

Date: 9/5/03

T10: T10 Technical Committee (SCSI)

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Subject: New Inquiry VPD Page – Management Network Address

Revision History

Revision 0 (May 7, 2003), first revision

Revision 1 (June 26, 2003), incorporate comments from T10, rework as actual SPC suggested wording

Revision 2 (July 7, 2003), incorporate comments from T10 and SNIA

Revision 3 (July 8, 2003), incorporate comments from T11

Revision 4 (September 5, 2003), Internet Protocol Number field is removed after examining similar IETF RFCs, NETWORK ADDRESS now null-terminated, network address descriptor four-byte-aligned, removed vendor-specific network service types, reworked to require IANA-registered schemes and to describe table x+3 as examples of formats rather than an exhaustive list of formats.

Related Documents

SPC-3r13 – SCSI Primary Commands – 3, revision 13

Overview

Many storage devices are providing TCP/IP based services for management. These services may be embedded in the storage device, may be running on a separate management host bundled with the storage device, or may be running on a management host that provides a central point for management of multiple devices. Management software running elsewhere on the network needs to be able to locate these management services. This is a proposal for a VPD page that returns the address information about these management services.

The response format is loosely based on the T11 FC-GS Platform Management Address List, but provides a transport-independent interface and is available in FC configurations without switches.

Previous versions of this proposal described URL schemes (for example, “snmp://” that were not approved by IETF/IANA. The current proposal requires the use of IANA

registered schemes. Projects have been started to get storage-related schemes such as snmp and CIM approved and registered.

Proposed SPC Change

Modify Table 266 – Vital product page codes

- *Insert Management Network Address as page code 85h.*
 - *Changed the Reserved page code list to start at 86h.*
 - *Adjust reference numbers accordingly.*
- (changes shown with gray highlighting)*

Table 266 — Vital product data page codes

Page code	VPD Page Name	Reference	Support Requirements
82h	ASCII Implemented Operating Definition	7.6.2	Optional
01h - 7Fh	ASCII Information	7.6.3	Optional
83h	Device Identification	7.6.4	Mandatory
85h	Management Network Addresses	7.6.5	Optional
81h	Obsolete	3.3.7	Optional Mandatory Optional
84h	Software Interface Identification	7.6.6	
00h	Supported VPD Pages	7.6.7	
80h	Unit Serial Number	7.6.8	
86h - AFh	Reserved		
B0h - BFh	(See specific device type)		
C0h - FFh	Vendor specific		

Modify clause numbers for 7.6.5 through 7.6.7. Adjust table numbers in remainder of document.

Insert new clause 7.6.5 as follows:

7.6.5 Management Network Addresses VPD Page

This VPD page (see table x) provides a list of network addresses of management services associated with a SCSI target device, SCSI target port, or logical unit.

Table x - Management Network Addresses VPD Page

Bit Byte	7	6	5	4	3	2	1	0
0	PERIPHERAL QUALIFIER			DEVICE TYPE				
1	PAGE CODE (85H)							
2	(MSB)	PAGE LENGTH (N-3)						
3								(LSB)
	Network services descriptor list							
4								
5	Network service descriptor (first)							
m								
	Network service descriptor (second)							
n	Network service descriptor (last)							

The PERIPHERAL QUALIFIER field and the PERIPHERAL DEVICE TYPE field are defined in 6.4.2.

The PAGE LENGTH field specifies the length of the network services descriptor list.

Each network service descriptor contains information about one management service. The format of the Network Service Descriptor is shown in Table x+1.

Table x+1 - Network Service Descriptor

Bit Byte	7	6	5	4	3	2	1	0
0	Reserved	ASSOCIATION	SERVICE TYPE					
1	Reserved							
2	(MSB)	SERVICE DESCRIPTOR LENGTH (n-3)						(LSB)
3								
4								
n	NETWORK ADDRESS							

The ASSOCIATION field specifies the entity (SCSI target device, SCSI target port, or logical unit) with which the service is associated. The values are the same as those for the ASSOCIATION field in the VPD page 83 Identification header described in table 272.

The SERVICE TYPE field allows differentiation of multiple services with the same protocol running at different port numbers or paths. For example, a device may provide separate HTTP services for configuration and diagnostics. One of these services can use the standard HTTP port 80 and the other service needs to use a non-HTTP port. The SERVICE TYPE field lets an application differentiate these two services. SERVICE TYPE values are listed in Table x+2.

Table x+2 - Network services type

00h	Unspecified
01h	Storage Configuration Service
02h	Diagnostics
03h	Status
04h	Logging
05h	Code Download
05h - 1Fh	Reserved

The SERVICE DESCRIPTOR LENGTH specifies the length of the rest of the descriptor (the network address). The descriptor length shall be a multiple of four.

The null-terminated, null-padded NETWORK ADDRESS field is based on the IETF URI format defined in RFC 2396. It includes a scheme (for example, "http"), a host-name or IP address, an optional port number, and optional context specific information:

scheme://scheme-specific-address/context-specific-information

The scheme field includes the standard WWW schemes (http, https, ftp), but is extended to include other schemes common to storage devices (ssh, snmp,...). The scheme field consists of one of the scheme names registered with IANA (see <http://www.iana.org/assignments/schemes>). The scheme-specific-address is typically a host name or IP address and the context-specific-information is typically a path relative to the server.

Examples of formats for the network address field are depicted in table x+3.

Table x+3 – Examples of network address field formats

Scheme (ASCII)	Scheme Specific Address	Context Specific Information
telnet	host:port (note 1)	Null
http	host:port (note 1)	Server-relative path (optional)
https	host:port (note 1)	Server-relative path (optional)
ftp	host:port (note 1)	Server-relative path (optional)

Notes:

1) host can be an IPv4 address, an IPv6 address formatted as specified in RFC 2732, a Fully Qualified Domain Name, or a local host name without a domain. The port is optional. If not specified, the IANA assigned defaults apply – see <http://www.iana.org/assignments/port-numbers>