

The following items summarize the status of document e03124r9-HPA_State_Diagram_and_Description in response to comments for the e03124r6 by WD (e05168r1) and Seagate (e05169r0).

Comments Summary

Item	From	Description	Information	Status	
1	WD	Need to add a statement in the feature set description and refer to it in IDENTIFY DEVICE word 86 bit 8.	How does HPA affect word 86 bit 8? HPA enabled... kz - Fixed (not yet) Need to add a statement in the featureset description and refer to it in IDENTIFY DEVICE word 86 bit 8.	Open Closed	[10/25] ACS3e section 4.10.2 need to describe the word 86. [2/20] Add text in the HPA feature set and in the ACS IDENTIFY
2	WD	Clarify on how does SRST affect the HPA feature set	Where are the reset transitions? When a volatile SETMAX is issued, a reset should either clear the HPA or transition to the last non-volatile SETMAX. I think it should be made clear that SRST does not affect the HPA feature set kz - not fixed (out of scope) - must be addressed in normative section. All hardware resets and power-on resets appear to be documented	Open Closed	[2/20] Add text in the HPA feature set
3	WD	Clarify password usage: Is the last password to be used?	There is no statement about which password is used when several set passwords are issued. kz - Not fixed (out of scope) - must be addressed in normative section This is currently not covered. Other people want to go check how their devices work. I currently believe that using the last password makes the best sense.	Open Closed	[2/20] Add text in the HPA feature set
4	WD	Clarify NATIVE MAX is changed by DCO	Need to state in the DCO command that the NATIVE MAX address is changed by DCO. kz - Not fixed (out of scope) - must be addressed in normative section This is already stated in the DCO SET in ATA8	Closed (To fix in DCO SET)	
5	WD	Clarify H1 state: No HPA, password set	This needs to be changed to match ATA/ATAPI-7 for H1, This would be a functional change for H0. kz - not fixed - functional change TBD. This is a spec change need to investigate further.	Open Closed	[10/25] This comments is meant to apply to the H1 state [H1a:H1] This also creates a transition to the other state on the SET MAX FREEZE LOCK command.
6	WD	Do we need H1 State?	Do we want this state? kz - not fixed - functional change TBD This prevents somebody else from	Closed	

			setting a password		
7	WD	Why does SET MAX LOCK aborted on H1 State?	Why? kz - not fixed - creates numerous new states and complicates diagram. This needs to be changed to match ATA/ATAPI-7 which allows a transition to the locked state	Open Closed	[10/25] This need to be fixed by additional state "No HPA and Locked." This state exits on Power Cycle to H0. [2/20] Add H2 state on the state diagram.
8	SG	Notes on the first page are not referenced on the diagram.	These notes are not referenced anywhere kz - notes must be reflected in the normative section and removed from diagram. Some will be incorporated into the featureset description. Will add references to others	Open Closed	[10/25] Note 1 should be in the glossary section of ACS. → Note to the ACS Editor. Notes 2,3,4: already described in the text. Notes 5,6,7 go to the state description header. Note 8 belongs in the description text. [2/20] Imported to the state description.
9	SG	States can be entered at power-on are H0, HS3, and HES3.	Verify that states that can be entered at power-on are H0, HS3, and HES3 Curtis verify Add to feature set description	Open Closed	[10/25] Add to the HPA description. Copy the whole HPA section to the document and show the addition text. [2/20] Add text in the beginning of the state diagram description.
10	SG 1a 1b	About the "Open" and "Eliminated" terms definition	These are not defined terms. Are they meant to say the same thing? kz - must be referenced in the normative section as legacy terms for no HPA. These are different terms describing the same thing. Will change to define them better when they are moved into the featureset description text	Open Closed	[10/26] Taken cared of this elsewhere. (Handled in item #8)
11	SG 2c	Clarify the limitation of number of times one can set password.	Add a statement in the description of the feature set that states there is no limit to the number of times you can set the password kz - normative statement not fixed (out of the scope) - must be included in the normative part of the document.	Open Closed	[10/26] Joseph to add the statement in the Feature Set description 4.10.2 after the first paragraph. [2/20] Add text in the feature set description 4.10.3
12	SG	Clarify the SETMAX volatile and non-volatile value	Both STEMAX volatile and non-volatile imply that the value must be less than native max.	Open Closed	normative statement [10/26] Joseph to add a note on the first figure. [2/20] Add note on the first diagram.
13	SG	Change NATIVE MAX to READ NATIVE MAX return parameter	S/B READ NATIVE MAX kz – Fixed Should be rad native max return parameter??	Closed	JC Fixed
14	WD SG	MAX_BAD count	ATA7 has 5 kz - fixed	Closed	

	1c		Accepted		
15	SG	Describe the power-on condition	Please add a new subclause to the feature set that describes the power-on condition. kz - must be in normative section . Reference Seagate comment 2b	Open Closed	[10/26] Seagate agreed the description was enough and NAR is required.
16	WD SG 2a	HS2:H0 should be volatile	S/B Volatile kz - not fixed - adding volatility parameter to Set Native Max commands creates numerous new states and complicates diagram -accepted	Open Closed	Why the resolution is diff from #18 [10/26] Jim is to research this issue and come back with a suggestion by next meeting. See Resolution below
17	WD	On HS2 state input H0:HS2	S/B H0a:HS2 kz – fixed accepted	Closed	
18	WD	HS3:H0 should be volatile	S/B Volatile kz - not fixed - adding volatility parameter to Set Native Max commands creates numerous new states and complicates diagram -Will be fixed throughout	Open Closed	Resolution is not consistent with #16 [10/26] Joseph to add the “volatile” onto the state diagram - HS3:H0. Jim will research the non-volatile issue. [12/14] See Resolution below. HS2: Change the HS2:H0 to HS2:HS2. Add a statement that the IDENTIFY HPA bit is cleared after this transition. On H0 state remove HS2:H0 entry. Specify this is a volatile on the HS2:H0 transition. Apply the same change to the HES2 state. [2/20] Changed the state diagram and add the description text.
19	WD	Clarify on hardware reset in HS4 state HS4a:HS1	There is no definition of hardware reset in ACS, need to add a reference in the glossary to AAM or the transport docs. kz - must be in the normative section. The AAM document does not differentiate between Powre-On and Hardware/COMRESET. A new proposal would be needed to merge these resets into a single reset.	Open Closed	[10/26] The definition of HW reset is been completed on new ACS. The Password is only been affected by the Power-on reset (from ATA-7)
20	WD	Typo on HS5, HS4d:HS4	S/B HS5d:HS55 kz - fixed. Accepted	Closed	
21	WD	Typo on HS5, HS4e:HS4	S/B HS5e:HS55 kz - fixed.	Closed	

			Accepted		
22	WD	Clarify HES2:H0	<p>You need to power cycle before before issuing another NV SETMAX. This transition is illegal, it should abort.</p> <p>Global: Need to differentiate between volatile and non-volatile. I think you meant to say volatile.</p> <p>kz - not fixed - adding volatility parameter to Set Native Max commands creates numerous new states and complicates diagram</p> <p>- Will be fixed globally</p>	Open Closed	[10/25] See #16 for Jim to research. See Resolution below [2/20] See #16 resolutions.
23	WD	Missing Text on HES2:HES3	Missing text description accepted	Closed	
24	WD	Typo on HES3	S/B HEL5:HES5 kz - fixed (to HES3)	Closed	
25	WD	Missing Text on HES4:HEL1	Missing text description accepted	Closed	
26	WD	Clarify HES5:H1 transition	<p>Should this be volatile...</p> <p>kz - not fixed - adding volatility parameter to Set Native Max commands creates numerous new states and complicates diagram</p> <p>Handled</p>	Open Closed	Resolution is not consistent with #16 [10/25] See #16 for Jim to research. See Resolution below [2/20] See #16 resolutions.
27	WD	Clarify HES6:H1 transition	<p>S/B Volatile?</p> <p>kz - not fixed - adding volatility parameter to Set Native Max commands creates numerous new states and complicates diagram</p>	Open Closed	[10/25] See #16 for Jim to research. See Resolution below [2/20] See #16 resolutions.
28	SG 6a	Clarify HL1 "=MAX_BAD"	The =Max_Bad is not covered. kz - fixed	Closed	
29	WD	Clarify HL1b:HL1 state transition	<p>In the past this would have cleared the HPA.</p> <p>kz - fixed. Accepted, ATA/ATAPI-7 would transition to H1</p>	Closed	
30	SG 6b	Group ABORTED commands together, HL1c:HL1 and HL1d:HL1	<p>Global: This should be moved to that HL1a aborted list.</p> <p>kz - fixed</p>	Closed	
31	WD	Clarify HEL1b:HEL1 state transition	<p>Should clear the HPA (transition to H1).</p> <p>kz - fixed. accepted</p>	Closed	
32	SG	Clarify text on H0	Add interaction with IDENTIFY DEVICE and PACKET IDENTIFY DEVICE: word 85 bit 10 S/B cleared to 0.	Open Closed	[10/26] Jim agrees to close #32, 33, and 34 by the added text on the ACS3e IDENTIFY

			word 86 bit 8 shall be cleared to 0 when there is no password is set. This also applies to H0, HS1, HS2, HS3, HES1, HES2, HES3.		command word 85 and 86.
33	SG	Clarify text on H1	Add interaction with IDENTIFY DEVICE and PACKET IDENTIFY DEVICE: word 85 bit 10 S/B cleared to 0. word 86 bit 8 shall be set to 1 when the password is set. This also applies to HS4, HS5, HS6, HES4, HES5, HES6.	Open Closed	Same above
34	SG	Clarify text on HS1	Add interaction with IDENTIFY DEVICE: word 85 bit 10 S/B set to 1. This applies tp HS2, HS3, and others	Open Closed	Same above
35	WD	Clarify text on HS2:HS3 transition	Need HS2:HS3 description kz - fixed. accepted	Closed	
36	WD	Clarify text on HS3	Include HS5 kz - fixed.	Closed	
37	WD	Typo on HS3:H2	S/B HS2 kz – fixed accepted	Closed	
38	WD	Typeface on HS3:H2	LOCKED S/B HPA Locked kz - Fixed	Closed	
39	WD	Clarify text on HS4	Lacking in substance. Where is the from list -Accepted, will provide a better description.	Open Closed	[10/26] Modified the text to clarify the meaning. Global, SET MAX ADDRESS SET PASSWORD does not have a (volatile) in the name. [2/20] Changed the text to remove the volatile word on the SET MAX ADDRESS SET PASSWORD commands
40	WD	Clarify text on HS4a:HS1	S/B H1 kz - fixed AcceptedNO HPA	Closed	
41	SG	Clarify text on HS4b:H1	NO HPA, PASSWORD SET kz - fixed	Closed	
42	WD	Clarify text on HS5	This is too vague. Double period at the end. Accepted	Open Closed	[10/26] See #77 Also, global: remove the (Non-Volatile) [2/20] Changed text to remove the (Non-Volatile) SET MAX ADDRESS

					SET PASSWORD (Non-Volatile)
43	WD	Fix HS4d:HS4 and HS4e:HS4	HS5d:HS5 and HS5e:HS5	Closed	
44	WD	Fix HS5e	HS4:HPA SET (Volatile) changed to HS5:HPA SET (Non-volatile)	Closed	
45	WD	Typo on HL3:HL6 text (Non-Volatile 2	S/B (Non-Volatile 2)))) kz - fixed	Closed	
46	SG	Typo on HS6:H1	NO HPA, PASSWORD SET kz - fixed	Closed	
47	WD	Change text on HS6b:H3	S/B HS6b:HS3	Closed	JC: Changed to HS6:HS3 to match the diagram
48	WD	Clarify text on HS6b:HS6	When the device receives a hardware reset (pin1 or COMRESET) This should probably be a global change. It does not differentiate from SRST. kz - should be global change or normative section. Change to: When the device receive a hardware reset.	Closed	JC Changed: When the device receive a hardware reset.
49	WD	Editing on HS6eHS6	S/B HS6e:HS6	Closed	
50	WD	Editing on textHES1c:HES1	Change EXT to Extended	Closed	JC Changed: Add EXT on the HES1:HES2
51	WD	HES3 text	Add HES5 to the states Needs HES5 kz - fixed	Closed	
52	WD	Clarify text on HES4	Too vague	Open Closed	[10/26] See #77 [2/20] Add text on the state description.
53	WD	Typo on text HES4a:HES4	Remove EXT	Closed	JC made the change
54	WD	Clarify text on HES5	Too vague Need some detials...	Open Closed	[10/26] See #77 [2/20] Add text on the state description.
55	SG	Clarify text on HES6:H1	NO HPA, PASSWORD SET kz - fixed	Closed	
56	WD	Clarify text on HL1e:HL1	and abort the command kz - fixed. accepted	Closed	
57	WD	Clarify text on HL2:HS3	S/B HS3 HPA SET. This is correct in the diagram accepted	Closed	
58	WD	Clarify text on HL2:HS3	Change non-volatile 1 to non-volatile 2	Closed	
59	WD	Clarify HL4a:HL4 text	SET MAX FREEZE LOCK S/B added to tis list kz - fixed.	Closed	

60	WD	Clarify text on HEL1	This appears to be a cut and paste. There are many HL's that should probably be HEL kz - fixed	Closed	
61	WD	Clarify text HES4 state on HEL1	Missing state name kz - fixed also fixed for HL1	Closed	
62	WD	Clarify text on HEL2:HES3	HES3 - Unlocked kz - fixed Volatile 1 S/B 2 kz - fixed	Closed	JC Change: Removed duplicated words.
63	WD	Clarify text on HEL2:HES5	Global: Cut and paste appears to have left a few HS's where they should be HES's kz - fixed Will fix throughout	Closed	
64	WD	Clarify text on HEL4a:HEL4	Need to add SET MAX FREEZE LOCK kz - fixed	Closed	
65	WD	Clarify text on HE4e:HL4	HEL4c:HEL4 kz - fixed accepted	Closed	Changed to HEL4a to abort the SET MAX ADDRESS EXT
66	SG 2b	Add new subclause which describes the power-on state	In the general description of the feature set, please insert a new subclause which describes the power-on state * no password is set * HPA is not locked * An HPA only exists if prior to the power cycle, there was a non-volatile SET MAX ADDRESS or SET MAX ADDRESS EXT executed with a size < 'Native Max' * State diagram states may only be: H0 or HS3 or HES3 not fixed (out of the scope) - must be included in the normative part of the document.	Open Closed	[10/26] Duplicate of #9, and 15. [2/20] Add text in the state description
67	SG 2d	Clarify volatile settings	In the general feature description, indicate that when SET MAX ADDRESS (volatile) and SET MAX ADDRESS EXT (volatile) are allowed, there is no limit to the number of times a volatile SET MAX ADDRESS or SET MAX ADDRESS EXT	Open Closed	[10/26] Duplicate of #11. [2/20] Added text in the 4.10.3

			<p>may be executed.</p> <p>not fixed (out of the scope) - must be included in the normative part of the document.</p>		
68	SG 2e	Clarify state diagram	<p>When the state diagram says SET MAX ADDRESS (Volatile) SET MAX ADDRESS (Non-Volatile) etc. It appears that this only applies if the setmax value is < 'NativeMax' Is this true ? If so, the state diagram, and supporting text should indicate such.</p> <p>Not fixed - see comment above.</p>	Open Closed	[10/26] Duplicate of #12. [2/20] Add text in the beginning of the state diagram description.
69	SG 2f	Clarify Hard Reset and SSP	<p>(Any state transition involving Hardware Reset) (This is a SATAIO issue, not a T13 issue): SATAIO software settings preservation says that the "The maximum LBA specified in SET ADDRESS MAX or SET ADDRESS MAX EXT" is to be preserved. But it says nothing about whether or not the Password or Lock state shall be preserved or not. Please consider bringing this to the SATAIO 'Digital' working group.</p> <p>Not fixed (out of scope) - owner must be assigned.</p>	Open Closed	[10/26] Jim indicates this item is not an issue because the password and lock state are not affected by HW reset.
70	SG 2g	Clarify IDENTIFY 85 bit 10 in the text	<p>The state diagrams do not indicate that any changes take place for (word 85, bit 10) in IDENTIFY DEVICE or IDENTIFY PACKET DEVICE. 1) Please indicate in the entry descriptions for states H0 or H1 that (word 85, bit 10) in IDENTIFY DEVICE or IDENTIFY PACKET DEVICE shall be cleared to zero when the HPA becomes 'open'. 2) Please indicate in the entry descriptions for states (HS1, HS2, HS3, and others) that (word 85, bit 10) in IDENTIFY DEVICE or IDENTIFY PACKET DEVICE shall be set to one when the HPA becomes 'set'</p>	Open Closed	[10/26] Duplicate of #32, 33, and 34.

			Fixed. (not yet)		
71	SG 2h	Clarify IDENTIFY 86 bit 8	<p>The state diagrams do not indicate that any changes take place for (word 86, bit 8) in IDENTIFY DEVICE or IDENTIFY PACKET DEVICE.</p> <p>Subclause 4.91 indicates when it should be set to one, but not when it is to be cleared</p> <p>1) Please indicate in the entry descriptions for states (H1, HS4, HS5, HS6,HES4, HES5,and HES6) that (word 86, bit 8) in IDENTIFY DEVICE or IDENTIFY PACKET DEVICE shall be set to one when the password is set</p> <p>2) Please indicate in the entry descriptions for states (H0, HS1, HS2, HS3, HES1, HES2, HES3) that (word 86, bit 8) in IDENTIFY DEVICE or IDENTIFY PACKET DEVICE shall be cleared to zero when there is no password</p> <p>Fixed. (not yet)</p>	Open Closed	[10/26] Duplicate of #32, 33, and 34.
72	SG 2i	Change reference to HDD to device	<p>state H0</p> <p>Please remove any references to 'disk drives' or HDD.</p> <p>This command set may be applicable to non-HDD devices as well, and I don't want a reader thinking that the feature set restricts against that usage.</p> <p>Fixed.</p>	Closed	
73	WD SG 3a	Clarify HS4a:HS1 Diagram	<p>WD S/B HS4:H1. This leads to the password being kept and the HPA being cleared. This follows the ATA7 way but leads to inconsistent behavior. See HL1b:HL1</p> <p>kz – fixed</p> <p>SG Transition HS4a:HS1 (in state diagram and text) (in response to a hard reset) a) currently says "... shall transition to HS1: HPA SET (Volatile) No password set I think it should say, instead: "... shall transition to H1: No HPA, Password Set state"</p> <p>kz – fixed</p>	WD: Open SG: Closed	[10/26] Curtis agreed to close this issue.

74	SG 4	Clarify HS4a:HS1 Diagram	Transition HS4a:HS1 (in state diagram and text) (in response to a hard reset) a) currently says "... shall transition to HS1: HPA SET (Volatile) No password set I think it should say, instead: "... shall transition to H1: No HPA, Password Set state" kz – fixed	Closed	
75	SG 5	Clarify HS6:H1 and HES6:H1 Diagram	Transition HES6:H1 Transition HS6:H1 currently says "... shall transition to H1: No HPA state I think it should say, instead: "... shall transition to H1: No HPA, Password Set state" Fixed	Closed	
76		Clarify the text for state transition from "command received" to "command completed"	Review all instances of command received and reword them.	Open Closed	[10/26] New item [2/20] Global replace of "command received" to "command completed" and "when the device receives" to "when the device receives."
77		Add text to define the meaning of each of the states.	Need the description of the meaning of state rather than the entry transition only.	Open Closed	[10/26] New item [2/20] Add text to the state description.

Discussion Notes On Dec. 14, 2006 T13 Meeting:

Item #08: [10/25] ~~Curtis~~ Joseph –

Note 1 should be in the glossary section of ACS. _

Note to the ACS Editor to add the following information to the ACS glossary section: "HPA is said to be *Open* or *Eliminated* when a SET MAX ADDRESS (EXT) is done at READ NATIVE MAX (EXT)"

Notes 2,3,4: already described in the text.

Joseph - Notes 5,6,7 go to the state description header. (Done)

Joseph - Note 8 belongs in the description text. (Done)

Item #09: [10/25] Joseph - Add to the HPA description. Joseph copy the whole HPA section to the document and show the addition text. (Done)

Item #11: [10/26] Joseph to add the statement in the Feature Set description 4.10.2 after the first paragraph. (Done)

Item #12: [10/26] Joseph to add a note on the first figure (Done)

~~Item #16: [10/26] Jim is to research this issue and come back with a suggestion by next meeting.~~

HS2: Change the HS2:H0 to HS2:HS2. Add a statement that the IDENTIFY HPA bit is cleared after this transition. On H0 state remove HS2:H0 entry. Specify this is a volatile on the HS2:H0 transition.

Apply the same change to the HES2 state. (Done)

~~Item #18: [10/26] Joseph to add the "volatile" onto the state diagram – HS3:H0. Jim will research the nonvolatile issue.~~

HS3: Split the transition HS3:H0 into two: The first transition is volatile, HS3:HS3 and clear the IDENTIFY HPA set bit. The second transition is non-volatile, HS3:H0, and clear the IDENTIFY HPA set bit. (Done)

Apply the same change to the HES3 state. (Done)

~~Item #22: [10/25] Jim – See #16 for Jim to research.~~

~~Item #26: [10/25] Jim – See #16 for Jim to research.~~

~~Item #27: [10/25] Jim - See #16 for Jim to research.~~

Item #76: [10/26] Joseph - Review all instances of command received and reword them. (Done)

Item #77: [10/26] Joseph - Need the description of the meaning of state rather than the entry transition only. (Done)