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NVM Express Technical Proposal for New Feature

Technical Proposal ID	TP4155 Independent Identify Namespace Data Structure Access
Change Date	2023-06-28
Builds on Specification	NVM Express Base Specification 2.0c
Ratified Technical Proposals Referenced	
Technical Proposals in Development Referenced	

Technical Proposal Author(s)

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This proposal adds the ability for a host to access the I/O Command Set Independent Identify Namespace data structure for a namespace that exists.

Revision History

Revision Date	Change Description
2022-12-13	Initial version.
2023-01-05	Accounted for being 2023
2023-01-20	<ul style="list-style-type: none"> Aligned CNS values accessing namespace data structures in the for Controller and Namespace Management to indicate that it is for allocated NSIDs Made the new CNS mandatory for controllers compliant to versions later than NVM Express Base Specification 2.0.
2023-02-28	<ul style="list-style-type: none"> Made a Phase 3 document with no text changes.
2023-03-02	<ul style="list-style-type: none"> Made a Member Review document with no text changes.
2023-06-28	<ul style="list-style-type: none"> Integrated

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Description of Specification Changes

Description for Changes Document for NVM Express® Base Specification 2.0c

New Features/Feature Enhancements/Required Changes:

- Independent Identify Namespace Data Structure Access CNS Value (Mandatory)
 - Description of change.
 - Added a CNS value to the Identify command to allow a host to access the I/O Command Set Independent Identify Namespace data structure for a namespace not attached.
 - References
 - Technical Proposal 4155

Markup Conventions:

Black:	Unchanged (however, hot links are removed)
Red Strikethrough:	Deleted
Blue:	New
Blue Highlighted:	TBD values, anchors, and links to be inserted in new text.
Purple	Text that moved without changes.
<Green Bracketed>:	Notes to editor

Modify portions of the NVM Express Base Specification 2.0c as follows:

...

5 Admin Command Set

...

5.17 Identify command

...

5.17.1 Identify command overview

...

Figure 273: Identify – CNS Values

CNS Value	O/M ¹	Definition	NSID ²	CNTID ³	CSI ⁴	Reference Section
Active Namespace Management						
...						
Controller and Namespace Management						
...						
11h	O ^{5, 11}	Identify Namespace data structure for the specified allocated NSID.	Y	N	N ⁸	5.17.2.10
1Bh	O ⁵	I/O Command Set specific Identify Namespace data structure for the specified allocated NSID.	Y	N	Y	5.17.2.20
1Ch	O	I/O Command Set data structure	N	Y	N	5.17.2.21
1Fh	O ^{TBD}	I/O Command Set Independent Identify Namespace data structure for the specified allocated NSID.	Y	N	N	5.17.2.TBD
18h to 1Fh		Reserved				
Future Definition						
20h to FFh		Reserved				

Figure 273: Identify – CNS Values

CNS Value	O/M ¹	Definition	NSID ²	CNTID ³	CSI ⁴	Reference Section
Notes: 1. O/M definition: O = Optional, M = Mandatory. 2. The NSID field is used: Y = Yes, N = No. 3. The CDW10.CNTID field is used: Y = Yes, N = No. 4. The CDW11.CSI field is used: Y = Yes, N = No. 5. Mandatory for controllers that support the Namespace Management capability (refer to section 8.11). 6. Mandatory for controllers that support Virtualization Enhancements (refer to section 8.26). 7. Selection of a UUID may be supported (refer to section 8.25). 8. This Identify data structure applies to namespaces that are associated with command sets that specify logical blocks (e.g., Command Set Identifier 0h or Command Set Identifier 2h). 9. Mandatory for controllers that support Variable Capacity Management (refer to section 8.3.3). 10. Mandatory for controllers that support Capacity Management (refer to section 8.3) in an NVM subsystem that supports multiple domains (refer to section 3.2.4). 11. Only applicable for the NVM Command Set and I/O Command Sets based on the NVM Command Set. Prohibited for all other I/O Command Sets. TBD. For controllers compliant with versions later than NVM Express Base Specification, Revision 2.0, mandatory if the Namespace Management capability is supported. <Editor note: For the NEXT file the Note TBD text is: For controllers compliant with NVM Express Base Specification, Revision TBD and later, mandatory if the Namespace Management capability is supported.>						

...

5.17.2.TBD I/O Command Set Independent Identify Namespace data structure for an Allocated Namespace ID (CNS 1Fh)

An I/O Command Set Independent Identify Namespace data structure (refer to section 5.17.2.8) is returned to the host for the namespace specified in the Namespace Identifier (NSID) field if it is an allocated NSID. If the specified NSID is an unallocated NSID, then the controller returns a zero filled data structure.

If the specified NSID is an invalid NSID, then the controller shall abort the command with a status code of Invalid Namespace or Format. If the NSID field is set to FFFFFFFFh, then the controller shall abort the command with a status code of Invalid Namespace or Format.

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