Update CDMU CPU RAM ground image from memory dump
File: H_FCP_OBS_1245.xls
Author: lstefanov-hp

Procedure Summary

Objectives

This Herschel OBSM nominal procedure is used to perform a CDMU
CPU RAM ground image update from memory dump of one or several
CDMU CPU RAM memory areas. The memory dump is commanded using
TC(6,5) and the memory locations content is received on ground in
TM(6,6) packets.

The procedure assumes that the command stack has already been
generated using the OBSM system and is ready for loading on the
Manual Stack. The command stack generation activity is not
covered by this procedure.

Summary of Constraints

CDMU in Operational Mode

The CDMU CPU RAM dump request may not cross the border between
Write Protected (WP) and Not Protected (NP) areas. If the border
is violated, the command is rejected.

Memory areas are dumped through TC(6,5); this TC will be delayed
when there is an ongoing:
- TC(6,2) Load Memory Using Absolute Addresses
- TC(6,5) Dump Memory Using Absolute Addresses
- TC(6,9) Check Memory Using Absolute Addresses
- TC(8,4,1,1) Copy Memory

Spacecraft Configuration

Start of Procedure

CDMU in Operational Mode

End of Procedure

Same as start, except:
- CDMU CPU RAM memory dump executed

Reference File(s)

Input Command Sequences

Output Command Sequences

OFCP1245

Referenced Displays

ANDs   GRDs   SLDs

Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
12/01/09		1	Created	lstefanov-hp	

Status   : Version 2 - Unchanged
Last Checkin: 29/01/09

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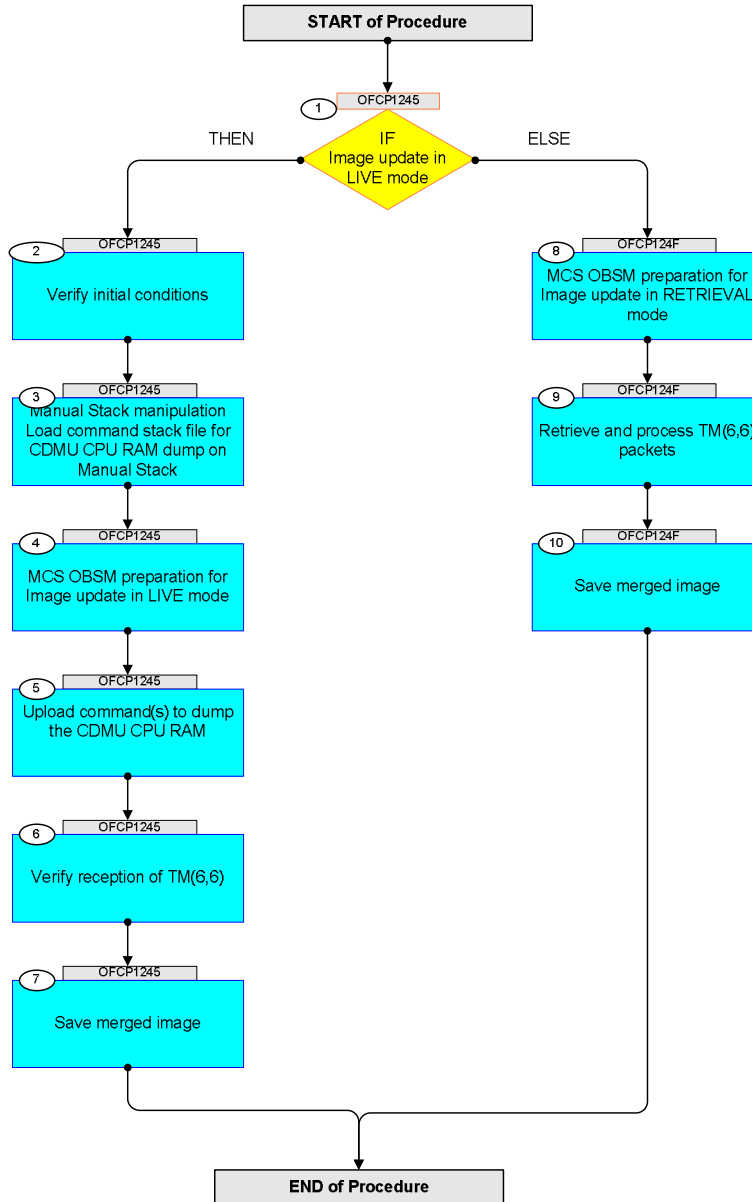| 29/01/09	2	2	1. 'Summary of Constraints' on cover page updated to include the constraint to separate WP and NP area dump 2. step 3.3 updated: added comments describing the CPU RAM allocation between Write Protecte and Not Protected areas and the address range for the OBS image dump from RAM	lstefanov-hp	

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Procedure Flowchart Overview

START of Procedure

1 OFCP1245

THEN   IF
Image update in   ELSE
LIVE mode

2 OFCP1245

Verify initial conditions

3 OFCP1245

Manual Stack manipulation
Load command stack file for
CDMU CPU RAM dump on
Manual Stack

4 OFCP1245

MCS OBSM preparation for
Image update in LIVE mode

5 OFCP1245

Upload command(s) to dump
the CDMU CPU RAM

6 OFCP1245

Verify reception of TM(6,6)

7 OFCP1245

Save merged image

8 OFCP124F

MCS OBSM preparation for
Image update in RETRIEVAL
mode

9 OFCP124F

Retrieve and process TM(6,6)
packets

10 OFCP124F

Save merged image

END of Procedure

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Beginning of Procedure			
	OFCP1245	*TC Seq. Name :*OFCP1245 (CdCPU RAM GI update) CDMU CPU RAM Gnd image update in LIVE mode *TimeTag Type: B* *Sub Schedule ID:*			
1		IF Image update in LIVE mode type: [If]		Next Step: THEN 2 ELSE 8	
2		Verify initial conditions		Next Step: 3	
		Check: - CDMU in Operational mode			
		CDMS SOE to confirm CDMU mode			
3		Manual Stack manipulation Load command stack file for CDMU CPU RAM dump on Manual Stack		Next Step: 4	
		NOTE: The current procedure assumes that the memory dump in Live mode is performed using commands with immediate execution.			
		Select the File -> **LoadStack** option from the main menu of the Manual Stack window			
3.1		IF CDMU PM A			
		Select file **CDMRMCPU_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss. machine** from directory /home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OB SM/CDMRMCPU as indicated by the OBSM engineer			
		IMPORTANT: XXXXYYYY = Image ID(X) and Version(Y) - depend on image used for stack generation YYYY_DDD hhmmss - depend on stack generation time machine - depends on the name of the machine used for stack generation			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		File name **examples**			
		- No model associated to the memory image:			
		CDMRMCPU_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
		- CT CDMRMCPU1, ID 0003, Version 001 associated to the memory image:			
		CDMRMCPU_DI_0002001_C_CDMRMCPU1_0003001_2007_337T093320.sun043			
3.2		ELSE CDMU PM B			
		Select file			
		CDMRMCPB_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine			
		from directory			
		/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMRMCPB			
		as indicated by the OBSM engineer			
		IMPORTANT:			
		XXXXYYY = Image ID(X) and Version(Y) - depend on image used for stack generation			
		YYYY_DDD hhmmss - depend on stack generation time			
		machine - depends on the name of the machine used for stack generation			
		File name **examples**			
		- No model associated to the memory image:			
		CDMRMCPB_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
		- CT CDMRMCPB1, ID 0003, Version 001 associated to the memory image:			
		CDMRMCPB_DI_0002001_C_CDMRMCPB1_0003001_2007_337T093320.sun043			
3.3		Check memory dump command stack loaded			
		Check that loaded stack contains one or several TCs **DC602180**			
		Note: For a **full dump** of the CDMU CPU RAM (**Memory ID = 02** included in the address): **Start Address = 0200.0000** hex **End Address = 023F.FFFF** hex			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Note: For a **dump** of the CDMU CPU RAM **OBS image** (**Memory ID = 02** included in the address): **Start Address** = 0200.0000 hex **End Address** = 020F.FFFF hex			
		IMPORTANT: The CDMU CPU RAM dump request may not cross the border between Write Protected (WP) and Not Protected (NP) areas. If the border is violated, the command is rejected. The allocation of CPU RAM between WP and NP memory is defined at link time. The BSW constant, WriteProtectedRamEndAddr_C, points to the first byte of the unprotected RAM. For CDMU **OBS v.3.8.0** **WriteProtectedRamEndAddr_C = 020C.B750 hex**			
		Display the Manual Stack in 'Full mode' and check that the **Memory ID** parameter in the DC602180 command(s) is set to **02 hex**: **Memory ID = 02 hex** **Note:** The Memory ID of the target memory device is stored in the MSB of the 16-bit long Mem ID TC parameter. The LSB of the same parameter carries the most significant 8 bits of the Start Address.			

		Execute Telecommand
		
		                      DumpMem_AbsAddr
		
		Command Parameter(s) :
		           Memory_ID DH003180
		          Start_Address DH004180
		               N DH105180
		
		TC Control Flags :
		                    GBM IL DSE
		                    --Y -- ---
		
		Subsch. ID : 10
		Det. descr. : Dump Memory Using Absolute Addresses
		This Telecommand will not be included in the export
			DC602180
			
			02xx **<hex>**
			<**hex>** (Def)
			<**hex>** (Def)
				TC	

4		MCS OBSM preparation for Image update in LIVE mode		Next Step: 5	
		Note: It is assumed that the OBSM application is already running and the OBSM Desktop is displayed on the MCS client. Starting the OBSM application is not covered by the current procedure.			
4.1		Select 'Image UPDATE' from the menu			
		Select the **Image** menu of the *OBSM Desktop*. From the Image menu, select **Update**. The 'Image Catalog' window opens.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
4.2		Select image to be updated			
4.2.1		IF CDMU PM A			
		Select the image to be updated for the memory device **CDMRMCPU.** The 'Image UPDATE' window opens.			
4.2.2		ELSE CDMU PM B			
		Select the image to be updated for the memory device **CDMRMCPB.** The 'Image UPDATE' window opens.			
4.3		Start dump TM processing			
		In **LIVE** mode, processing of incoming real-time telemetry starts automatically after the image selection.			
5		Upload command(s) to dump the CDMU CPU RAM		Next Step: 6	
		Uplink the **DC602180** memory dump command(s) with **ARM-GO**			
		After successful execution of the command, one or several TM(6,6) packets must be received on ground.			
6		Verify reception of TM(6,6)		Next Step: 7	
		Note: One or several TM(6,6) packets will be received for the memory dump command(s) uplinked.			
		Verify Packet Reception Memory Dump - Absolute Addresses - SAU 8 Packet Mnemonic : MemDmpAbsAdd APID : 16 Type : 6 Subtype : 6 PI1 : PI2 :			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
6.1		Check OBSM dump packet processing			
		Check that the OBSM is processing the incoming memory dump packets.			
7		Save merged image		Next Step: END	
		Save merged image with **new ID**.			
		End of Sequence			
OFCP124F		*TC Seq. Name :*OFCP124F (CdCPU RAM GI updateF) CDMU CPU RAM Gnd image update in Retrieval mode *TimeTag Type:* *Sub Schedule ID:*			
8		MCS OBSM preparation for Image update in RETRIEVAL mode		Next Step: 9	
		Note: It is assumed that the OBSM application is already running and the OBSM Desktop is displayed on the MCS client. Starting the OBSM application is not covered by the current procedure.			
8.1		Select 'Image UPDATE' from the menu			
		Select the **Image** menu of the *OBSM Desktop*. From the Image menu, select **Update**. The 'Image Catalog' window opens.			
8.2		Select image to be updated			
8.2.1		IF CDMU PM A			
		Select the image to be updated for the memory device **CDMRMCPU.** The 'Image UPDATE' window opens.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
8.2.2		ELSE CDMU PM B			
		Select the image to be updated for the memory device **CDMRMCPB.** The 'Image UPDATE' window opens.			
8.3		Start dump TM packets processing			
		Set **retrieval start** and **stop time** and start retrieval of TM packets using the **PLAY buttons.**			
9		Retrieve and process TM(6,6) packets		Next Step: 10	
		Use the **STEP** button to retrieve and process the TM(6,6) packets, packet by packet and starting from the time shown in the packet time field.			
		OR			
		Use the **PLAY** button to retrieve and process the TM(6,6) packets in automated mode. Pressing the PLAY button, the display will start to retrieve and process packets, starting from the time shown in the packet time field. This processing will stop automatically when a packet is received which creation time is greater than the one contained in the end time field.			
10		Save merged image		Next Step: END	
		Save merged image with **new ID**.			
		End of Sequence			
		End of Procedure			