

TO: T10 Membership
FROM: Paul A. Suhler, Certance
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SUBJECT: T10/03-165r1, ADC NOTIFY DATA TRANSFER DEVICE Command

Revision 1:

- Moved text describing use of the command for bridging to ADC model section in 03-077.
- In an effort to clarify that caching is optional, local device server actions are changed from "shall" to "may."
- Added requirement to complete all status refresh command before returning status on the NOTIFY DTD command, in order to avoid races.
- Prohibit returning of Check Condition to the command, using text borrowed from the INQUIRY command.

Revision 0:

- Separated from sense data masking.
- Incorporated Automation AER IU contents

Purpose:

This command replaces the Automation AER IU. It is based upon the SERVICE ACTION OUT(16) command

SPC-3 Table 5 (typical 16-byte CDB) states that the parameter list length field need be included only if required. I propose to leave bytes 10 – 13 Reserved in case we need to add parameters in the future.

New command in ADC clause 5:

New line in Table 2:

Command:	NOTIFY DATA TRANSFER DEVICE
Required:	O
Reference:	5.x

New command description:

5.x NOTIFY DATA TRANSFER DEVICE command

The NOTIFY DATA TRANSFER DEVICE command (see table x) is sent by the automation device to notify the data transfer device (DTD) of specific events. It does not represent the complete current state of the automation device and is not intended to be sent upon every change in the device's state. Implementation of this command is optional.

Upon processing a NOTIFY DATA TRANSFER DEVICE command, the ADC device server shall notify the data transfer device server and/or bridging manager of the reported events, using means that are beyond the scope of this standard.

Table x – NOTIFY DATA TRANSFER DEVICE command

Bit Byte	7	6	5	4	3	2	1	0
0	OPERATION CODE (9Fh)							
1	Reserved			SERVICE ACTION (TBD)				
2	Reserved							LdFAIL
3	Reserved				BUA	NRSC	IDC	MDC

4	ASC
5	ASCQ
6	Reserved
7	Reserved
8	Reserved
9	Reserved
10	Reserved
11	Reserved
12	Reserved
13	Reserved
14	Reserved
15	CONTROL

The LOAD FAILED (LDFAIL) field is set to one if the automation device has detected a failure of the data transfer device to load a medium, and the automation device will not retry the load.

The fields in byte 3 are collectively known as the bridging status byte and are used to notify the bridging manager in the local SMC device server of events in the remote SMC device server that may require changing cached SMC data. If caching of remote device server information is enabled, then the ADC device server shall pass the contents of this field as well as the contents of the ASC and ASCQ fields to the bridging manager. This communication with the bridging manager is done by means outside the scope of this standard.

A value of one in the Mode Data Changed (MDC) field indicates that the contents of a mode page or mode parameter header reported by the remote device server has been changed. Upon receiving this notification, the bridging manager shall discontinue the use of any cached mode data until it has been refreshed.

A value of one in the Inquiry Data Changed (IDC) field indicates that the contents of the standard inquiry data or of any vital product data page reported by the remote device server has changed. Upon receiving this notification, the bridging manager shall discontinue the use of any cached inquiry data or VPD pages until it has been refreshed.

A value of one in the Not Ready Status Changed (NRSC) field indicates that the remote device server has entered the not accessible state, as in the description of caching SMC data and status in 4.2.x.3. It can also indicate that the remote device server was already in the not accessible state and the sense data changed. When NRSC is one, the ASC and ASCQ fields shall contain sense data appropriate to the condition. Upon receiving this notification, the local device server may report that value, along with a sense key of NOT READY, to its primary interface ports.

When the BROADCAST UNIT ATTENTION (BUA) field is set to one, the ASC and ASCQ fields shall contain valid sense data. Upon receiving this notification, the local device server shall report the sense data, along with a sense key of UNIT ATTENTION, to all initiators accessible via its primary interface ports. When the sense data is NOT READY TO READY CHANGE, MEDIUM MAY HAVE CHANGED, it indicates that the remote device server has entered the accessible state.

Editor's Note: Because the bridging manager is a component of the local device server, the above paragraphs speak of the notification's going to either one.

It is not valid for both the NRSC and BUA fields to be set to one. If both the NRSC and the BUA fields are set to zero, then it is not valid for either the ASC and ASCQ field to be set to a non-zero value. If both fields are set to one or if both are set to zero and either the ASC or ASCQ field is not zero, then the command shall be terminated with a CHECK CONDITION status. The sense key shall be set to ILLEGAL REQUEST and the additional sense code shall be set to INVALID FIELD IN CDB.

In the course of processing a NOTIFY DATA TRANSFER DEVICE command, the automation device may issue one or more INQUIRY, MODE SENSE, or other commands to the remote device server, e.g., to refresh cached data. In this case, the bridging manager shall issue the commands and receive status on all of them before the ADC device server returns status on the NOTIFY DATA TRANSFER DEVICE command. This avoids race conditions that could result from subsequent NOTIFY DATA TRANSFER DEVICE commands.

If a NOTIFY DATA TRANSFER DEVICE command is received from an initiator with a pending unit attention condition (i.e., before the device server reports CHECK CONDITION status), the device server shall perform the NOTIFY DATA TRANSFER DEVICE command and shall not clear the unit attention condition.