memorandum

Hewlett-Packard Company
3000 Hanover Street
Palo Alto, CA 94304-1185
USA
www.hp.com

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To	From	Subject	Date
INCITS T10 Committee	Michael Banther, HP	ADC-2 Add supported operation codes to caching	6 July 2006

Revision History

Revision 0 – Initial document.

Revision 1 – Incorporated comments from the May, 2006 ADI-2 working group meeting.

Related documents

Automation/Drive Interface Commands - 2 (ADC - 2), revision 4, 8 March 2006.

Background

To minimize the time delay in reporting an unsupported operation code during bridging operation, HP proposes adding the list of operation codes supported by the remote SMC device server to the cached data. Note that the list of supported operation codes may change along with the standard INQUIRY data, e.g. when the remote SMC device server goes off-line or on-line, or it may change without a change to the standard INQUIRY data, e.g. when the automation ADT port changes its target port asymmetric access state.

We also propose some minor alterations to clarify bridging operation.

Changes to draft standard

4.2.3.2 Local SMC device server operation

ADI bridging is enabled and disabled via the SMC Logical Unit descriptor of the ADC Device Server Configuration mode page implemented by the ADC device server (see 6.2.2.4.3). The descriptor specifies the logical unit number of the corresponding local SMC device server. When bridging is disabled, the logical unit shall not be reported to a REPORT LUNS command (see SPC-3) and the local SMC device server shall not respond to commands through the DT device primary port.

4.2.3.4 Bridging manager operation

ADI bridging is enabled and disabled via the SMC Logical Unit descriptor of the ADC Device Server Configuration mode page implemented by the ADC device server (see 6.2.2.4.3). The descriptor specifies the logical unit number of the corresponding remote SMC device server. ~~When bridging is disabled, the logical unit shall not be reported to a REPORT LUNS command (see SPC-3) and the local SMC device server shall not respond to commands through the DT device primary port.~~

The bridging manager shall operate in a single threaded fashion (i.e., not issue more than one request at a time to the remote SMC device server). ~~Queued r~~Requests received via the DT device primary port shall be queued in the local SMC device server and issued to the bridging manager one at a time. Moreover, if processing a single request by the local SMC device server requires issuing multiple requests to the remote SMC device server, then those requests shall be issued one at a time to the bridging manager.

4.2.3.5 Caching SMC data and status

Caching of SMC ready state, standard INQUIRY data, VPD, ~~and~~ mode data, and supported operation codes is controlled by the CACHE bit in the SMC Logical Unit descriptor (see 6.2.2.4.3). When the CACHE bit is set to one, caching is enabled. If caching is enabled, the automation application client shall send the NOTIFY DATA TRANSFER DEVICE command (see 5.2) to the ADC device server when events occur that may change data cached by the local SMC device server. When the local SMC device server detects a possible change in the cached data, the local SMC device server shall discontinue using the cached data until the cached data has been updated. The local SMC device server shall issue any commands required to update the cache to the bridging manager before issuing any commands that the local SMC device server may have received from a DT device primary port and queued.

If caching is disabled, then the ADC device server shall ignore the ~~bridging status byte~~ MDC, IDC, NRSC, and SOCC bits (see 5.2) in the NOTIFY DATA TRANSFER DEVICE command. Thus the automation application client is not required to send a NOTIFY DATA TRANSFER DEVICE command for purposes of indicating changes in cached data. The automation application client may send the command to notify the DT device of events not related to changes in cached data.

Editorial note: The ADC device server cannot ignore the BUA bit when caching is disabled because only the local SMC device server has knowledge of which initiator ports have received a UNIT ATTENTION.

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5.2 NOTIFY DATA TRANSFER DEVICE command

The NOTIFY DATA TRANSFER DEVICE command (see table 6) is used to notify the ADC device server of specific events. The NOTIFY DATA TRANSFER DEVICE command does not represent the complete current state of the automation device and is not intended to be sent upon every change in the automation device's state.

Table 6 – NOTIFY DATA TRANSFER DEVICE command

Bit Byte	7	6	5	4	3	2	1	0
0	OPERATION CODE (9Fh)							
1	Reserved			SERVICE ACTION (1Fh)				
2	Reserved							LDFAIL
3	Reserved			SOCC	BUA	NRSC	IDC	MDC
4	ASC							
5	ASCQ							
6	Reserved							
14								
15	CONTROL							

The MDC, IDC, NRSC, and SOCC bits in byte 3 are used to indicate that cached SMC data may require refreshing (see 4.2.3.5).

A supported operation codes changed (SOCC) bit set to one indicates that the list of operation codes supported by the remote SMC device server has changed. Upon receipt of this notification, the use of any cached operation code list shall be discontinued until the cached list has been refreshed. A SOCC bit set to zero indicates that the list of operation codes supported by the remote SMC device server has not changed.