

RM PAP table maintenance
File: H_CRP_DHS_3019.xls
Author: S. Manganelli



Procedure Summary

Objectives

This procedure describes the steps needed to check and if necessary to change the value of the Attempt Counter Register or the value of the PAP Pointer Register.

This procedure might be used in order to re-establish the balance between the two RMs after an onboard reconfiguration. The Attempt Counter Register of the RM that carried out the reconfiguration should be reset to the same value as the one used by the RM currently in use. This ensures that the next time the alarm pattern occurs both RMs will request the same reconfiguration sequence.

Please note that dedicated procedures exist for resetting specific Attempt counters (H_CRP_DHS_ATT A/B) or selecting a different PAP set (H_CRP_DHS_PAP A/B).

Summary of Constraints

Attempt Counter and PAP Pointer registers are modified through the "TTR Management" function.

Default status of the function: "Stopped".

When the function is stopped, it does not accept any other telecommands than the:

- Start Function TC(8,1,109);
- Report Function Status TC(8,5,109).

Thus, if the function is stopped this procedure cannot be executed.

Notice that the "RMH Last Chance Table Mask Set/Clear Registers" contain a dedicated bit for each PAP. The Least Significant bit corresponds to the information related to PAP0 and so on. The Last Chance bit for the selected PAP is set automatically to zero when the Attempt counter is set to zero, while when the user changes the RM programming set all the bits are reset (for used PAPs).

Spacecraft Configuration

Start of Procedure

n/a

End of Procedure

n/a

Reference File(s)

Input Command Sequences

Output Command Sequences

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HRD3019A
 HRD3019E
 HRD3019F
 HRD3019G
 HRD3019H

Referenced Displays

ANDs	GRDs	SLDs
ZAZAI999		(None)
ZAZ4Z999		
ZAZAA999		

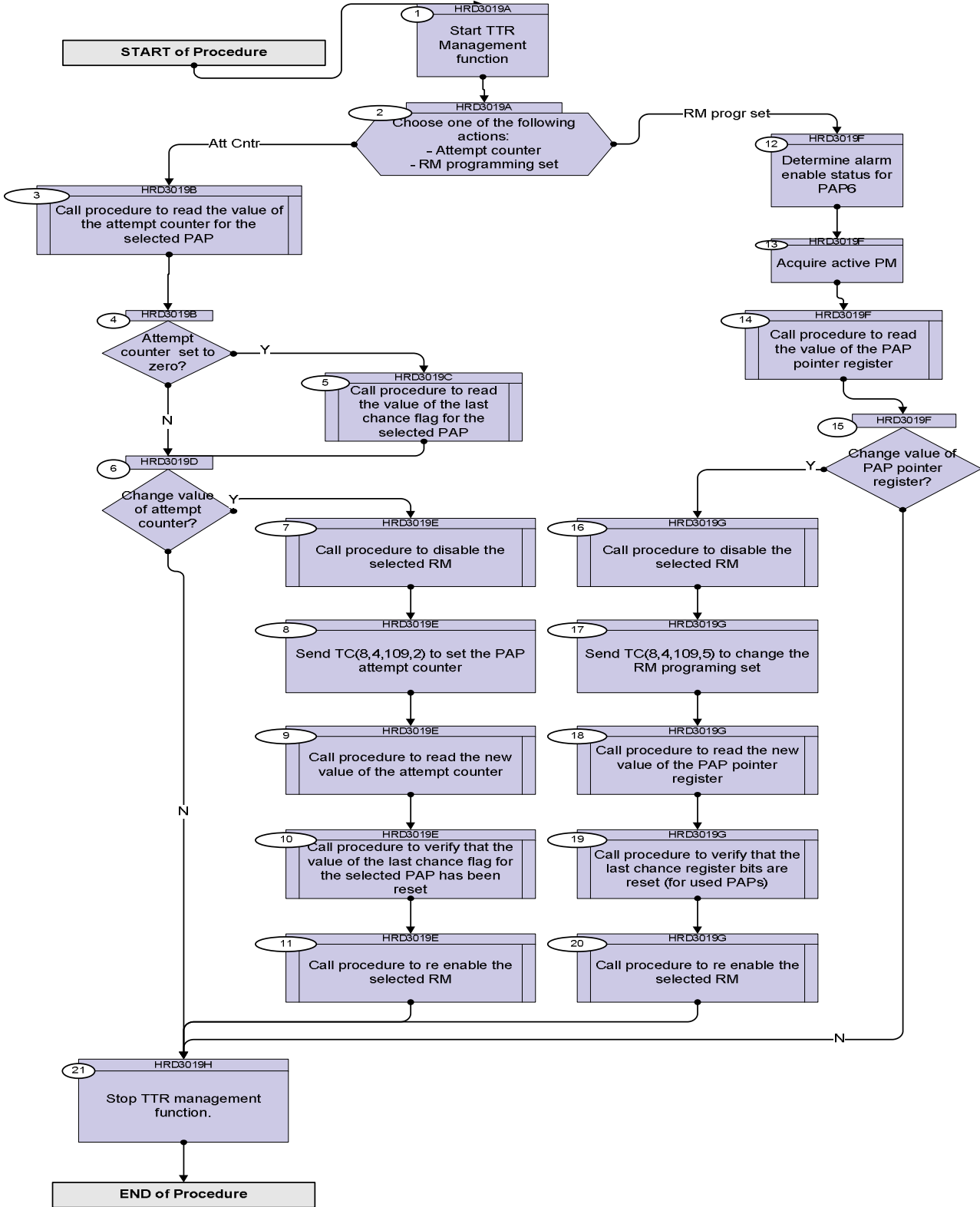
Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
09/01/08		1	Created	cmevi-hp	
15/02/08		2	TC flags updated.	cmevi-hp	
15/02/08	1	3	TC flags updated.	cmevi-hp	
14/11/08		4	Revised upon Industry inputs	S. Manganelli	
29/11/08		5	Added info sheet	S. Manganelli	
10/01/09		6	Updated following OBSW 3_8	S. Manganelli	
20/01/09	2	7	Removed direct step references, disable TTR function made a common exit step following TAS comments	S. Manganelli	
15/03/09		8	Fixed MOIS FP bug	S. Manganelli	
21/03/09	2.2	9	Revised following TAS-I inputs 3 march 09	S. Manganelli	
22/04/09	2.3	10	Added step to check the enable/disable status of PAP 6 alarms	S. Manganelli	

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Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
3		Call procedure to read the value of the attempt counter for the selected PAP		Next Step: 4
		In the called procedure, it is necessary to choose the CROME ID and the CROME Register Address (0x0700_5A80+4N, with 0 <= N <= 6).		
		Execute Procedure: H_FCP_DHS_3010 Read TTR CROME register Parameters: CROME_ID CromeId as req CROMEADD CromeAddr as req		
4		Attempt counter set to zero?		Next Step: N 6 Y 5
<p>TC Seq. Name :HRD3019C (Read Last Chance fla)</p> <p>TimeTag Type: Sub Schedule ID: □</p>				
5		Call procedure to read the value of the last chance flag for the selected PAP		Next Step: 6
		In the called procedure, it is necessary to choose the CROME ID and the CROME Register Address (0x0700_5A40).		
		Notice that the "RMH Last Chance Table Mask Set/Clear Registers" contain a dedicated bit for each PAP. The Least Significant bit corresponds to the information related to PAP0 and so on. The Last Chance bit for the selected PAP is set automatically to zero when the Attempt counter is set to zero.		
		Execute Procedure: H_FCP_DHS_3010 Read TTR CROME register Parameters: CROME_ID CromeId as req CROMEADD CromeAddr as req		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
<p><i>TC Seq. Name :HRD3019D (Dummy sequence)</i></p> <p><i>TimeTag Type:</i> <i>Sub Schedule ID:</i></p> <p><input type="checkbox"/></p>				
6		Change value of attempt counter?		Next Step: N 21 Y 7
<p><i>TC Seq. Name :HRD3019E (Change Attempt count)</i></p> <p><i>TimeTag Type: N</i> <i>Sub Schedule ID:</i></p> <p><input type="checkbox"/></p>				
7		Call procedure to disable the selected RM		Next Step: 8
		In the called procedure, choose "DISABLE" and then choose the RM according to the CROME ID previously selected in this procedure.		
		Execute Procedure: H_CRP_DHS_3011 Enable or disable Reconfiguration Module		
8		Send TC(8,4,109,2) to set the PAP attempt counter		Next Step: 9
		<p>In the TC(8,4,109,2) it is necessary to set the following parameters:</p> <ul style="list-style-type: none"> - RM ID (the one disabled in the previous step) 1 = RM A 2 = RM B - PAP number - Attempt counter 		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch															
		Execute Telecommand <p style="text-align: right;">SetPapAttCntr</p> Command Parameter(s) : <table style="margin-left: 40px;"> <tr> <td>RmId</td> <td>DH093170</td> <td>RMID</td> </tr> <tr> <td>PapNr</td> <td>DH094170</td> <td>PAP_NR</td> </tr> <tr> <td>PapAttCnt</td> <td>DH095170</td> <td>PAPATTCT</td> </tr> </table> TC Control Flags : <table style="margin-left: 40px;"> <tr> <td>GBM</td> <td>IL</td> <td>DSE</td> </tr> <tr> <td>--Y</td> <td>--</td> <td>---</td> </tr> </table> Subsch. ID : 10 Det. descr. : TEMPLATE Set PAP Attempt Counter TC(8,4,109,2)	RmId	DH093170	RMID	PapNr	DH094170	PAP_NR	PapAttCnt	DH095170	PAPATTCT	GBM	IL	DSE	--Y	--	---	DCT56170	
RmId	DH093170	RMID																	
PapNr	DH094170	PAP_NR																	
PapAttCnt	DH095170	PAPATTCT																	
GBM	IL	DSE																	
--Y	--	---																	
9		Call procedure to read the new value of the attempt counter In the called procedure, it is necessary to choose the CROME ID and the CROME Register Address as previously selected in this procedure.		Next Step: 10															
		Execute Procedure: H_FCP_DHS_3010 Read TTR CROME register Parameters: CROME_ID CromeId as req CROMEADD CromeAddr as req																	
10		Call procedure to verify that the value of the last chance flag for the selected PAP has been reset In the called procedure, it is necessary to choose the CROME ID and the CROME Register Address (0x0700_5A40).		Next Step: 11															
		Execute Procedure: H_FCP_DHS_3010 Read TTR CROME register Parameters: CROME_ID CromeId as req CROMEADD CromeAddr as req																	
11		Call procedure to re enable the selected RM In the called procedure, choose "ENABLE" and then choose the RM which was previously disabled in this procedure.		Next Step: 21															

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Procedure: H_CRP_DHS_3011 Enable or disable Reconfiguration Module		
<p>TC Seq. Name :HRD3019F (Read PAP Pointer)</p> <p>TimeTag Type: Sub Schedule ID:</p> <p>□</p>				
12		Determine alarm enable status for PAP6		Next Step: 13
12.1		Send TC(8,4,109,17) to read the Alarm Enable Set Register on CROME A		□
		Execute Telecommand CRMA_RMH_AlarmEnSetReg TC Control Flags : Subsch. ID : 10 Det. descr. : CROME A: Read RMH Alarm Enable Set Register	DCW1A159	
			GBM IL DSE --Y -- --	
12.2		Verify through TM(8,6,109,17) the CROME A alarm enable mask		□
		Verify Packet Reception TM 8-6-109-17 TTR Management - Crome Register Report Packet Details:	CromeRegRpt	
			APID: 16 Type: 8 Subtype: 6 PI1: 27921 PI2: 0	
		Verify Packet Telemetry (Pkt = CromeRegRpt)		
		Function_ID DE008170 = TTR_Manag		(None)
		Verify Packet Telemetry (Pkt = CromeRegRpt)		
		TtrManRptActId DE368170 = CromeRegRpt		(None)
		Verify Packet Telemetry (Pkt = CromeRegRpt)		
		CromeId DE285170 = Crome_A		(None)
		Verify Packet Telemetry (Pkt = CromeRegRpt)		
		CromeAddr DE329170 = 070058D4 <hex>		AND=ZAZ4Z999
		If PAP 6 triggering is disabled		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Packet Telemetry (Pkt = CromeRegRpt) CromeData DE367170	= 23FE0F <hex>	AND=ZAZ4Z999
		If PAP 6 triggering is enabled		
		Verify Packet Telemetry CromeData DE367170	= 23FE3F <hex>	AND=ZAZ4Z999
12.3		Send TC(8,4,109,17) to read the Alarm Enable Set Register on CROME B		<input type="checkbox"/>
		Execute Telecommand CRMB_RMH_AlarmEnSetReg TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : CROME B: Read RMH Alarm Enable Set Register	DCW38159	
12.4		Verify through TM(8,6,109,17) the CROME B alarm enable mask		<input type="checkbox"/>
		Verify Packet Reception TM 8-6-109-17 TTR Management - Crome Register Report Packet Details: APID: 16 Type: 8 Subtype: 6 PI1: 27921 PI2: 0	CromeRegRpt	
		Verify Packet Telemetry Function_ID DE008170	= TTR_Manag	(None)
		Verify Packet Telemetry TtrManRptActId DE368170	= CromeRegRpt	(None)
		Verify Packet Telemetry CromeId DE285170	= Crome_B	(None)
		Verify Packet Telemetry CromeAddr DE329170	= 070058D4 <hex>	AND=ZAZ4Z999
		If PAP 6 triggering is disabled		
		Verify Packet Telemetry CromeData DE367170	= 23FE0F <hex>	AND=ZAZ4Z999
		If PAP 6 triggering is enabled		
		Verify Packet Telemetry CromeData DE367170	= 23FE3F <hex>	AND=ZAZ4Z999

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
12.5		<i>If PAP6 triggering alarms are enabled on one or both RMs, disable them before proceeding. If they are disabled on both RMs, proceed to next step.</i>		<input type="checkbox"/>
		Execute Procedure: H_FCP_DHS_4009 Disable strap 2 / 3 alarms (PAP6) and check of strap 1 alarm.		
13		Acquire active PM		Next Step: 14
		Verify Telemetry Active_PM_Board DEDM1160		AND=ZAZAA999
14		<i>Call procedure to read the value of the PAP pointer register</i>		Next Step: 15
		In the called procedure, it is necessary to choose the CROME ID and the CROME Register Address (0x0700_5830).		
		Execute Procedure: H_FCP_DHS_3010 Read TTR CROME register Parameters: CROME_ID CromeId as req CROMEADD CromeAddr as req		
15		<i>Change value of PAP pointer register?</i>		Next Step: N 21 Y 16
TC Seq. Name :HRD3019G (Change PAP pointer) TimeTag Type: N Sub Schedule ID: Formal Parameter List : RmId RM_ID= PapAddr PAPADDR= <hex> CntTblAddr CNTTBLAD= <hex>				
16		<i>Call procedure to disable the selected RM</i>		Next Step: 17
		In the called procedure, choose "DISABLE" and then choose the RM according to the CROME ID previously selected in this procedure.		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Procedure: H_CRP_DHS_3011 Enable or disable Reconfiguration Module		
17		Send TC(8,4,109,5) to change the RM programing set		Next Step: 18
		In the TC(8,4,109,5) it is necessary to set the following parameters: - RM ID (the one disabled in the previous step) 1 = RM A 2 = RM B - PAP table address - Attempt counter table address		
		Execute Telecommand <div style="text-align: right;">ChangeRmPrgSet</div> Command Parameter(s) : <div style="display: flex; justify-content: space-between;"> <div>RmId</div> <div>DH093170</div> <div>RM_ID</div> </div> <div style="display: flex; justify-content: space-between;"> <div>PapAddr</div> <div>DH098170</div> <div>PAPADDR</div> </div> <div style="display: flex; justify-content: space-between;"> <div>CntTblAddr</div> <div>DH099170</div> <div>CNTTBLAD</div> </div> TC Control Flags : <div style="display: flex; justify-content: space-between;"> <div></div> <div>GBM IL DSE</div> <div></div> </div> <div style="display: flex; justify-content: space-between;"> <div></div> <div>--Y -- ---</div> <div></div> </div> Subsch. ID : 10 Det. descr. : TEMPLATE Change RM Programming Set TC(8,4,109,5)	DCT59170	
18		Call procedure to read the new value of the PAP pointer register		Next Step: 19
		In the called procedure, it is necessary to choose the CROME ID (according to the one previously selected in this procedure) and the CROME Register Address (0x0700_5830).		
		Execute Procedure: H_FCP_DHS_3010 Read TTR CROME register Parameters: CROME_ID CromeId as req CROMEADD CromeAddr as req		
19		Call procedure to verify that the last chance register bits are reset (for used PAPs)		Next Step: 20

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		In the called procedure, it is necessary to choose the CROME ID and the CROME Register Address (0x0700_5A40).		
		Notice that the "RMH Last Chance Table Mask Set/Clear Registers" contain a dedicated bit for each PAP. The Least Significant bit corresponds to the information related to PAP0 and so on. When the user changes the RM programming set all the Last Chance bits are reset (for used PAPs).		
		Execute Procedure: H_FCP_DHS_3010 Read TTR CROME register Parameters: CROME_ID CromeId as req CROMEADD CromeAddr as req		
20		Call procedure to re enable the selected RM		Next Step: 21
		In the called procedure, choose "ENABLE" and then choose the RM which was previously disabled in this procedure.		
		Execute Procedure: H_CRP_DHS_3011 Enable or disable Reconfiguration Module		
<p>TC Seq. Name :HRD3019H (Stop TTR function)</p> <p>TimeTag Type: Sub Schedule ID: <input type="checkbox"/></p>				
21		Stop TTR management function.		Next Step: END
		Verify Telemetry TtrSts DEL17170 = Running		AND=ZAZAI999
		If the TTR Management function is already stopped go to next step.		
		Execute Telecommand TC Control Flags : Subsch. ID : 10 Det. descr. : Stop Ttr Management TC(8,2,109)	StopTtrManag DCN07170 GBM IL DSE --Y -- --	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry TtrSts DEL17170	= Stopped	AND=ZAZAI999
End of Procedure				

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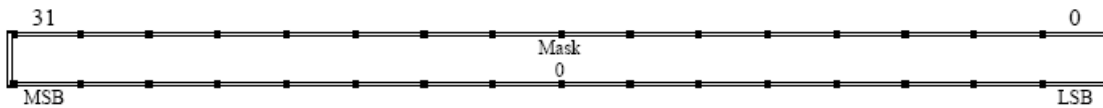


Info

Saab Ericsson Space AB

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RMH Last Chance Table Mask Clear Register [RMH_LCTMCLR] RSW
RMH Last Chance Table Mask Set Register [RMH_LCTMSET] RSW



Field	Value	Description
LCT Mask[\$]	0	Use PAP attempt table when selecting CCS.
	1	Use LCT when selecting CCS.

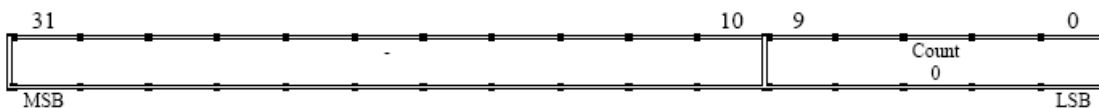
The index, \$, is the index of the matched PAP, $0 \leq \$ \leq 31$

The current value can be read from either register. Register bits are set by writing ones to the bits in the RMH Last Chance Table Mask Set Register and cleared by writing ones to the bits in the RMH Last Chance Table Mask Clear Register. Writing zeroes has no effect.

Note that RMH Status Register.LCT Enable must also be set in order to select a CCS from the LCT.

6.20.7.8.1 Attempt Count Registers

RMH Attempt Count Register \$ [RMH_ATCNT\$] RSW



Field	Description
Count	Index of the next attempt to use when matching PAP \$. This value is added to the index stored in the PAP record to determine which attempt to use. The attempt counter is increased after every successful, i.e. not discarded, reconfiguration request triggered by the PAP \$, wrapping around to 0 if the maximum value is reached. The counter is not increased if the Last or Restart flags are set in the attempt.