Update PACS SPU DRAM ground image via memory dump
File: H_FCP_OBS_4245.xls
Author: lstefanov-hp

Procedure Summary

Objectives

This Herschel OBSM nominal procedure is used to perform a PACS SPU DRAM ground image update from memory dump of one or several PACS SPU DRAM memory areas. It is used for both SPU SWL and SPU LWL subsystems.
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
- PACS instrument in INIT mode (DPU ASW running)
- SPU ON
- DPU-SPU connection established

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
- PACS instrument in INIT mode (DPU ASW running)
- SPU ON
- DPU-SPU connection established

End of Procedure

Same as start

Reference File(s)

Input Command Sequences

Output Command Sequences

OFCP424V
OFCP424X

Referenced Displays

ANDs **GRDs** **SLDs**

Configuration Control Information

Status : Version 1 - Unchanged
Last Checkin: 04/09/08

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DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
04/09/08	2	1	Created	lstefanov-hp	

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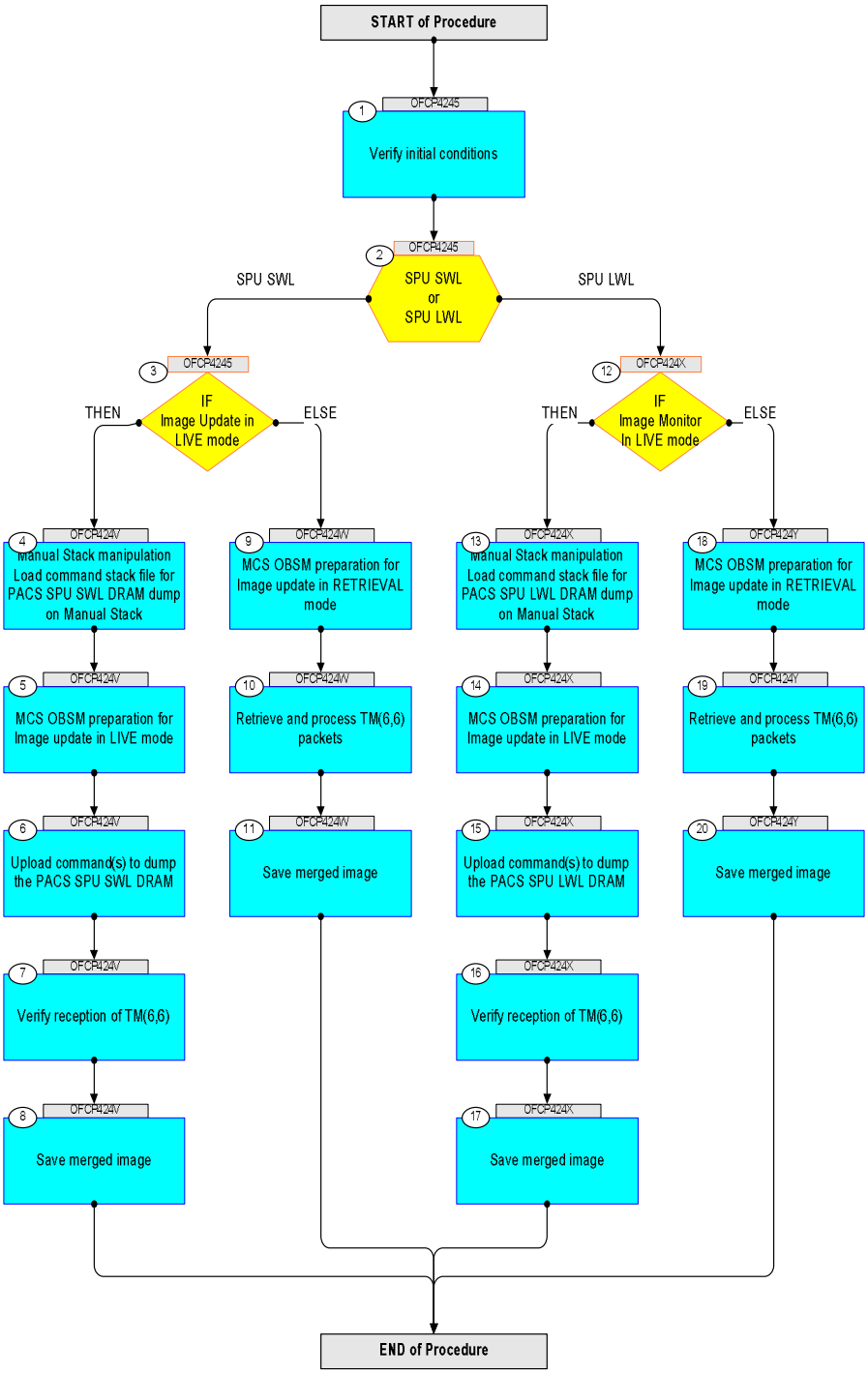
Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Beginning of Procedure			
	OFCP4245	*TC Seq. Name :* OFCP4245 ( ) PACS SPU DRAM ground image update *TimeTag Type: B* *Sub Schedule ID:*			
1		Verify initial conditions		Next Step: 2	
		Check: - PACS instrument in **INIT mode** (DPU ASW running) - SPU ON - DPU-SPU connection established			
		Instrument SOE to confirm PACS instrument mode and SPU status.			
2		SPU SWL or SPU LWL type: [Switch]		Next Step: SPU SWL 3 SPU LWL 12	
3		IF Image Update in LIVE mode type: [If]		Next Step: THEN 4 ELSE 9	
		End of Sequence			
	OFCP424V	*TC Seq. Name :* OFCP424V ( ) PACS SPU SWL DRAM image update in Live mode *TimeTag Type: B* *Sub Schedule ID:*			
4		Manual Stack manipulation Load command stack file for PACS SPU SWL DRAM dump on Manual Stack		Next Step: 5	
		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			
4.1		IF PACS Nominal			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Select file **PASPRDSW_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine** from directory /home/pmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/PASPRDSW 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			
		File name **examples** - No model associated to the memory image: PASPRDSW_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043 - CT PASPRDSW1, ID 0003, Version 001 associated to the memory image: PASPRDSW_DI_0002001_C_PASPRDSW1_0003001_2007_337T093320.sun043			
4.2		ELSE PACS Redundant			
		Select file **PASRDSWR_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine** from directory /home/pmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/PASRDSWR 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			
		File name **examples** - No model associated to the memory image: PASRDSWR_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043 - CT PASRDSWR1, ID 0003, Version 001 associated to the memory image: PASRDSWR_DI_0002001_C_PASRDSWR1_0003001_2007_337T093320.sun043			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
4.3		Check command stack loaded			
		Check that loaded stack contains one or several TCs **PC028380**			
		Display the Manual Stack in 'Full mode' and check that the **Memory ID** parameter in the PC028380 command(s) is set to **51 hex**: **Memory ID = 51 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 **DPU_MEMORY_DUMP** *Command Parameter(s) :* **DPU_MEMORY_BLOCK_ID PP009380** **DPU_MEMORY_ADDR PP003380** **DPU_DATA_LENGTH PP008380** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 90* Det. descr. : DUMP OF A DPU MEMORY AREA This Telecommand will not be included in the export	**PC028380** **51xx hex** **<hex>** (Def) **<dec>** (Def)	**TC**	
5		MCS OBSM preparation for Image update in LIVE mode		Next Step: 6	
		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.			
5.1		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.			
5.2		Select image to be updated			
5.2.1		IF PACS Nominal			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Select the image to be updated for the memory device **PASPRDSW.** The 'Image UPDATE' window opens.			
5.2.2		ELSE PACS Redundant			
		Select the image to be updated for the memory device **PASRDSWR.** The 'Image UPDATE' window opens.			
5.3		Start dump TM processing			
		In **LIVE** mode, processing of incoming real-time telemetry starts automatically after the image selection.			
6		Upload command(s) to dump the PACS SPU SWL DRAM		Next Step: 7	
		Uplink the **PC028380** memory dump command(s) with **ARM-GO**			
		For each command, one or more TM(6,6) packets must be received on ground.			
7		Verify reception of TM(6,6)		Next Step: 8	
		Note: One or more TM(6,6) packets will be received for each memory dump command uplinked.			
7.1		IF PACS Prime			
		Verify Packet Reception MEMORY_DUMP Packet Mnemonic : MEMORY_DUMP APID : 1152 Type : 6 Subtype : 6 PI1 : PI2 :			
7.2		ELSE PACS Redundant			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Verify Packet Reception MEMORY_DUMP Packet Mnemonic : MEMORY_DUMP APID : 1153 Type : 6 Subtype : 6 PI1 : PI2 :			
7.3		Check OBSM dump packet processing			
		Check that the OBSM is processing the incoming memory dump packets.			
8		Save merged image		Next Step: END	
		Save merged image with **new ID**.			
		End of Sequence			
	OFCP424W	*TC Seq. Name :* OFCP424W ( ) PACS SPU SWL DRAM image update in Retrieval mode *TimeTag Type:* *Sub Schedule ID:* □			
9		MCS OBSM preparation for Image update in RETRIEVAL mode		Next Step: 10	
		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.			
9.1		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.			
9.2		Select image to be updated			
9.2.1		IF PACS Nominal			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Select the image to be updated for the memory device **PASPRDSW.** The 'Image UPDATE' window opens.			
9.2.2		ELSE PACS Redundant			
		Select the image to be updated for the memory device **PASRDSWR.** The 'Image UPDATE' window opens.			
9.3		Start dump TM packets processing			
		Set retrieval start time and start retrieval of TM packets using the PLAY buttons.			
10		Retrieve and process TM(6,6) packets		Next Step: 11	
		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.			
11		Save merged image		Next Step: END	
		Save merged image with **new ID**.			
		End of Sequence			
	OFCP424X	*TC Seq. Name :* OFCP424X ( ) PACS SPU LWL DRAM image update in Live mode *TimeTag Type: B* *Sub Schedule ID:* □			
12		IF Image Monitor In LIVE mode type: [If]		Next Step: THEN 13 ELSE 18	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
13		Manual Stack manipulation Load command stack file for PACS SPU LWL DRAM dump on Manual Stack		Next Step: 14	
		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			
13.1		IF PACS Nominal			
		Select file **PASPRDLW_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine** from directory /home/pmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/PASPRDLW 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			
		File name **examples** - No model associated to the memory image: PASPRDLW_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043 - CT PASPRDLW1, ID 0003, Version 001 associated to the memory image: PASPRDLW_DI_0002001_C_PASPRDLW1_0003001_2007_337T093320.sun043			
13.2		ELSE PACS Redundant			
		Select file **PASRDLWR_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine** from directory /home/pmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/PASRDLWR as indicated by the OBSM engineer			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		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			
		File name **examples** - No model associated to the memory image: PASRDLWR_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043 - CT PASRDLWR1, ID 0003, Version 001 associated to the memory image: PASRDLWR_DI_0002001_C_PASRDLWR1_0003001_2007_337T093320.sun043			
13.3		Check command stack loaded			
		Check that loaded stack contains one or several TCs **PC028380**			
		Display the Manual Stack in 'Full mode' and check that the **Memory ID** parameter in the PC028380 command(s) is set to **71 hex**: **Memory ID = 71 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 **DPU_MEMORY_DUMP** *Command Parameter(s) :* **DPU_MEMORY_BLOCK_ID** **PP009380** **DPU_MEMORY_ADDR** **PP003380** **DPU_DATA_LENGTH** **PP008380** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 90* Det. descr. : DUMP OF A DPU MEMORY AREA This Telecommand will not be included in the export	**PC028380** **71xx** **<hex>** (Def) **<dec>** (Def)	**TC**	
14		MCS OBSM preparation for Image update in LIVE mode		Next Step: 15	
		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.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
14.1		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.			
14.2		Select image to be updated			
14.2.1		IF PACS Nominal			
		Select the image to be updated for the memory device **PASPRDLW.** The 'Image UPDATE' window opens.			
14.2.2		ELSE PACS Redundant			
		Select the image to be updated for the memory device **PASRDLWR.** The 'Image UPDATE' window opens.			
14.3		Start dump TM processing			
		In **LIVE** mode, processing of incoming real-time telemetry starts automatically after the image selection.			
15		Upload command(s) to dump the PACS SPU LWL DRAM		Next Step: 16	
		Uplink the **PC028380** memory dump command(s) with **ARM-GO**			
		For each command, one or more TM(6,6) packets must be received on ground.			
16		Verify reception of TM(6,6)		Next Step: 17	
		Note: One or more TM(6,6) packets will be received for each memory dump command uplinked.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
16.1		IF PACS Prime			
		Verify Packet Reception MEMORY_DUMP Packet Mnemonic : MEMORY_DUMP APID : 1152 Type : 6 Subtype : 6 PI1 : PI2 :			
16.2		ELSE PACS Redundant			
		Verify Packet Reception MEMORY_DUMP Packet Mnemonic : MEMORY_DUMP APID : 1153 Type : 6 Subtype : 6 PI1 : PI2 :			
16.3		Check OBSM dump packet processing			
		Check that the OBSM is processing the incoming memory dump packets.			
17		Save merged image		Next Step: END	
		Save merged image with **new ID**.			
		End of Sequence			
	OFCP424Y	*TC Seq. Name :* OFCP424Y ( ) PACS SPU LWL DRAM image update in Retrieval mode *TimeTag Type:* *Sub Schedule ID:* □			
18		MCS OBSM preparation for Image update in RETRIEVAL mode		Next Step: 19	
		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.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
18.1		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.			
18.2		Select image to be updated			
18.2.1		IF PACS Nominal			
		Select the image to be updated for the memory device **PASPRDLW.** The 'Image UPDATE' window opens.			
18.2.2		ELSE PACS Redundant			
		Select the image to be updated for the memory device **PASRDLWR.** The 'Image UPDATE' window opens.			
18.3		Start dump TM packets processing			
		Set retrieval start time and start retrieval of TM packets using the PLAY buttons.			
19		Retrieve and process TM(6,6) packets		Next Step: 20	
		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.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
20		Save merged image		Next Step: END	
		Save merged image with **new ID**.			
		End of Sequence			
		End of Procedure			