620, such as Alcatel 5611 CMIP Network OSS Interface (CMIP), formerly the 811 CMIP*. CMIP is an interface that allows an OSS (operations support system) to access the 5620 database, and allows integration of 5620-managed networks with networks managed by peer network management systems.

▼ Figure 1: The 5520 GUI allows you to view device information in table format.



Open development system

The 5520 Element Manager employs modules called descriptor files for SNMP devices. Using a descriptor development system, customers can create management support for new nodes or can modify existing support. 5520-managed nodes can appear as icons on the HP OpenView map. Through descriptors, SNMP devices can be integrated not only with HP OpenView, but with the 5620-managed network. In this manner, the 5520 extends the power of the 5620 to manage non-Alcatel SNMP devices.

Modular design

Modular equipment descriptor files identify the objects in nodes. Management capabilities are easily extended for new node types by simply adding equipment descriptor files. These descriptor files can be installed while the system is in operation, avoiding costly down time on the network.

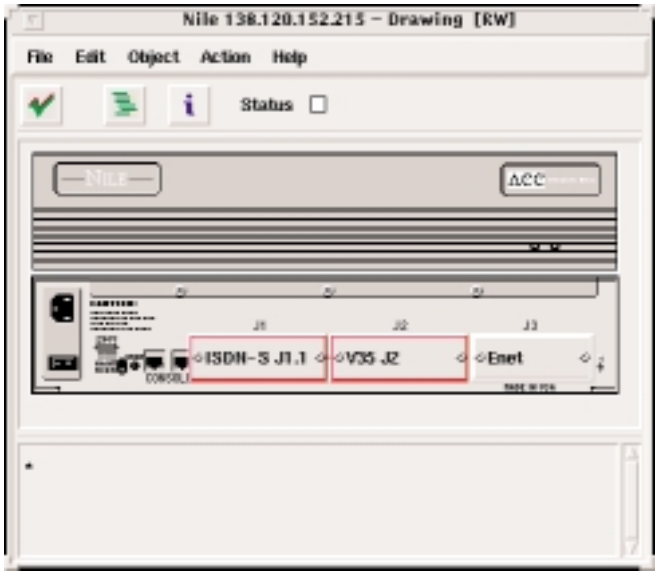
Multiple user support

The 5520 system is scalable, making it easy to provide access to additional operators as the network grows.

When the 5520 is operated through HP OpenView, two multiple user configurations are supported:

- multiple HP OpenView/5520 sessions sharing a central workstation
- multiple remote-access HP OpenView sessions using distributed consoles

▼ Figure 2: ACC Nile router drawing on the 5520 GUI. This is an example of third party devices supported by the 5520. 5520 users can configure elements within the router through these drawings.



The configuration using a central workstation can support up to six concurrent sessions. The distributed consoles configuration can support up to 15 concurrent sessions.

In either case, the system administrator can set privileges for users as read-only or read-write.

When running with the 5620, the 5520 can be accessed simultaneously by all 128 users that are able to access the 5620.

Open integration

Alcatel management framework has been carefully crafted to allow for maximum flexibility in service and network management. This ensures that the growth and manageability of a network will not be constrained by incompatible network elements or management systems, or worse, by the inability of the management system to be upgraded. The Alcatel management framework also facilitates the integration of elements and operations systems acquired through acquisitions and mergers into an existing management structure.

The openness strategy employed by the Alcatel management framework keeps all the doors open, and accommodates new devices, new networks, and new services without requiring the network administrator to implement new management systems, or to rewrite existing interfaces.

The 5520 is an integral part of this openness strategy. The system provides a development capability that allows new SNMP devices to be added to the 5520 database. In this way, any SNMP network element becomes manageable by the 5520 Element Manager.

The 5520 descriptor development system allows the network administrator to develop a library of manageable SNMP elements. These descriptor files can be easily modified when new functionality is added to a node.

Alcatel offers the 5520 technology to external developers and provides assistance in the form of developer training courses.

Rapid configuration

For advanced 5520 users, accelerators and navigation tools speed up the configuration process. These shortcuts increase productivity and accuracy by decreasing repetitive tasks performed by the network operator.

The Network Navigator provides a list of nodes that can be expanded to include all currently configured objects within a node. This allows users to rapidly locate those objects.

Configuration forms and network topology tables can be opened from the list. Forms for multiple objects can be open at the same time, and attribute settings can be copied from form to form.

Rules checking features prevent configuration errors such as invalid attribute values or Routing Information Protocol (RIP) configuration on interfaces with RIP disabled.

Effective monitoring

The 5520 Element Manager provides the ability to monitor nodes and isolate problems quickly and easily. When a message arrives from a node, the node icon and drawing turn red on the GUI map. The 5520 identifies faulty elements within the node.

Network topology tables and statistics tables can be viewed on screen to examine bridging and routing protocols on nodes and ports.

Online documentation

The 5520 supports context-sensitive online documentation. Information on the current screen is easily displayed by clicking on the "i" button on the 5520 GUI.

Platforms

Based on HP OpenView, the 5520 Element Manager integrates easily with existing management environments.

Release 2.0 of the 5520 runs on a Sun Workstation with HP OpenView for Solaris, or can be run with the 5620 Network Manager also on a Sun Workstation.

The 5520 can run on a wide range of industry-standard hardware and software platforms, such as PCs, other UNIX workstations, and other network managers.

Release 2.0 of the 5520 also runs on HP 9000 series 700 workstations.

The 5520 is a member of the Alcatel Management solution set – an integrated family of open and interoperable management systems delivering element, network, service and business management solutions.

Applications

The 5520, running on HP OpenView, is typically applied in situations for which there is no connectivity management required. When connection management is required, the 5520 can be run seamlessly with the 5620 to provide full connection and element management capability. The 5520 can also be used in both configurations, managing a network with mixed requirements.

Standalone 5520 Element Manager

As shown in Figure 3, the standalone 5520 running on HP OpenView is typically used when there is a need only for local SNMP element management. For example, an enterprise network's service provider may manage WAN connections, while the corporate IT department controls the lower-level SNMP devices. The IT department would use the standalone configuration of the 5520 on HP OpenView to manage these local devices.

The capabilities include:

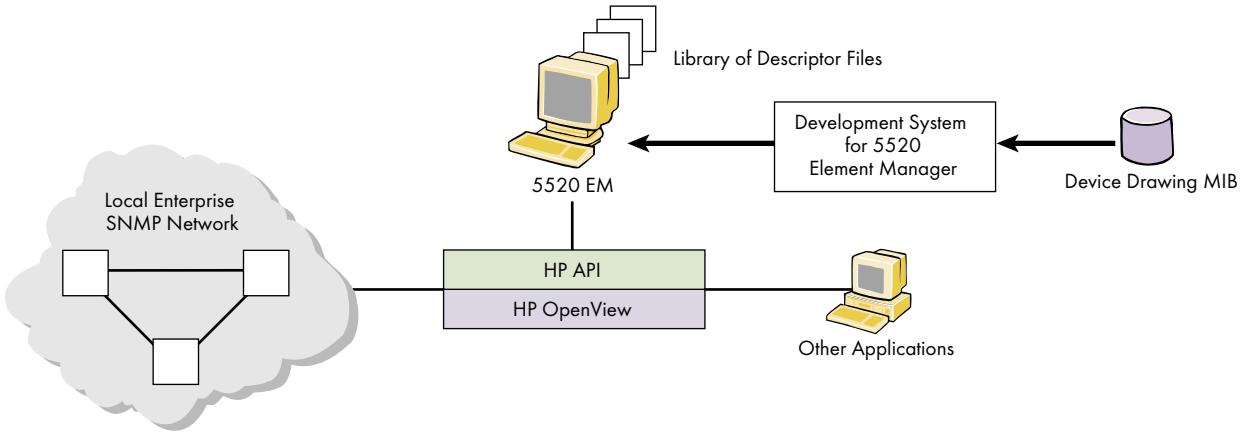
- configuration
- trouble shooting
- device alarm collection (by HP OpenView)
- viewing node configurations and statistics

The development system, shown in this figure, allows developers to add new SNMP device support.

5520 running on the 5620 Network Manager

Often large private networks with WAN/LAN connectivity or service provider networks require element management, along with a powerful connection management capability. In this case,

▼ Figure 3: When connection management is not required, the 5520 can run on HP OpenView. Using the 5520 development system, third party SNMP devices can be added to the 5520 database of managed devices.



the 5520 running on the 5620 provides a means for network operators to configure WAN access devices as well as paths.

The integration with the 5620 system provides full network management capabilities, such as path status monitoring, trouble ticket generation and statistics collection. They also have detailed element management capabilities, including alarm collection and troubleshooting. Figure 4 illustrates this scenario.

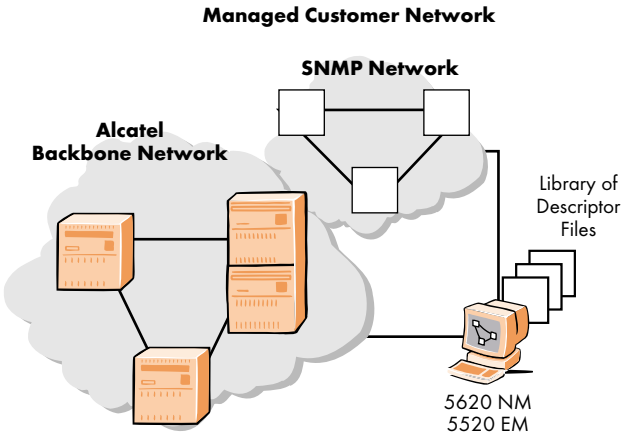
Running a mixed standalone and integrated configuration

When a service provider is managing a mixed SNMP non-SNMP WAN with connection management requirements, the 5520 Element Manager can be integrated with the 5620 Network Manager. This is shown in Figure 5.

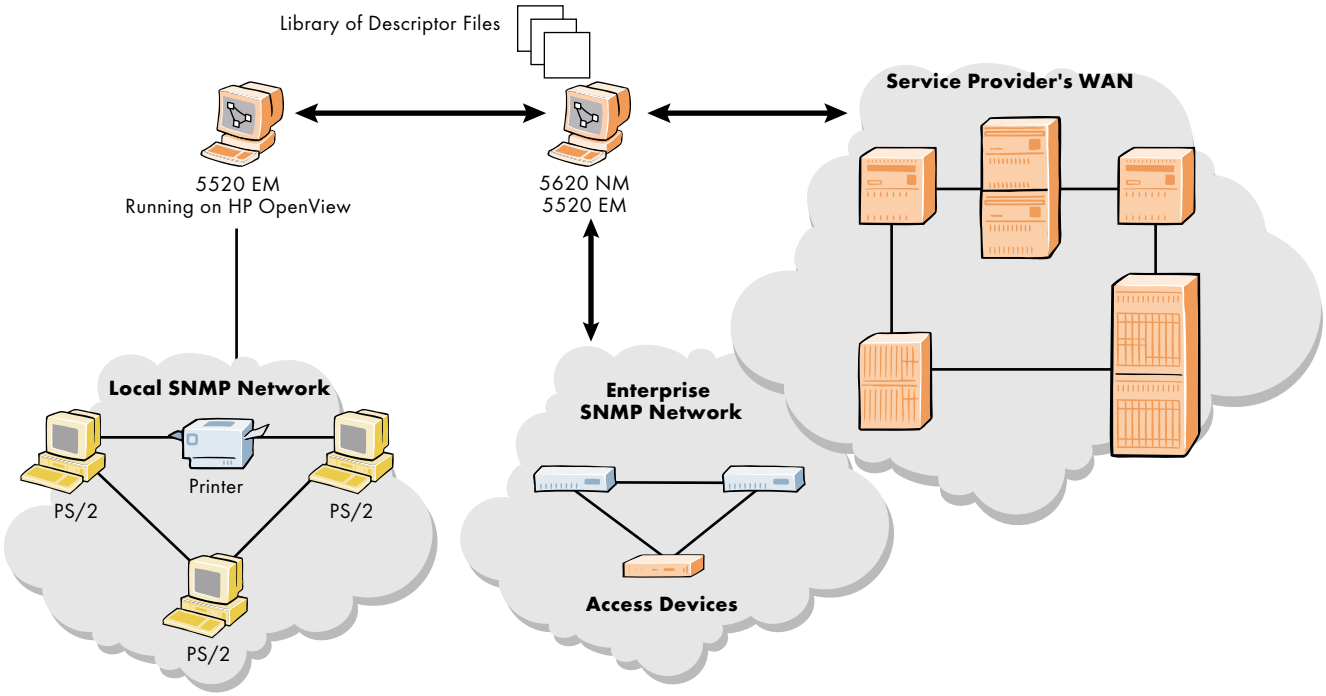
In a situation in which the service provider is also managing customer premise network equipment at the element level, it can be cost-effective to run the 5520 in the standalone configuration in addition to running a 5520 in the integrated configuration (running on the 5620).

In this example the 5520 runs on HP OpenView to monitor and trouble-shoot for customer premise equipment such as workstations, printers and servers. At the same time, the integrated 5520/5620 is managing the WAN connections along with SNMP access equipment.

▼ **Figure 4: The 5520 can be integrated with the 5620 Network Manager for an integrated solution, combining WAN connection management with SNMP element management.**



▼ **Figure 5: A mixed configuration showing combined uses of the standalone configuration of the 5520 and integrated 5520/5620.**



For more information www.cid.alcatel.com

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Technical Summary

Node Releases

- SNMP variant of Alcatel's 3624 MainStreet Intelligent T1 Channel Bank
- Alcatel's 3608 MainStreet Packet Access Mux
- Alcatel's 2720/2721 MainStreet Internet/Router Termination Units
- A variety of third party SNMP devices

Software Compatibility

The 5520 can run with the 5620, Release 1.1 or 1.2 via OpenSNMP to integrate the 5620 platform with the HP OpenView Network Node Manager (NNM).

The 5520, Release 2.0 runs with HP OpenView, Release 3.31 and 4.X for the central server configuration for multiple users. The configuration for multiple sessions using distributed consoles is supported by HP OpenView, Release 4.X only. For the integrated 5520 and 5620, the 5620, Release 2.0 is required.

Hardware Compatibility

Sun workstation requirements

- a Sun SPARC20 workstation (Ultra recommended) equipped with:
  - 96 MB of RAM, minimum
  - 300 MB of free disk space on the hard drive(s)
  - a locally mounted CD-ROM drive
- Solaris 2.5

HP workstation requirements

- HP 9000 Series 715/75 workstation, or better, equipped with:
  - 96 MB of RAM, minimum
  - 300 MB of free disk space on the hard drive(s)
  - a locally mounted CD-ROM drive
- HP-UX 10.10

* This product belonged to the Newbridge family. Newbridge was acquired by Alcatel in May 2000.

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