

Update CDMU PM EEPROM ground image from memory dump  
 File: H\_FCP\_OBS\_1243.xls  
 Author: lstefanov-hp



## Procedure Summary

### Objectives

This Herschel OBSM nominal procedure is used to perform an ACC PM EEPROM ground image update from memory dump. The procedure covers both ACC PM EEPROM1 and EEPROM2. 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  
 - ACC in Operational Mode

Execution of service 6 TCs 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  
 - ACC in Operational Mode

#### End of Procedure

Same as start except:  
 - ACC PM EEPROM1 and/or EEPROM2 memory dump executed

### Reference File(s)

#### Input Command Sequences

#### Output Command Sequences

OFCP124M  
 OFCP124O

### Referenced Displays

ANDs      GRDs      SLDs

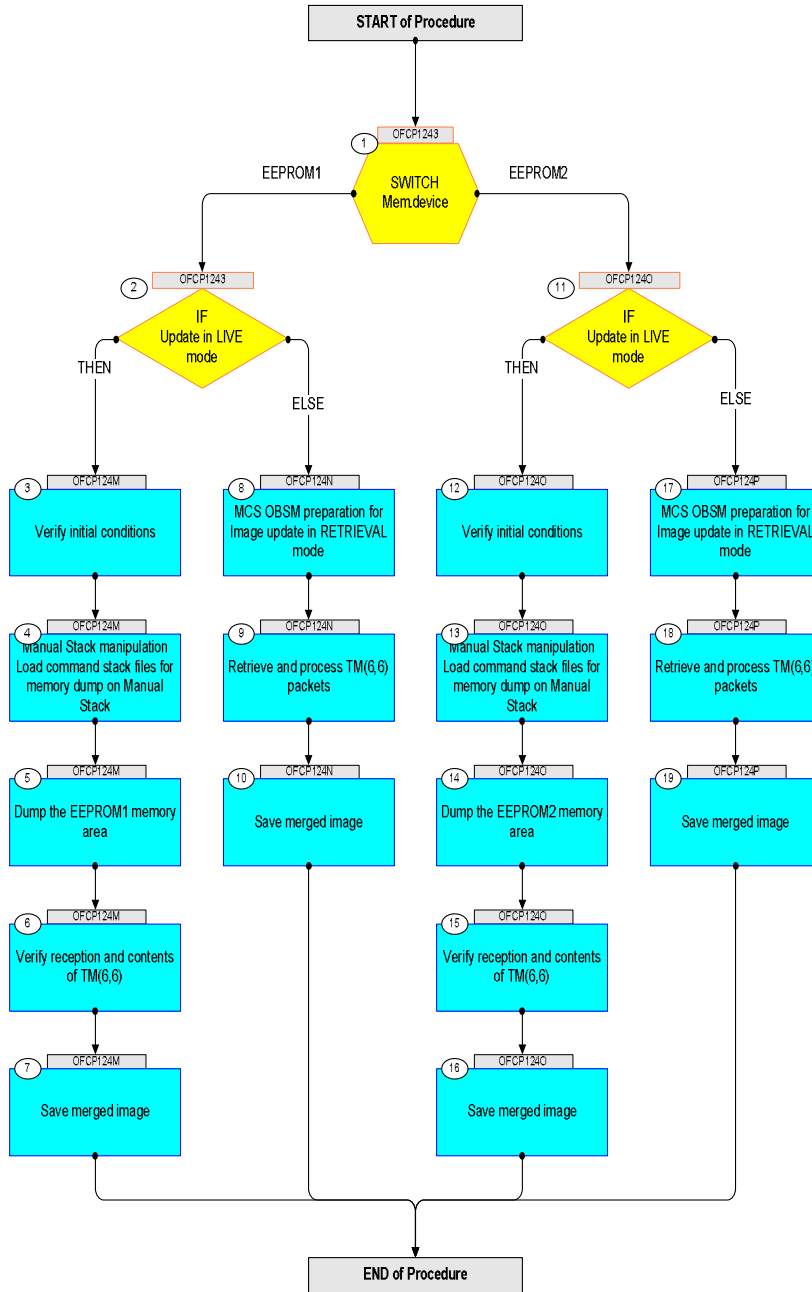
### Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
21/04/09	2.3	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
<b>Beginning of Procedure</b>					
OFCP1243		TC Seq. Name :OFCP1243 ( CDMU EEPROM GI upd ) CDMU PM EEPROM Gnd image update  TimeTag Type: Sub Schedule ID:  <input type="checkbox"/>			
1		SWITCH Mem.device  type: [Switch]		Next Step: EEPROM1 2 EEPROM2 11	
2		IF Update in LIVE mode  type: [If]		Next Step: THEN 3 ELSE 8	
<b>End of Sequence</b>					
OFCP124M		TC Seq. Name :OFCP124M ( CDMU EEPROM1 GI updL ) CDMU PM EEPROM1 Gnd image update in LIVE mode  TimeTag Type: B Sub Schedule ID:  <input type="checkbox"/>			
3		Verify initial conditions		Next Step: 4	
		Check: - CDMU in Operational Mode			
		CDMS SOE to confirm CDMU mode			
4		Manual Stack manipulation Load command stack files for memory dump on Manual Stack		Next Step: 5	
4.1		Load memory dump command stack			
		Select the File -> <b>LoadStack</b> option from the main menu of the Manual Stack window			
4.1.1		IF CDMU PM A			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		<p>Select file</p> <p><b>CDMEE1PG_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine</b></p> <p>from directory</p> <p><a href="#">/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE1PG</a></p> <p>as indicated by the OBSM engineer</p>			
		<p>IMPORTANT:</p> <p><b>XXXXYYY</b> = Image ID(X) and Version(Y) - depend on image used for stack generation</p> <p><b>YYYY_DDD hhmmss</b> - depend on stack generation time</p> <p><b>machine</b> - depends on the name of the machine used for stack generation</p>			
		<p><b>Note:</b></p> <p>The file name pattern above assumes that NO model was associated with the image used for command stack generation.</p> <p>If the memory image used has a model associated, than the fields <b>N_NoModel_NoModel</b> will change to reflect the CT name, ID and Version of the used Configuration Table.</p>			
		<p>File name <b>example:</b></p> <p>- No model associated to the memory image:</p> <p>CDMEE1PG_DI_0002001_N_NoModel_NoModel_2008_133T123300.sun045</p> <p>- CT CDMEE1PG1, ID 0003, Version 001 associated to the memory image:</p> <p>CDMEE1PG_DI_0002001_C_CDMEE1PG1_0003001_2008_148T093320.sun045</p>			
4.1.2		<p>ELSE</p> <p>CDMU PM B</p>			
		<p>Select file</p> <p><b>CDMEE1PB_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine</b></p> <p>from directory</p> <p><a href="#">/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE1PB</a></p> <p>as indicated by the OBSM engineer</p>			
		<p>IMPORTANT:</p> <p><b>XXXXYYY</b> = Image ID(X) and Version(Y) - depend on image used for stack generation</p> <p><b>YYYY_DDD hhmmss</b> - depend on stack generation time</p> <p><b>machine</b> - depends on the name of the machine used for stack generation</p>			

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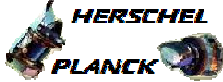


Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment															
		<p><b>Note:</b>            The file name pattern above assumes that NO model was associated with the image used for command stack generation.</p> <p>If the memory image used has a model associated, than the fields <b>N_NoModel_NoModel</b> will change to reflect the CT name, ID and Version of the used Configuration Table.</p>																		
		<p>File name <b>example:</b></p> <p>- No model associated to the memory image:            CDMEE1PB_DI_0002001_N_NoModel_NoModel_2008_133T123300.sun045</p> <p>- CT CDMEE1PB1, ID 0003, Version 001 associated to the memory image:            CDMEE1PB_DI_0002001_C_CDMEE1PB1_0003001_2008_148T093320.sun045</p>																		
4.2		Check memory dump command stack loaded																		
		<p>For a <b>full</b> CDMU PM EEPROM1 ('Imagel') <b>dump</b> (Memory ID = 008 included in the address):</p> <p><b>Start Address = 0080.0000 hex</b>  <b>End Address = 008F.FFFF hex</b>  <b>Length = 100000 hex</b></p>																		
		<p><b>Note:</b>            For a full dump of CDMU EEPROM1, the stack will contain 17 TCs DC602180, covering the address range <b>0080.0000 hex to 008F.FFFF hex</b></p>																		
		Check that loaded stack contains one or several TCs <b>DC602180</b> .																		
		<p>Display the Manual Stack in 'Full mode' and check that the <b>Memory ID</b> parameter in the DC602180 command(s) is set to <b>008 hex</b>:</p> <p><b>Memory ID = 008 hex</b></p> <p><b>Note:</b>            The Memory ID of the target memory device is stored in the most significant 12 bits of the 16-bit long Mem ID TC parameter.            The least significant 4 bits of the same parameter carry the most significant 4 bits of the Start Address.</p>																		
		<p>Execute Telecommand</p> <p style="text-align: right;"><b>DumpMem_AbsAddr</b></p> <p><b>DC602180</b></p> <p>Command Parameter(s) :</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">Memory_ID</td> <td style="text-align: right;">DH003180</td> <td style="text-align: left;">008x &lt;hex&gt;</td> </tr> <tr> <td style="text-align: right;">Start_Address</td> <td style="text-align: right;">DH004180</td> <td style="text-align: left;">&lt;hex&gt; (Def)</td> </tr> <tr> <td style="text-align: right;">N</td> <td style="text-align: right;">DH105180</td> <td style="text-align: left;">&lt;hex&gt; (Def)</td> </tr> </table> <p>TC Control Flags :</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">GBM</td> <td style="text-align: right;">IL</td> <td style="text-align: right;">DSE</td> </tr> <tr> <td style="text-align: right;">--Y</td> <td style="text-align: right;">--</td> <td style="text-align: right;">---</td> </tr> </table> <p>Subsch. ID : 10            Det. descr. : Dump Memory Using Absolute Addresses            This Telecommand will not be included in the export</p>	Memory_ID	DH003180	008x <hex>	Start_Address	DH004180	<hex> (Def)	N	DH105180	<hex> (Def)	GBM	IL	DSE	--Y	--	---		TC	
Memory_ID	DH003180	008x <hex>																		
Start_Address	DH004180	<hex> (Def)																		
N	DH105180	<hex> (Def)																		
GBM	IL	DSE																		
--Y	--	---																		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
5		Dump the EEPROM1 memory area		Next Step: 6	
5.1		MCS OBSM preparation for Image update in LIVE mode			
		<b>Note:</b> 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.			
5.1.1		Select 'Image UPDATE' from the menu			
		Select the <b>Image</b> menu of the <b>OBSM Desktop</b> .  From the Image menu, select <b>Update</b> .  The 'Image Catalog' window opens.			
5.1.2		Select image to be updated			
5.1.2.1		IF CDMU PM A			
		Select the image to be updated for the memory device <b>CDMEE1PG</b> .  The 'Image UPDATE' window opens.			
5.1.2.2		ELSE CDMU PM B			
		Select the image to be updated for the memory device <b>CDMEE1PB</b> .  The 'Image UPDATE' window opens.			
5.1.3		Start dump TM processing			
		In <b>LIVE</b> mode, processing of incoming real-time telemetry starts automatically after the image selection.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
5.2		Command memory dump			
		<b>Uplink TCs DC602180 with ARM-GO</b>			
		For each command, one or several TM(6,6) packets will be received on ground.			
6		Verify reception and contents of TM(6,6)		Next Step: 7	
		<b>Note:</b> One or several TM(6,6) packets will be received for each memory dump command uplinked.			
		Verify Packet Reception  Memory Dump - Absolute Addresses - SAU 8 Packet Mnemonic : MemDmpAbsAdd APID : 16 Type : 6 Subtype : 6 PI1 : PI2 :			
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	
		WAIT for execution completion of the last dump command.			
		Save merged image with <b>new ID</b> .			
End of Sequence					
<b>OFCP124N</b> TC Seq. Name : OFCP124N ( CDMU EEPROM1 GI updR ) CDMU PM EEPROM1 Gnd image update in Retrieval mode  TimeTag Type: Sub Schedule ID:  <input type="checkbox"/>					
8		MCS OBSM preparation for Image update in RETRIEVAL mode		Next Step: 9	
		<b>Note:</b> 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
8.1		Select 'Image UPDATE' from the menu			
		Select the <b>Image</b> menu of the <i>OBSM Desktop</i> .  From the Image menu, select <b>Update</b> .  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 <b>CDMEE1PG</b> .  The 'Image UPDATE' window opens.			
8.2.1.1		ELSE CDMU PM B			
		Select the image to be updated for the memory device <b>CDMEE1PB</b> .  The 'Image UPDATE' window opens.			
8.3		Start dump TM packets processing			
		Set <b>retrieval start</b> and <b>stop time</b> and start retrieval of TM packets using the <b>PLAY</b> buttons.			
9		Retrieve and process TM(6,6) packets		Next Step: 10	
		Use the <b>STEP</b> 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 <b>PLAY</b> 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
9.1		Check contents of memory dump packets			
		Verify that there are <b>NO OBSM reported differences</b> between the memory dump data and the ground image used for monitoring.			
		<b>IF</b> there are <b>differences</b> reported by OBSM between the dump data and the ground image, <b>the merged image shall be saved</b> for offline analysis.			
10		Save merged image		Next Step: END	
		WAIT for retrieval completion of the last dump packet.			
		Save merged image with <b>new ID</b> .			
End of Sequence					
<b>OFCP1240</b> TC Seq. Name :OFCP1240 ( CDMU EEPROM2 GI updL ) CDMU PM EEPROM2 Gnd image update in LIVE mode  TimeTag Type: B Sub Schedule ID:  <input type="checkbox"/>					
11		IF Update in LIVE mode  type: [If]		Next Step: THEN 12 ELSE 17	
12		Verify initial conditions		Next Step: 13	
		Check: - CDMU in Operational Mode			
		CDMS SOE to confirm CDMU mode			
13		Manual Stack manipulation Load command stack files for memory dump on Manual Stack		Next Step: 14	
13.1		Load memory dump command stack			
		Select the File -> <b>LoadStack</b> option from the main menu of the Manual Stack window			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
13.1.1		IF CDMU PM A			
		Select file  <b>CDMEE2PG_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine</b>  from directory  <a href="#">/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE2PG</a>  as indicated by the OBSM engineer			
		IMPORTANT:  <b>XXXXYYY</b> = Image ID(X) and Version(Y) - depend on image used for stack generation  <b>YYYY_DDD hhmmss</b> - depend on stack generation time  <b>machine</b> - depends on the name of the machine used for stack generation			
		<b>Note:</b> The file name pattern above assumes that NO model was associated with the image used for command stack generation.  If the memory image used has a model associated, than the fields <b>N_NoModel_NoModel</b> will change to reflect the CT name, ID and Version of the used Configuration Table.			
		File name <b>example:</b>  - No model associated to the memory image:  CDMEE2PG_DI_0002001_N_NoModel_NoModel_2008_133T123300.sun045  - CT CDMEE2PG1, ID 0003, Version 001 associated to the memory image:  CDMEE2PG_DI_0002001_C_CDMEE2PG1_0003001_2008_148T093320.sun045			
13.1.2		ELSE CDMU PM B			
		Select file  <b>CDMEE2PB_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine</b>  from directory  <a href="#">/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE2PB</a>  as indicated by the OBSM engineer			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		<p><b>IMPORTANT:</b></p> <p><b>XXXXYYYY</b> = Image ID(X) and Version(Y) - depend on image used for stack generation</p> <p><b>YYYY_DDD hhmmss</b> - depend on stack generation time</p> <p><b>machine</b> - depends on the name of the machine used for stack generation</p>			
		<p><b>Note:</b></p> <p>The file name pattern above assumes that NO model was associated with the image used for command stack generation.</p> <p>If the memory image used has a model associated, than the fields <b>N_NoModel_NoModel</b> will change to reflect the CT name, ID and Version of the used Configuration Table.</p>			
		<p>File name <b>example:</b></p> <p>- No model associated to the memory image:</p> <p>CDMEE2PB_DI_0002001_N_NoModel_NoModel_2008_133T123300.sun045</p> <p>- CT CDMEE2PB1, ID 0003, Version 001 associated to the memory image:</p> <p>CDMEE2PB_DI_0002001_C_CDMEE2PB1_0003001_2008_148T093320.sun045</p>			
13.2		Check memory dump command stack loaded			
		<p>For a <b>full</b> CDMU PM EEPROM2 ('Image2') <b>dump</b> (Memory ID = 009 included in the address):</p> <p><b>Start Address = 0090.0000 hex</b>  <b>End Address = 009F.FFFF hex</b>  <b>Length = 100000 hex</b></p>			
		<p><b>Note:</b></p> <p>For a full dump of CDMU EEPROM2, the stack will contain 17 TCs DC602180, covering the address range <b>0090.0000 hex to 009F.FFFF hex</b></p>			
		Check that loaded stack contains one or several TCs <b>DC602180</b> .			
		<p>Display the Manual Stack in 'Full mode' and check that the <b>Memory ID</b> parameter in the DC602180 command(s) is set to <b>009 hex</b>:</p> <p><b>Memory ID = 009 hex</b></p> <p><b>Note:</b></p> <p>The Memory ID of the target memory device is stored in the most significant 12 bits of the 16-bit long Mem ID TM parameter.          The least significant 4 bits of the same parameter carry the most significant 4 bits of the Start Address.</p>			

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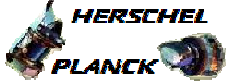
Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand DumpMem_AbsAddr Command Parameter(s) : Memory_ID          DH003180 Start_Address      DH004180 N          DH105180 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : Dump Memory Using Absolute Addresses This Telecommand will not be included in the export	DC602180	TC	
14		Dump the EEPROM2 memory area		Next Step: 15	
14.1		MCS OBSM preparation for Image update in LIVE mode			
		<b>Note:</b> 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.			
14.1.1		Select 'Image UPDATE' from the menu			
		Select the <b>Image</b> menu of the <i>OBSM Desktop</i> . From the Image menu, select <b>Update</b> . The 'Image Catalog' window opens.			
14.1.2		Select image to be updated			
14.1.2.1		IF CDMU PM A			
		Select the image to be updated for the memory device <b>CDMEE2PG</b> . The 'Image UPDATE' window opens.			
14.1.2.2		ELSE CDMU PM B			

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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 <b>CDMEE2PB</b> .  The 'Image UPDATE' window opens.			
14.1.3		Start dump TM processing			
		In <b>LIVE</b> mode, processing of incoming real-time telemetry starts automatically after the image selection.			
14.2		Command memory dump			
		<b>Uplink TCs DC602180 with ARM-GO</b>			
		For each command, one or several TM(6,6) packets will be received on ground.			
15		Verify reception and contents of TM(6,6)		Next Step: 16	
		<b>Note:</b> One or several TM(6,6) packets will be received for each memory dump command uplinked.			
		Verify Packet Reception  Memory Dump - Absolute Addresses - SAU 8 Packet Mnemonic : MemDmpAbsAdd APID : 16 Type : 6 Subtype : 6 PI1 : PI2 :			
15.1		Check OBSM dump packet processing			
		Check that the OBSM is processing the incoming memory dump packets.			
16		Save merged image		Next Step: END	
		WAIT for execution completion of the last dump command.			
		Save merged image with <b>new ID</b> .			
End of Sequence					
<b>OFCP124P</b> TC Seq. Name : OFCP124P ( CDMU EEPROM2 GI updR ) CDMU PM EEPROM2 Gnd image update in Retrieval mode  TimeTag Type: Sub Schedule ID:  <input type="checkbox"/>					

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
17		MCS OBSM preparation for Image update in RETRIEVAL mode		Next Step: 18	
		<b>Note:</b> 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.			
17.1		Select 'Image UPDATE' from the menu			
		Select the <b>Image</b> menu of the <b>OBSM Desktop</b> .  From the Image menu, select <b>Update</b> .  The 'Image Catalog' window opens.			
17.2		Select image to be updated			
17.2.1		IF CDMU PM A			
		Select the image to be updated for the memory device <b>CDMEE2PG</b> .  The 'Image UPDATE' window opens.			
17.2.1.1		ELSE CDMU PM B			
		Select the image to be updated for the memory device <b>CDMEE2PB</b> .  The 'Image UPDATE' window opens.			
17.3		Start dump TM packets processing			
		Set <b>retrieval start</b> and <b>stop time</b> and start retrieval of TM packets using the <b>PLAY</b> buttons.			
18		Retrieve and process TM(6,6) packets		Next Step: 19	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Use the <b>STEP</b> 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 <b>PLAY</b> button to retrieve and process the TM(6,6) packets in automated mode.  Pressing the <b>PLAY</b> 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.			
19		Save merged image		Next Step: END	
		WAIT for retrieval completion of the last dump packet.			
		Save merged image with <b>new ID</b> .			
End of Sequence					
<b>End of Procedure</b>					