

**CUSTOMER RELEASE NOTES**

**Vertical Horizon  
VH-2402S  
Firmware Version 2.05.00  
December 21, 2001**

**INTRODUCTION:**

The VH-2402S is a 24 port dual-speed manageable standalone, stackable or rack-mountable switch. The switch provides 24 10Base-T/100Base-TX ports, plus two rear-panel slots for optional slide-in 100Base-FX, 1000Base-SX, 1000Base-LX or 1000Base T modules. One of these slots can also be used for an optional stacking module that allows you to attach up to seven switches to a 4 Gbps high-speed backplane. There is also another rear-panel slot that accepts an optional SNMP-based Management Module. This module supports both in-band and out-of-band access for managing the switch and the attached stack.

The VH-2402S switches can be used in a standalone configuration, or can be stacked up to seven high to form a single logical switch with up to 168, 10/100 Mbps ports. One optional Management Module is required for configuring a standalone switch or an entire stack. The optional stacking Interconnect Module and Interconnect Cables are not included with the base unit and need to be ordered separately.

Management of the switch or stack is provided when an optional Management Module is installed. Management access is provided in-band via Telnet, SNMP, or out of band via the serial console port interface either directly or through an attached modem. An imbedded Web agent also provides management capability to any computer on the network via common Http browsers such as Netscape Navigator or Microsoft's Internet Explorer (Note: Both browsers should be Version 4.0 or above.)

Local Console Management (LCM) allows the user to monitor and configure the VH-2402S from a VT-type terminal. LCM can be used to configure features such as SNMP community names and access rights, Port Enable/Disable, firmware downloads, and Device IP address as well as most other parameters. LCM can also provide statistical and diagnostic information about the entire device or an individual port.

Management of the switch or stack is password protected; the same password is used for LCM and for the Web browser interface. Prior to accessing the Management Module via a network connection, a valid IP address, subnet mask, and in some cases a default gateway must be configured using an out of band connection or the BootP protocol. The management option provides SNMP, RMON (4 groups: 1,2,3,9), and Web management for system control and statistical monitoring.

**It is recommended that one thoroughly review this release note prior to the installation or upgrade of this product.**

**FIRMWARE SPECIFICATION:**

Status	Version No.	Type	Release Date
Current Version	2.05.00	Customer	12/21/2001
Previous Version	2.04.07.06_17	Internal	10/15/2001
Previous Version	2.04.07.06_16	Internal	9/25/2001
Previous Version	2.04.07.06_15	Internal	10/22/2001
Previous Version	2.04.07.06_09	Internal	7/27/2001

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Status	Version No.	Type	Release Date
Previous Version	2.04.07.03	Customer	4/23/2001
Previous Version	2.04.07	Customer	4/12/2001
Previous Version	2.04.05	Customer	3/9/2001
Previous Version	2.04.01	Customer	12/8/2000
Previous Version	2.03.12	Customer	10/19/2000
Previous Version	2.02.02	Customer	8/14/2000
Previous Version	2.01.04.01	Customer	6/27/2000
Previous Version	2.00.07	Customer	1/13/2000

**HARDWARE COMPATIBILITY:**

ALL - VH-2402S

ELS100-S24TX2M - If you are currently using hardware Rev. "0F" or greater, It is necessary to use firmware version 2.1.4.1 or greater on the ELS100- SMGMT module.

**BOOTPROM COMPATIBILITY:**

ALL

**NETWORK MANAGEMENT SOFTWARE SUPPORT:**

NMS Platform	Version No.	Module No.
NETSIGHT-EM (NetSight Element Manager)	3.0	N/A
NETSIGHT-TM (NetSight Topology Manager)	1.2	N/A
SPECTRUM Enterprise Manager	6.0.3	SM-ENT1004

If you install this image, you may not have control of all of the latest features of this product until the next version(s) of network management software. Please review the software release notes for your specific network management platform for details.

**SUPPORTED FUNCTIONALITY:**

Features	Support
802.1P - Traffic Management ( 2 queues)	Yes
802.1Q - VLAN tagging and identification (256 VLANs)	Yes
Spanning Tree support	Yes
IGMP Snooping	Yes
Broadcast Storm Control	Yes
Local Management via TELNET (four sessions)	Yes
RMON Groups 1,2,3,9	Yes
Runtime Address Discovery	Yes
Online BOOTP/TFTP	Yes

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Features	Support
TFTP download from a host	Yes
Trunking	Yes
SNMP	Yes
Modem support	Yes
Imbedded Http Agent	Yes
Port Mirroring	Yes
Auto-Negotiation	Yes
UPS support	Yes
Configuration Upload/Download Support	Yes
Port Security (MAC/Port Locking)	Yes

**INSTALLATION AND CONFIGURATION NOTES:**

In general, the **VH-SMGMT** will be shipped to you pre-configured with this version of firmware. If you would like to upgrade an existing **VH-SMGMT**, please follow the TFTP download instructions that are included with your firmware image upgrade kit. TFTP download instructions are also available on the Enterasys Networks Support web site at: <http://www.enterasys.com/support/techtips/tk0020-9.html>.

**FIRMWARE CHANGES AND ENHANCEMENTS:**

The following Known Issues have been fixed in this release of firmware.

1. This version of code corrects a condition that has been occasionally seen in the VH-2402S causing the units to randomly reset.
2. This version of code corrects a condition that has been occasionally seen in the VH-2402S causing all ports to enter a non-forwarding state. All packets that are transmitted into any port(s) on the switch are counted as dropped.
3. This version of code corrects a condition that could be seen in networks with high rates of varied types of broadcast traffic. This caused the units to enter a port lock up state. During this state, some ports would stop forwarding traffic and others would not.
4. This version of firmware supports a reduced boot up time when the system(s) is warm restarted. When restarting the system, select 'NO POST' from the console for faster system boot up. This enhancement enables the VH-2402S to bypass the internal diagnostics (POST) during a system restart. For a single unit, the boot time is reduced from approximately 210 seconds to 90 seconds.
5. HTTP POST packets will no longer cause the switch to lock up and unwanted HTTP POST packets will be dropped.
6. Auto-Negotiation on the VHIM1000-S1SX uplink module has been changed to address the link up issues that could occur when two Vertical Horizon switches containing interconnected VHIM1000-S1SX modules are powered up simultaneously.
7. Support for the VHIM1000-S1TX 1000Base T uplink module has been added.
8. Broadcast Storm Protection (previously Broadcast Strom Control) has been changed to reflect the following: The user selectable Threshold setting is now between 100 and 141,000 pps in increments of 100. The default is 200pps. The user selectable Average Intervals are 200ms, 500ms, 1sec, 5sec and 10sec. The default is 1sec. This new algorithm ensures that high raters of broadcast traffic will not hinder the operation

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on the system(s).
9. A new UI for VLAN configuration has been added in this release of firmware. Please refer to the section titled New Local Management Console Menu Items in this release note.
10. Ping response time has been enhanced. The VH-2402S operating system ensures higher priority tasks such as NVRAM Updates or Address Monitoring (i.e. Spanning Tree) take precedence over PING. This ensures the system(s) will remain operational.
11. The following issue has been fixed in this release of firmware. When the transmission rate of Layer 3 packets increases, the rate at which reports are forwarded out the router port decreases. As the rate of Layer 3 packets increases, the forwarding of joins decreases.
12. The following issues have been fixed in this version of firmware. Multicast addresses 01-80-C2-00-00-02 through 01-80-C2-00-00-15 were dropped when Spanning Tree was enabled.

**KNOWN RESTRICTIONS AND LIMITATIONS:**

1. When a Gigabit port on the VH-2402S is connected to a Gigabit port on an SSR, auto-negotiation fails if the SSR is power-cycled while the VH-2402S is operational. It is necessary to set the speed on both ports.
2. When the speed of a Gigabit port is changed from a specific speed to auto-negotiate mode, the user must disconnect and reconnect the cable to cause auto-negotiation to occur.
3. When a port is in the Spanning Tree Blocking state, incoming packets will continue to be counted in its RMON counters.
4. When packets that originate at the CPU are transmitted out a mirror target port, they will have no CRC.
5. When a combination of high and low priority traffic is transmitted from a high speed port to a lower speed port, some high priority packets may be dropped, if the traffic from the high speed port oversubscribes the low speed port.
6. When Fast STA is disabled, the configuration count increases by one when a port transitions from a "NO LINK" state to a "BLOCKED" state.
7. Do not trunk ports with IP Multicast clients.
8. Configuration parameters are not retained when downgrading to a lesser image from version 2.04.01
9. When building a 7 unit high stack, units 5, 6 and 7 must have Microcode version 1.11 or greater. Units 1 through 4 can use a lesser Microcode version than 1.11.
10. It is not possible to downgrade from firmware version 2.03.12 or higher down to version 2.02. or lower. If the management agent is running any version of firmware above 2.2, and 2.2 or lower code is downloaded onto the management card, then the management card will fail. This will be addressed via a new utility in the future.
11. MAC to Port Locking- When a user creates one set of secure addresses on port 1 and then a different set of secure addresses on port 2 and then transmits a packet with a port 1 secure address into port 2, the packet is forwarded. Secure Addresses on port 1 will be forwarded to port 2. This issue is a limitation of the switching chip. The workaround is to configure MAC to port locking as follows: When assigning Secure addresses, note that the following port group combinations will "share" Secure addresses.  Group 1 ports 1,2,3,4,13,14,15,16 Group 2 ports 5,6,7,8,17,18,19,20 Group 3 ports 9,10,11,12,21,22,23,24  Ports on the optional 100/1000Mbps uplink cards are not effected by this functionality.
12. The user may observe screen corruption when the console is run on a Compaq PC.
13. The user may not see values updated within Web Management. Please ensure your Web Browser "Temporary Internet Files Setting" is set to "Every visit to the page."

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14. Console port fails to auto-negotiate properly. The VH-2402S only allows auto baud detection to take effect after system restart. Once the user changes the terminal baud rate, after baud rate is detected; it will be not known by switch agent.
15. After doing an upload configuration, the VH-2402S won't allow a download configuration. The User has to Re-start the Switch." **Note:** If the Switch is not "Re-Started", a "BootP" Event is attempted instead of a "TFTP" Event during the "TFTP Download of the configuration."
16. To view a Filename longer than 20 Characters via Console, the user must first press <Ret> within the Filename field then the Arrow Keys can be used to navigate.
17. On page 75 of the VH-2402S Management Guide , "Configuring VLANs", after Step 4, the user should go to the "Port Assignment Configuration" and set each port to its VID. This will automatically add the ports to the Egress List. Otherwise, if the user goes from Step 4 to Step 5, the user will only add ports to the Egress list and then user will still have to go to "Port Assignment Configuration" to do the Ingress.
18. Do not perform a download configuration with a file size of 0. This will cause the VH-2402S not to boot.

Any other problems than those listed above should be reported to our Technical Support Staff.

**GENERAL MANAGEMENT CONSOLE MENU INFORMATION:**

Internal MAC errors, which appear on the Port Statistics Screen, are for statistical purposes only. This screen shows items other than Runts, Giants, CRC errors etc.

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**NEW LOCAL MANAGEMENT CONSOLE MENU ITEMS:**

New, enhanced VLAN configuration screens have been added with this release of firmware. Bolded items below are new.

Vertical Horizon Local Management -- VH-2402S

Device Control Menu

Port Configuration ...	<b>Global VLAN Configuration ...</b>
Port Information ...	Port Assignment VLAN Configuration ...
Port Security Configuration ...	<b>Egress Ports VLAN Config ...</b>
Port Trunking Configuration ...	<b>VLAN Forbidden Ports Config ...</b>
Port GARP Configuration ...	<b>802.1Q VLAN Base Information ...</b>
Port GMRP Configuration ...	<b>802.1Q VLAN Current Table Information ...</b>
Extended Bridge Configuration ...	<b>802.1Q VLAN Static Table Configuration ...</b>
Spanning Tree Configuration ...	802.1P Configuration ...
Spanning Tree Information ...	IGMP Configuration ...
Mirror Port Configuration ...	IGMP Member Port Configuration ...
BStorm Control Configuration ...	Multicast Router Port Configuration ...

<OK>

Display or set port configuration.

Use <TAB> or arrow keys to move. <Enter> to select.

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Global VLAN Configuration

VLAN Version Number : 1  
MAX VLAN ID : 2048  
MAX Supported VLANs : 256  
Current Number of 802.1Q VLANs Configured : 3

VLAN ID : 1  
VLAN Name:  
Status : Enabled

Selected by : VID [Show]

<APPLY> <OK> <CANCEL>

Show a page of the VLAN.

Use <TAB> or arrow keys to move. <Enter> to select

**Parameter Description**

VLAN Version Number: Displays the current Version of VLANs being used by the switch  
MAX VLAN ID: Displays Maximum VLAN ID of 2048  
MAX Supported VLANs: Displays Maximum number of VLANs supported which is 256  
Current Number of 802.1Q VLANs Configured : Displays current total number of VLANs configured on the switch

VLAN ID: Input from 1-2048  
VLAN Name: Input VLAN name  
Status: Select either Enabled or Disabled

Selected by : Toggle option to show VLANs by VID or NAME via <space bar>.  
[Show] : Show a page of the VLAN.

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Egress Ports VLAN Configuration

Unit	Permanent Egress Ports	Dynamic Egress Ports	Permanent Untagged Ports	Dynamic Untagged Ports
1	1-24		1-24	
2	1-24		1-24	
3	1-24		1-24	
4	1-24		1-24	
5	-----			
6	-----			
7	-----			

Indexed by : VID

VLAN ID : 1 [Show]  
VLAN Name : [More]

<APPLY>      <OK>      <CANCEL>  
Static Egress Port List.1-24.      | READ/WRITE  
Use <TAB> or arrow keys to move, other keys to make changes.

**Parameter Description**

- Unit: Displays the individual VH-2402S switch units in the stack configuration
- Permanent Egress ports: User can enter Static Egress Port list string. (Example 1,4-10, 15)...
- Dynamic Egress Ports: Displays Dynamic Egress Ports
- Permanent Untagged ports: User can enter Static Untagged Port list string. (Example 1,4-10, 15)...
- Dynamic Untagged Ports: Displays Dynamic Untagged Ports
- Indexed by: Toggle Option to show status by VID or NAME via <spacebar>.
- VLAN ID: User can enter a VLAN ID.
- VLAN Name: User can enter a VLAN Name.
- [Show]: Show a page of the VLAN Egress Configuration
- [More]: Show next page of the VLAN Egress Configuration

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**NOTE:** Although this screen references GVRP, the GVRP Protocol is not supported in this release of firmware

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GVRP VLAN Configuration: VLAN Forbidden Ports

                Permanent
                Unit  Forbidden Ports
                -----
                1  -----
                2  -----
                3  -----
                4  -----
                5  -----
                6  -----
                7  -----

                Indexed by : VID
                VLAN ID   : 1           [Show]
                VLAN Name :             [More]

                <APPLY>      <OK>      <CANCEL>
                Static Forbidden Port List.1-24. | READ/WRITE
                Use <TAB> or arrow keys to move, other keys to make changes.
    
```

**Parameter Description**

Unit : Number of switch to configure  
 Permanent Forbidden Ports: User can enter a Static Forbidden port list string.(Example 1,4-10,15)...  
 Indexed By: Toggle option to show status by VID or NAME via <spacebar>  
 VLAN ID: User can enter a VLAN ID.  
 VLAN Name: User can enter a VLAN Name.  
 [Show]: Show a page of the VLAN Forbidden Configuration  
 [More]: Show next page of the VLAN Forbidden Configuration

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802.1Q VLAN Base Information

VLAN Version Number : 1  
MAX VLAN ID : 2048  
MAX Supported VLANs : 256  
Current Number of 802.1Q VLANs Configured : 3

<OK>  
Return to previous panel.  
<Enter> to select.

**Parameter Description**

VLAN Version Number:	Displays VLAN version number currently being used by the switch
MAX VLAN ID:	Displays Maximum VLAN ID of 2048
MAX Supported VLANs:	Displays Maximum number of VLANs supported which is 256
Current Number of 802.1Q VLANs Configured:	Displays current total number of VLANs configured on the switch

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Vertical Horizon Local Management -- VH-2402S

802.1Q VLAN Current Table Information

Deleted VLAN Entry Counts : 0

VID          Creation Time          Status
-----
1    0 (0 day 0 hr 0 min 0 sec)    Permanent

Unit Current Egress Ports          Current Untagged Ports
1  111111111111 111111111111 ----  111111111111 111111111111 ----

Sorted by VID : 1

[Show] [More]

<OK>      <PREV UNIT>      <NEXT UNIT>
Show a page of the current information in 802.1Q VLAN table.
Use <TAB> or arrow keys to move. <Enter> to select
    
```

**Parameter Description**

- VID: Displays VLAN Identification Number
- Creation Time: Displays Creation Time of VLAN
- Status: Displays Status of VLAN
- Unit: Displays Switch Number
- Current Egress Ports: Displays Status of Current Egress Ports
- Current Untagged Ports: Displays Status of Current Untagged Ports
- Sorted by VID: User can Enter VLAN ID to be displayed.
- [Show] : Show a page of the current information in the 802.1Q VLAN Table.
- [More]: Show next page of the current information in the 802.1Q VLAN Table.

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Vertical Horizon Local Management -- VH-2402S

802.1Q VLAN Static Table Configuration

      VID  VLAN Name  Status
      -----
      1
Unit Egress Ports          Forbidden Egress Ports

1 111111111111 111111111111 ---- 000000000000 000000000000 ----

Unit Untagged Ports

1 111111111111 111111111111 ----
                                VID : 1
                                [Show]
                                [More]
                                [New]

<APPLY>  <OK>  <CANCEL>  <PREV UNIT>  <NEXT UNIT>
          The name of the VLAN.      | READ/WRITE
          Use <TAB> or arrow keys to move, other keys to make changes.
    
```

**Parameter Description**

- VID: Displays VLAN Identification Number
- VLAN Name: Displays VLAN Name which can be modified by User.
- Status: Displays Status of VLAN which can be modified by User via <Space Bar> : Active, Delete, Not in Service.
- Unit : Displays switch number to be configured.
- Egress Ports: Displays Egress Ports that are Enabled(1) or Disabled(0) which can be modified by the User via <Ret> and then Arrow Keys to select Port and type in 1 or 0.
- Forbidden Egress Ports: Displays Forbidden Egress Ports that are Enabled(1) or Disabled(0) which can be modified by the User via <Ret> and then Arrow Keys to select Port and type in 1 or 0.
- Unit: Displays switch number to be configured.
- Untagged Ports: Displays Untagged Ports that are Enabled(1) or Disabled(0) which can be modified by the User via <Ret> and then Arrow Keys to select Port and type in 1 or 0.
- VID: VLAN ID that the User can select to show 802.1Q VLAN Static Table Configuration.
- [Show] : Show a page of the VLAN Static Table.
- [More]: Show next page of the VLAN Static Table.
- [New]: Allows User to create a new 802.1Q Static VLAN.

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**COMPLIANCE SUPPORT:**

Compliance Level	Compliant
Year 2000	YES

Known Anomalies: None.

**IEEE STANDARDS SUPPORT:**

Standard	Title
IEEE 802.1D	Transparent Bridging Specifications (ISO/IEC 10038)
IEEE 802.1p	Traffic Class Expediting and Dynamic Multicast Filtering
IEEE 802.1Q	Virtual Bridged Local Area Networks
IEEE 802.2	Local Area Networks, Logical Link Control (LLC)
IEEE 802.3	CSMA/CD 9 (ISO/IEC 8802-3)
IEEE 802.3I	10Base-T (ISO/IEC 8802-3, clause 14)
IEEE 802.3u	100Base-TX (ISO/IEC 8802-3, clause 25)
IEEE 802.3u	100Base-FX (ISO/IEC 8802-3, clause 26)
IEEE 802.3x	Flow Control
IEEE 802.3z	1000Base-SX, 1000Base-LX
IEEE 802.ab	1000Base-T

**IETF STANDARDS MIB SUPPORT:**

RFC No.	Title	Groups Supported
1157	Simple Network Management Protocol(SNMP)	
1213	MIB-II	System, Interfaces, IP, ICMP, UDP, Transmission (dot3), and SNMP
1493	Bridge MIB	Spanning Tree and various managed objects for bridges
1573	Interfaces Evolution MIB	MIB-II Interfaces Group extensions
1643	Ethernet-like	Various Ethernet specific aspects
1757	RMON MIB	Statistics, History, Alarm, and Event

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RFC No.	Title	Groups Supported
2674	Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering and Virtual LAN Extensions	<p>Groups in the P-BRIDGE MIB</p> <p>-----</p> <p>dot1dExtBase OBJECT IDENTIFIER ::= { pBridgeMIBObjects 1 }</p> <p>dot1dPriority OBJECT IDENTIFIER ::= { pBridgeMIBObjects 2 }</p> <p>Groups in the Q-BRIDGE MIB</p> <p>-----</p> <p>dot1qBase OBJECT IDENTIFIER ::= { qBridgeMIBObjects 1 }</p> <p>dot1qTp OBJECT IDENTIFIER ::= { qBridgeMIBObjects 2 }</p> <p>dot1qStatic OBJECT IDENTIFIER ::= { qBridgeMIBObjects 3 }</p> <p>dot1qVlan OBJECT IDENTIFIER ::= { qBridgeMIBObjects 4 }</p>

**ENTERASYS NETWORKS PRIVATE ENTERPRISE MIB SUPPORT:**

Title	Version
NA	NA

Enterasys Networks Private Enterprise MIBs are available in ASN.1 format from the Enterasys Networks web site at: <http://www.enterasys.com/support/mibs> Indexed MIB documentation is also available.

**SNMP TRAP SUPPORT:**

RFC No.	Title
RFC 1215	coldStart_trap warmStart_trap linkUp_trap authenticationFailure_trap egpNeighborLoss_trap
RFC 1493	ENTERPRISE dot1dBridge NewRoot 1 topologyChange 2
RFC 1573	SnmpTraps lLinkDown 3 LinkUp 4
RFC 1757	IETF RMON, ENTERPRISE rmon -- 1.3.6.1.2.1.16 risingAlarm 1 fallingAlarm 2



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**ENTERASYS NETWORKS PRIVATE ENTERPRISE TRAP SUPPORT:**

NONE

**GLOBAL SUPPORT:**

By Phone: (603) 332-9400  
By Email: [support@enterasys.com](mailto:support@enterasys.com)  
By Web: <http://www.enterasys.com/support>  
By Fax: (603) 337-3075  
By Mail: Enterasys Networks  
P.O. Box 5005  
Rochester, NH 03867-5005

For information regarding the latest firmware available, recent release note revisions, or if you require additional assistance, please visit the Enterasys Networks Support web