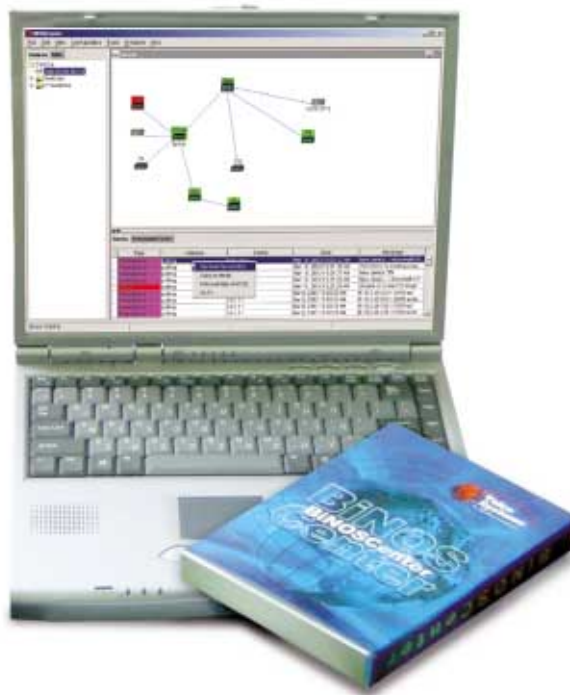


## Multilayer Switching Support

- ❖ **CLI: a Robust Command Set At Your Fingertips**
- ❖ **Enhanced Secure Connections**
- ❖ **Easy Configuration Debugging**
- ❖ **BiNOSView: GUI based, One-on-One Configuration**
- ❖ **BiNOSCenter: the Focal Point for Campus-wide Element Management**
- ❖ **BTIView: Integration with Industry-Standard NMS**
  - HPoV
  - SNMPc

## BATM/Telco Systems Management Tools



### Embedded Management Intelligence

- at every level of management
- at every point in the network

The BATM/Telco Systems InterNetworking OS – BiNOS – embeds management intelligence in all BATM/Telco Systems hardware platforms. From the troubleshooter patching into a unit in the field, to the manager supervising the network from a central console, BiNOS supports administrators with performance information and configuration tools. BiNOS makes network management easy and intuitive.

### Multilayer Switching Support

BiNOS-enabled network devices support advanced multilayer switching protocols. They can be field-upgraded to higher-layer functionality – with no downtime in most cases.

### Choose Your Tools

To exploit the management intelligence BiNOS puts in our devices, BATM/Telco Systems offers a complete range of command-line and graphical system management tools. Built around open SNMP standards, based on portable Java technology, these powerful tools integrate seamlessly with your existing network management toolkit.

## Description of Product Technology

### CLI: a Robust Command Set At Your Fingertips

For detailed configuration and troubleshooting tasks, experienced network managers sometimes prefer a non-graphical interface. BiNOS supports a full, detailed administration command set in a robust Command Line Interface.

#### Secure Connection

You can establish a CLI session through a local serial connection, or open a Telnet window from BiNOSCenter, BiNOSView, or a terminal application. Password-protected access to BiNOS network elements and Secure Shell (SSH2) support keeps your administration messaging secure across the network.

#### Tiered User Privileges

The broad range of commands offered by the BiNOS CLI is divided into an open command set available to all administrators, and a password-protected upper tier of more powerful configuration controls.

#### A Simple, yet Sophisticated Interface

In the right hands the Command Line Interface is the fastest way to get things done – and usability features like online help, autotext tab completion, and DNS address resolution make the BiNOS CLI even more intuitive to use.

#### Easy Configuration Debugging

BiNOS configuration files are easily read by users familiar with BiNOS CLI command syntax.

### BiNOSView for One-on-One Configuration

BiNOSView is a GUI-based tool for configuration, troubleshooting, and management of individual BiNOS-enabled network devices.

Use a Web browser to log on to a BiNOS-enabled switch – access is password protected. The HTML-based BiNOSView application residing in the device displays the switch startup and configuration file, and a network configuration summary.

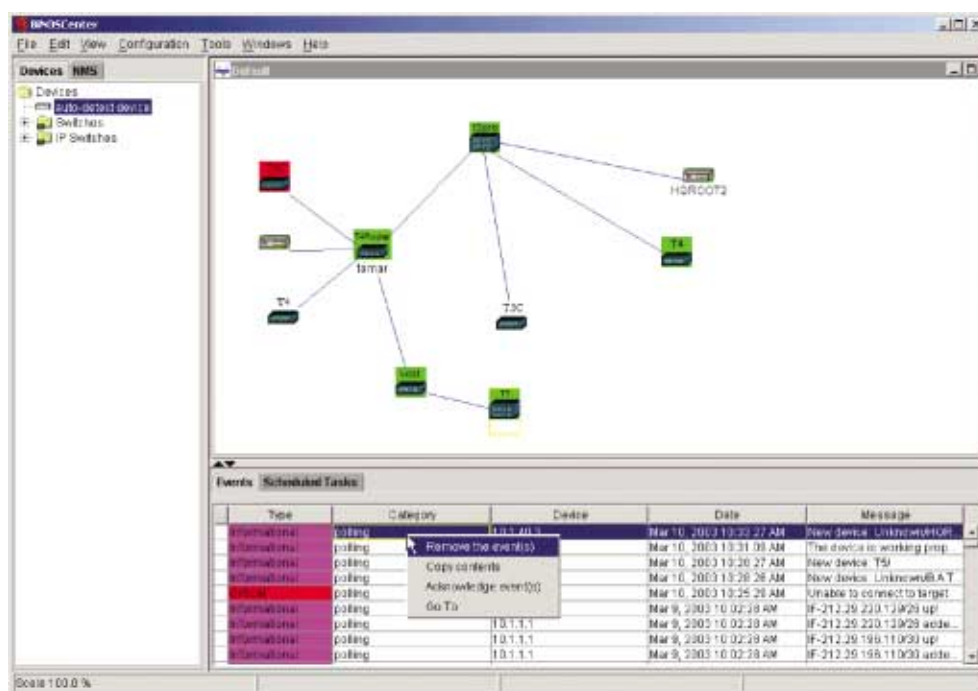


#### Graphical Management Interface

In the main BiNOSView window, a Java™ based graphical representation of the unit shows all active ports and status indicators. Click on a port to access and edit its configuration details, and view performance statistics. From the BiNOSView menu, poll the unit to generate statistical reports, or perform detailed configuration of switching and routing schemes supported by the device.

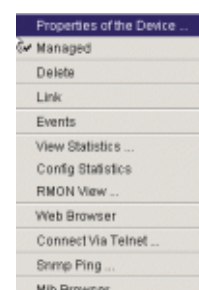
### BiNOSCenter: the Focal Point for Campus-wide Element Management

You can manage your entire campus network using the BiNOSCenter application – because it's a standards-compliant, open SNMP platform, it even supports non-BiNOS-enabled devices in the network environment!



#### Familiar Interface

The graphical user interface displays your network's structure and status using the familiar "clickable map" format of industry-standard management tools. Using SNMP requests, BiNOSCenter discovers the network and any subnets within it – including non-BATM/Telco Systems devices. Each BATM/Telco Systems device is represented by its own easily recognizable icon. You can replace the default icon used for non-BATM/Telco Systems devices with any graphic you choose.



## Graphical Device Configuration

Click on icons in the map to open an interactive configuration model of each BiNOS enabled device. For non-BiNOS devices, BiNOSCenter retrieves interface and MIB II data, and displays the information in a generic configuration dialog.

Experienced managers can open a Telnet session with any unit directly from its map icon to exploit the deep command set of the BiNOS CLI.

## Event-Based Management

Using BiNOSCenter, you can set threshold and conditional alerts based on SNMP traps, Syslog messages, link status polling, and local system events. Events can be triggered by a single device, or combined feedback from several network elements.

Alerts and events are indicated by changes to icons in the network map. An event viewer supplements the map view, allowing filtered display of network events.

## Performance Monitoring

In addition to standard reports on the various BiNOS enabled units, and general reports on network traffic and function, you can build a statistical record for any MIB value on any device in the network. Data collected from network elements is stored in a database for generation of tabular reports and graphs.

All BATM/Telco Systems switches have RMON probe capabilities. The BiNOSCenter's RMON Probe view displays probe information graphically, for troubleshooting or performance analysis.

BiNOSCenter can use most databases that support Java Database Connectivity (JDBC). In small networks, the database is implemented as an XML flat file. For networks of up to 100 elements, a local database can be used. Larger networks are supported using a distributed database such as MySQL.



## Automated Maintenance Tasks

It's easy to download software upgrades and application changes to BiNOS enabled devices. Define a group of devices and schedule periodic software download or polling functions for the group. BiNOSCenter manages the download/upload automatically across the network.

## BTIView: Integration with Industry-Standard NMS

Install the BTIView package within your NMS environment – and you can access the full range of BiNOS management facilities from within HP OpenView, SNMPc, and other major NMS tools.

BTIView places custom MIB information for BATM/Telco Systems switches in your network management environment. Interactive icons and port-panel graphics for the entire BiNOS-enabled product family are imported into the NMS, where you can access them with a click.

Index	Description	Event Type	Community	Last Time ...	Owner	Status
1	54	snmp-trap	public	0 hours, 0 ...	monitorBIN...	valid(1)
2	log	log-and-trap	public	0 hours, 0 ...	monitorBIN...	valid(1)

## Technical Specifications

### Recommended hardware configuration for BiNOSCenter:

500 MHz Pentium PC

256 MB RAM and at least 500 MB free disk space

A CD-ROM is required for local installation.

Your monitor should display a minimum of 256 colors. We recommend a high-resolution, large-screen display.

BiNOSCenter has been thoroughly tested running on Microsoft Windows NT, Windows 2000, and Windows XP.

BiNOSCenter is Java-based and can be easily implemented on other platforms. Contact BATM/Telco Systems for more information.

Java support is required to run BiNOSCenter. BiNOSCenter is bundled with Sun Microsystems' Java Runtime Environment (JRE) version 1.3.1

BiNOSCenter works with most databases that support a Java Database Connectivity interface.

### Switch/Router Functionality

The BiNOS product family supports most Layer 2 and Layer 3 switching protocols, and emerging higher-layer switching schemes such as MPLS. Some BiNOS models can be field upgraded from Layer 2 to Layer 3 functionality – in most cases, with no system downtime.

The following Layer 2 Switching Technologies can be configured on BiNOS-enabled switches:

VDSL	Transparent LAN Services (TLS)
Forwarding Database (FDB)	GARP VLAN Registration Protocol
Spanning Tree Protocol (STP)	(GVRP)
Rapid Spanning Tree Protocol (RSTP)	GARP Multicast Registration Protocol
Virtual LAN (VLAN)	(GMRP)
Multicast VLAN Registration (MVR)	IGMP Snooping

The following administration schemes are supported on Layer 2 BiNOS-enabled devices:

QoS – Queue Management

DHCP - Dynamic Host Configuration Protocol

The following Layer 3 Routing Technologies can be configured on BiNOS-enabled routing switches:

Forwarding Information Base (FIB)	Multicast VLAN Registration (MVR)
Forwarding Database (FDB)	Transparent LAN Services (TLS)
Spanning Tree Protocol (STP)	GARP VLAN Registration Protocol (GVRP)
Rapid Spanning Tree Protocol (RSTP)	GARP Multicast Registration Protocol (GMRP)
Virtual LAN (VLAN)	Super VLAN
IP Unicast	IGMP Snooping
IP Access List	Routing Information Protocol (RIP)
ICMP Router Discovery Protocol (IRDP)	Open Shortest Path First (OSPF)
Virtual Router Redundancy Protocol (VRRP)	Border Gateway Protocol (BGP)
	Packet Over SONET (POS)

The following administration schemes are supported on Layer 3 BiNOS-enabled devices:

QoS – Queue Management

DHCP - Dynamic Host Configuration Protocol

### SNMP Support

All devices in the BiNOS product range support SNMPv1/v2c/v3.

All BiNOS devices integrate RMON probe support.

**The BiNOSCenter application can poll and configure any non-BiNOS network element supporting SNMP and the following standard MIB and MIB II formats:**

*RFC1213, RFC1493, RFC1643, RFC1757, draft-rstpmib-00.mib, qBridgeMib (draft 6), pBridgeMib (draft 6)*

**For Layer 3 devices:** *RFC1724, RFC1850, RFC2787, RFC2096*

**For BiNOS-enabled devices, the following private MIBs are supported:**

*batm\_Ports\_Aggregation.mib, batm\_resilient\_link.mib, batm\_switch.mib, batm\_ups.mib, binos.mib*

**For VDSL devices:** *batm\_vdsl.mib*

**For Layer 3 devices:** *batm\_dhcp.mib, batm\_ospf\_ext.mib, batm\_rip\_ext.mib, batm\_switch\_access\_list.mib, batm\_switch\_fib.mib, batm\_switch\_ipvaln.mib*

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