

ADI Configurable Mode Features

Suggested Items

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1 Introduction

The Automation Drive Interface (ADI) provides a means for automated tape libraries to communicate with drives across a serial interface to aid media handling and system management capabilities. To support operational variations among automation solutions, certain characteristics of the drive need to be configurable. This can be accomplished through use of the Mode Select command and supported mode pages defined within the Automation Drive Command (ADC) layer.

Configurable items should be consistent in behavior with other mode parameters in that they have default values, current values, and when possible can be saved. Configurable items are differentiated from commands in that they define behavior or characteristics that consistently persist throughout all operations performed by the drive, whereas commands request the drive to perform a task only once, i.e. configurable items describe *how* a drive should carry out commands.

Towards that end, the various configurable items have been grouped into different categories. The current categories are:

- *Identification*
- *Physical Behavior*
- *Logical Behavior*
- *Communication*

In reviewing the suggested items, anything that has historically been configured through the use of dip switches or jumpers should be considered as strong candidates for inclusion. In that regard this list may not be complete, such that each drive vendor will want to evaluate it with respect to the capabilities their own devices support.

Each is described in a section that follows. The mapping of these items to actual mode pages and parameters is currently being addressed in other documents from members of the ADI working group.

2 Identification

This category contains items that pertain to how a drive identifies and describes itself on its primary data interface. When a drive is contained within an automation solution, having the ability to set the drive's identification helps with overall system management and serviceability, such that a uniform and integrated solution can be presented to the end user.

- SCSI ID
- FC Node WWN (World Wide Name)
- FC Port(s) WWN
- FC Port(s) Loop Id or AL_PA, soft or hard addressing

To allow configuration of these items to be effective, the drive should also support staying off of the data bus until commanded to do so. This facilitates the automation solution changing these values transparently from the application.

When changing the WWN, the automation solution will be expected to use an Organizationally Unique Identifier (OUI or company_id) of its own, if different from the supplier of the drive. This is important to avoid potential duplication of WWNs.

Consideration was given for also including the drive's serial number as a configurable identification item, but current application behavior appears to now mostly tolerate a change in serial number in the event a drive is replaced within an automation solution.

3 Physical Behavior

This category contains items that pertain to how a drive physically operates. As can be seen from the items on the list, this is focused on physical behavior that interacts with the library environment in some manner.

- Automatic eject control (disable/enable; encompasses data, cleaning, and firmware image media; should also cover SCSI commanded eject behavior, and power-up states with media present)
- Incompatible media reaction (related to automatic eject control)
- Automatic load control (media load on insertion or by command from automation; possibly covered by SPC-3 Control mode page (0Ah), Automatic Load Control field)
- Power management (enable/disable power saving mode, timeout setting)

These capabilities may not all apply to or be supported by all drives.

4 Logical Behavior

This category contains items that pertain to how a drive logically operates. These are primarily focused on command and data processing.

- Automatic data port activation (control whether to appear on data port automatically or by command, e.g. respond on SCSI bus or not)
- Port enable/disable (for multi-port drives)
- Automatic cleaning operation initiated on cleaning media insertion (enable/disable)
- Automatic firmware update initiated on firmware image media insertion (enable/disable)
- Prevent mode changes from SSC device server (data port) (enable/disable)

These capabilities may not all apply to or be supported by all drives. Settings that control emulation or media type support would be considered to be vendor unique extensions.

5 Communication

This category contains items that pertain to the serial communication port on the drive itself. These may be better served by protocol layer primitives, but are listed here as well.

- Serial port baud rate (9600, 19200, 38400, etc.)
- Stop bits (1 or 2)