

Clean up the CDMU RM Logs  
File: H\_FCP\_OBS\_1423.xls  
Author: lstefanov-hp



## Procedure Summary

### Objectives

This Herschel OBSM nominal procedure is used to perform a CDMU RM Logs clean up. For each RM, 256 bytes in the TTR RAM0 area are patched with zeroes. The procedure can be used during CDMU severe patch operations.

The start address of the TTR RAM0 area to be patched is read from the 'RM Log Pointer Register' of the TTR CROME, in the calling procedure H\_CRP\_DHS\_3036.

The memory load is commanded via TC(6,2), and the integrity of the patched area is done via TC(6,5). 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.

This procedure is called by FOP procedure H\_CRP\_DHS\_3036.

### Summary of Constraints

CDMU 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

#### End of Procedure

Same as start except:  
- RM A and RM B Log clean up executed

### Reference File(s)

#### Input Command Sequences

#### Output Command Sequences

OFCP142C  
OFCP142D

### Referenced Displays

ANDs      GRDs      SLDs

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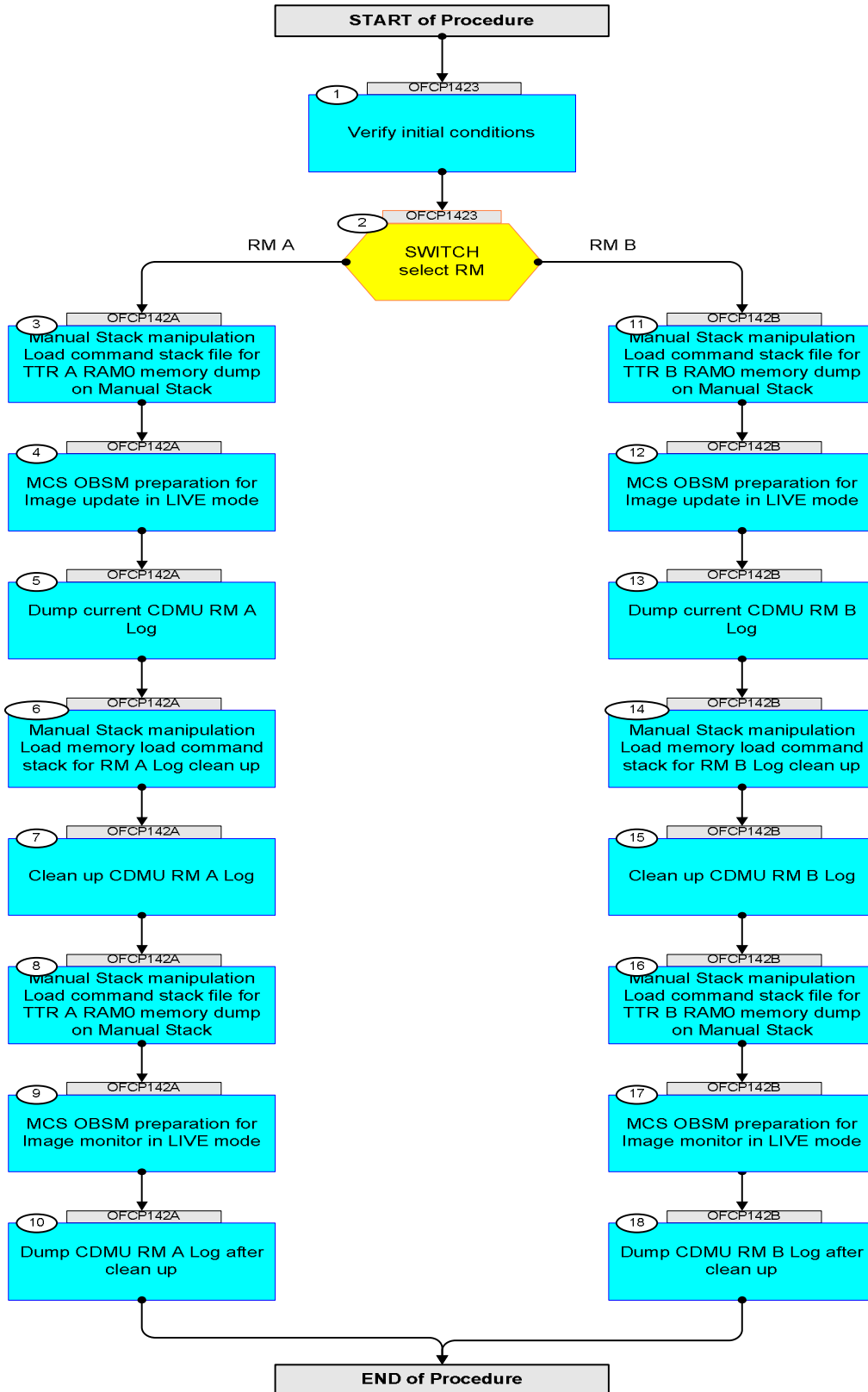
**Configuration Control Information**

| DATE     | FOP ISSUE | VERSION | MODIFICATION DESCRIPTION                  | AUTHOR       | SPR REF |
|----------|-----------|---------|---|--------------|---------|
| 14/01/09 |           | 1       | Created                                   | lstefanov-hp |         |
| 26/01/09 | 2         | 2       | 1. updated TC Seq. names and descriptions | 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> |      |   |        |                                 |             |
| OFCP1423                      |      | TC Seq. Name : OFCP1423 ( CdmuRMlogs CleanUp )<br>CDMU RM Logs clean up<br><br>TimeTag Type: B<br>Sub Schedule ID:<br><br><input type="checkbox"/>  |        |                                 |             |
| 1                             |      | Verify initial conditions   |        | Next Step:<br>2                 |             |
|                               |      | Check:<br>- CDMU in Operational Mode  |        |                                 |             |
|                               |      | Data Handling SOE to confirm CDMU mode  |        |                                 |             |
| 2                             |      | SWITCH<br>select RM<br><br>type: [Switch]   |        | Next Step:<br>RM B 11<br>RM A 3 |             |
| End of Sequence               |      |   |        |                                 |             |
| OFCP142C                      |      | TC Seq. Name : OFCP142C ( CdmuRMALogs CleanUp )<br>CDMU RM A Logs clean up<br><br>TimeTag Type:<br>Sub Schedule ID:<br><br><input type="checkbox"/>   |        |                                 |             |
| 3                             |      | Manual Stack manipulation<br>Load command stack file for TTR A RAM0 memory dump on<br>Manual Stack  |        | Next Step:<br>4                 |             |
|                               |      | Select file<br><br><b>CTTRAMEM_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmss.<br/>           machine</b><br><br>from directory<br><br><a href="#">/home/pmcops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CTTRAMEM</a><br><br>as indicated by the OBSM engineer |        |                                 |             |
|                               |      | IMPORTANT:<br><br><b>XXXXYYY</b> = Image ID(X) and Version(Y) - depend on image used for stack generation<br><br><b>YYYY_DDD hhmss</b> - depend on stack generation time<br><br><b>machine</b> - 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 <b>examples</b><br>- No model associated to the memory image:<br>CTRAMEM_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043<br>- CT CTRAMEM1, ID 0003, Version 001 associated to the memory image:<br>CTRAMEM_DI_0002001_C_CTRAMEM1_0003001_2007_337T093320.sun043  |        |                 |             |
| 3.1      |      | Check memory dump command stack loaded   |        |                 |             |
|          |      | Check that loaded stack contains 1 TC <b>DC602180</b>  |        |                 |             |
|          |      | <b>Note:</b><br>RM A Log is stored in the not-protected TTR A RAM0 area defined by:<br>Memory ID = 00A hex<br>Start Address = F.FE00 hex<br>End Address = F.FF00 hex<br>Length = 100 hex   |        |                 |             |
|          |      | Display the Manual Stack in 'Full mode' and check the <b>DC602180</b> command.   |        |                 |             |
|          |      | Execute Telecommand<br><div style="text-align: right; margin-right: 100px;">DumpMem_AbsAddr</div> <div style="text-align: right; margin-right: 100px;">DC602180</div> Command Parameter(s) :<br>Memory_ID      DH003180    00AF <hex><br>Start_Address  DH004180    FE00 <hex><br>N          DH105180    100 <hex><br>TC Control Flags :<br>GBM IL DSE<br>--Y -- ---<br>Subsch. ID : 10<br>Det. descr. : Dump Memory Using Absolute Addresses<br>This Telecommand will not be included in the export |        | TC              |             |
| 4        |      | MCS OBSM preparation for Image update in LIVE mode   |        | Next Step:<br>5 |             |
|          |      | <b>Note:</b><br>It is assumed that the OBSM application is already running and the OBSM Desktop is displayed on the MCS client.<br>Starting the OBSM application is not covered by the current procedure.  |        |                 |             |
| 4.1      |      | Select 'Image UPDATE' from the menu  |        |                 |             |
|          |      | Select the <b>Image</b> menu of the <b>OBSM Desktop</b> .<br>From the Image menu, select <b>Update</b> .<br>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  |        |                 |             |
|          |      | Select the image to be updated for the memory device <b>CTTRAMEM</b> .<br><br>The 'Image UPDATE' window opens.  |        |                 |             |
| 4.3      |      | Start dump TM processing  |        |                 |             |
|          |      | In <b>LIVE</b> mode, processing of incoming real-time telemetry starts automatically after the image selection.   |        |                 |             |
| 5        |      | Dump current CDMU RM A Log  |        | Next Step:<br>6 |             |
| 5.1      |      | Upload command to dump the CDMU RM A Log  |        |                 |             |
|          |      | <b>Uplink</b> the <b>DC602180</b> memory dump command with <b>ARM-GO</b>  |        |                 |             |
|          |      | After successful execution of the command, a TM(6,6) packet must be received on ground.   |        |                 |             |
| 5.2      |      | Verify reception of TM(6,6)   |        |                 |             |
|          |      | <b>Note:</b><br>A TM(6,6) packets will be received for the memory dump commands uplinked.   |        |                 |             |
|          |      | Verify Packet Reception<br><br>Memory Dump - Absolute Addresses - SAU 8<br>Packet Mnemonic : MemDmpAbsAdd<br>APID : 16<br>Type : 6<br>Subtype : 6<br>PI1 :<br>PI2 : |        |                 |             |
| 5.2.1    |      | Check OBSM dump packet processing   |        |                 |             |
|          |      | Check that the OBSM is processing the incoming memory dump packets.   |        |                 |             |
| 5.3      |      | Save merged image   |        |                 |             |

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| Step No. | Time | Activity/Remarks  | TC/TLM | Display/ Branch | AIT Comment |
|----------|------|---|--------|-----------------|-------------|
|          |      | Save merged image with <b>new ID</b> .  |        |                 |             |
| 6        |      | Manual Stack manipulation<br>Load memory load command stack for RM A Log clean up   |        | Next Step:<br>7 |             |
|          |      | <b>NOTE:</b><br>The current procedure assumes that the memory load is performed using commands with immediate execution.  |        |                 |             |
|          |      | Select the File -> <b>LoadStack</b> option from the main menu of the Manual Stack window  |        |                 |             |
|          |      | Select file<br><br><b>CTTRAMEM_PI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmss.machine</b><br><br>from directory<br><br>/home/pmcops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CTTRAMEM<br><br>as indicated by the OBSM engineer   |        |                 |             |
|          |      | <b>IMPORTANT:</b><br><br><b>XXXXYYY</b> = Image ID(X) and Version(Y) - depend on image used for stack generation<br><br><b>YYYY_DDD hhmss</b> - depend on stack generation time<br><br><b>machine</b> - depends on the name of the machine used for stack generation                              |        |                 |             |
|          |      | File name <b>examples</b><br><br>- No model associated to the memory image:<br><br>CTTRAMEM_PI_0002001_N_NoModel_NoModel_2007_254T123300.sun043<br><br>- CT CTTRAMEM1, ID 0003, Version 001 associated to the memory image:<br><br>CTTRAMEM_PI_0002001_C_CTTRAMEM1_0003001_2007_337T093320.sun043 |        |                 |             |
| 6.1      |      | Check memory load command stack loaded  |        |                 |             |
|          |      | Check that loaded stack contains 2 TCs <b>XC000999</b> .  |        |                 |             |
|          |      | <b>Note:</b><br>RM A Log is stored in the not-protected TTR A RAMO area defined by:<br><br><b>Memory ID</b> = 00A hex<br><b>Start Address</b> = F.FE00 hex<br><b>End Address</b> = F.FF00 hex<br><b>Length</b> = 100 hex  |        |                 |             |
|          |      | Display the Manual Stack in 'Full mode' and check the 2 <b>XC000999</b> commands.   |        |                 |             |

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| Step No. | Time | Activity/Remarks  | TC/TLM   | Display/ Branch | AIT Comment |
|----------|------|---|----------|-----------------|-------------|
|          |      | Execute Telecommand<br><p style="text-align: right;">Patch APID 16</p> XC000999<br><br><i>Command Parameter(s) :</i><br>Memory Id (-----)            XH000999      00AF <hex><br>Start Address (-----)        XH001999      FE00 <hex><br>Length of Block (8 bits)        XH003999      228 <dec><br>Variable len. octet str         XH004999      all zeroes<br>Checksum (-----)            XH005999      calculated by OBSM<br><br><i>TC Control Flags :</i><br><p style="text-align: right;">GBM IL DSE<br/>--Y -- --</p> Subsch. ID : 1<br>Det. descr. : Patch APID 16<br><br>This Telecommand will not be included in the export | XC000999 | TC              |             |
|          |      | Execute Telecommand<br><p style="text-align: right;">Patch APID 16</p> XC000999<br><br><i>Command Parameter(s) :</i><br>Memory Id (-----)            XH000999      00AF <hex><br>Start Address (-----)        XH001999      FEE4 <hex><br>Length of Block (8 bits)        XH003999      28 <dec><br>Variable len. octet str         XH004999      all zeroes<br>Checksum (-----)            XH005999      calculated by OBSM<br><br><i>TC Control Flags :</i><br><p style="text-align: right;">GBM IL DSE<br/>--Y -- --</p> Subsch. ID : 1<br>Det. descr. : Patch APID 16<br><br>This Telecommand will not be included in the export  | XC000999 | TC              |             |
| 7        |      | Clean up CDMU RM A Log  |          | Next Step:<br>8 |             |
|          |      | Memory Patch details:<br><br><b>Start address:</b> 00AF.FE00 hex<br><b>Length:</b> 100 hex<br><b>Patch data:</b> all zeroes   |          |                 |             |
|          |      | <b>Uplink TCs XC000999 with ARM-GO</b>  |          |                 |             |
|          |      | For each TC XC000999 successfully executed on-board, a TM(1,1) and a TM(1,7) packet shall be received on ground.  |          |                 |             |
|          |      | Verify Packet Reception<br><br>Telecommand Acceptance Report - Success<br>Packet Mnemonic : D_TcAccSucc<br>APID : 16<br>Type : 1<br>Subtype : 1<br>PI1 :<br>PI2 :   |          |                 |             |
|          |      | Verify Packet Reception<br><br>Telecommand Execution Report - Completed<br>Packet Mnemonic : D_TcExeComp<br>APID : 16<br>Type : 1<br>Subtype : 7<br>PI1 :<br>PI2 :  |          |                 |             |
| 8        |      | Manual Stack manipulation<br>Load command stack file for TTR A RAM0 memory dump on Manual Stack   |          | Next Step:<br>9 |             |



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|----------------------|-----------|---|------------------|------------------|-------------|----------------------|----------|------------|----------|----------|-----------|------------|-----------|------------|-----|----|-----|--|----|--|
|                      |           | Select file<br><br><b>CTTRAMEM_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine</b><br><br>from directory<br><br>/home/pmcops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CTTRAMEM<br><br>as indicated by the OBSM engineer  |                  |                  |             |                      |          |            |          |          |           |            |           |            |     |    |     |  |    |  |
|                      |           | IMPORTANT:<br><br><b>XXXXYYY</b> = Image ID(X) and Version(Y) - depend on image used for stack generation<br><br><b>YYYY_DDD hhmmss</b> - depend on stack generation time<br><br><b>machine</b> - depends on the name of the machine used for stack generation  |                  |                  |             |                      |          |            |          |          |           |            |           |            |     |    |     |  |    |  |
|                      |           | File name <b>examples</b><br><br>- No model associated to the memory image:<br><br>CTTRAMEM_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043<br><br>- CT CTTRAMEM1, ID 0003, Version 001 associated to the memory image:<br><br>CTTRAMEM_DI_0002001_C_CTTRAMEM1_0003001_2007_337T093320.sun043   |                  |                  |             |                      |          |            |          |          |           |            |           |            |     |    |     |  |    |  |
| 8.1                  |           | Check memory dump command stack loaded  |                  |                  |             |                      |          |            |          |          |           |            |           |            |     |    |     |  |    |  |
|                      |           | Check that loaded stack contains 1 TC <b>DC602180</b>   |                  |                  |             |                      |          |            |          |          |           |            |           |            |     |    |     |  |    |  |
|                      |           | <b>Note:</b><br>RM A Log is stored in the not-protected TTR A RAM0 area defined by:<br><br><b>Memory ID</b> = 00A hex<br><b>Start Address</b> = F.FE00 hex<br><b>End Address</b> = F.FF00 hex<br><b>Length</b> = 100 hex  |                  |                  |             |                      |          |            |          |          |           |            |           |            |     |    |     |  |    |  |
|                      |           | Display the Manual Stack in 'Full mode' and check the <b>DC602180</b> command.  |                  |                  |             |                      |          |            |          |          |           |            |           |            |     |    |     |  |    |  |
|                      |           | Execute Telecommand<br><br><div style="text-align: right; margin-right: 100px;"><b>DumpMem_AbsAddr</b></div> <div style="text-align: right; margin-right: 100px;"><b>DC602180</b></div><br><b>Command Parameter(s) :</b><br><table style="margin-left: 100px; border: none;"> <tr> <td style="padding-right: 20px;"><b>Memory_ID</b></td> <td style="padding-right: 20px;">DH003180</td> <td>00AF &lt;hex&gt;</td> </tr> <tr> <td style="padding-right: 20px;"><b>Start_Address</b></td> <td style="padding-right: 20px;">DH004180</td> <td>FE00 &lt;hex&gt;</td> </tr> <tr> <td style="padding-right: 20px;"><b>N</b></td> <td style="padding-right: 20px;">DH105180</td> <td>100 &lt;hex&gt;</td> </tr> </table><br><b>TC Control Flags :</b><br><table style="margin-left: 100px; border: none;"> <tr> <td style="padding-right: 20px;"><b>GBM</b></td> <td style="padding-right: 20px;"><b>IL</b></td> <td style="padding-right: 20px;"><b>DSE</b></td> </tr> <tr> <td style="padding-right: 20px;">--Y</td> <td style="padding-right: 20px;">--</td> <td style="padding-right: 20px;">---</td> </tr> </table><br><b>Subsch. ID : 10</b><br>Det. descr. : Dump Memory Using Absolute Addresses<br>This Telecommand will not be included in the export | <b>Memory_ID</b> | DH003180         | 00AF <hex>  | <b>Start_Address</b> | DH004180 | FE00 <hex> | <b>N</b> | DH105180 | 100 <hex> | <b>GBM</b> | <b>IL</b> | <b>DSE</b> | --Y | -- | --- |  | TC |  |
| <b>Memory_ID</b>     | DH003180  | 00AF <hex>  |                  |                  |             |                      |          |            |          |          |           |            |           |            |     |    |     |  |    |  |
| <b>Start_Address</b> | DH004180  | FE00 <hex>  |                  |                  |             |                      |          |            |          |          |           |            |           |            |     |    |     |  |    |  |
| <b>N</b>             | DH105180  | 100 <hex>   |                  |                  |             |                      |          |            |          |          |           |            |           |            |     |    |     |  |    |  |
| <b>GBM</b>           | <b>IL</b> | <b>DSE</b>  |                  |                  |             |                      |          |            |          |          |           |            |           |            |     |    |     |  |    |  |
| --Y                  | --        | ---   |                  |                  |             |                      |          |            |          |          |           |            |           |            |     |    |     |  |    |  |
| 9                    |           | MCS OBSM preparation for Image monitor in LIVE mode   |                  | Next Step:<br>10 |             |                      |          |            |          |          |           |            |           |            |     |    |     |  |    |  |

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|---|--|

| Step No. | Time | Activity/Remarks  | TC/TLM | Display/ Branch   | AIT Comment |
|----------|------|---|--------|-------------------|-------------|
|          |      | <b>Note:</b><br>It is assumed that the OBSM application is already running and the OBSM Desktop is displayed on the MCS client.<br>Starting the OBSM application is not covered by the current procedure. |        |                   |             |
| 9.1      |      | Select 'Image MONITOR' from the menu  |        |                   |             |
|          |      | Select the <b>Image</b> menu of the <i>OBSM Desktop</i> .<br><br>From the Image menu, select <b>Monitor</b> .<br><br>The 'Image Catalog' window opens.  |        |                   |             |
| 9.2      |      | Select image to be monitored  |        |                   |             |
|          |      | Select the image to be monitored for the memory device <b>CTTRAMEM</b> .<br><br>The 'Image MONITOR' window opens.   |        |                   |             |
| 9.3      |      | Start dump TM processing  |        |                   |             |
|          |      | In <b>LIVE</b> mode, processing of incoming real-time telemetry starts automatically after the image selection.   |        |                   |             |
| 10       |      | Dump CDMU RM A Log after clean up   |        | Next Step:<br>END |             |
| 10.1     |      | Upload command to dump the CDMU RM A Log  |        |                   |             |
|          |      | <b>Uplink</b> the <b>DC602180</b> memory dump command with <b>ARM-GO</b>  |        |                   |             |
|          |      | After successful execution of the command, a TM(6,6) packet must be received on ground.   |        |                   |             |
| 10.2     |      | Verify reception of TM(6,6)   |        |                   |             |
|          |      | <b>Note:</b><br>A TM(6,6) packets will be received for the memory dump commands uplinked.   |        |                   |             |

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|---|--|

| Step No.        | Time     | Activity/Remarks   | TC/TLM | Display/ Branch  | AIT Comment |
|-----------------|----------|--|--------|------------------|-------------|
|                 |          | Verify Packet Reception<br><br>Memory Dump - Absolute Addresses - SAU 8<br>Packet Mnemonic : MemDmpAbsAdd<br>APID : 16<br>Type : 6<br>Subtype : 6<br>PI1 :<br>PI2 :  |        |                  |             |
| 10.2.1          |          | Check OBSM dump packet processing  |        |                  |             |
|                 |          | Check that the OBSM is processing the incoming memory dump packets.  |        |                  |             |
| 10.3            |          | 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.   |        |                  |             |
| 10.3.1          |          | Save merged image  |        |                  |             |
|                 |          | <b>IF</b> there are <b>mismatches</b> reported by OBSM, save merged image with <b>new ID</b> .   |        |                  |             |
|                 |          | Conduct off-line analysis of the reported mismatches.  |        |                  |             |
| End of Sequence |          |  |        |                  |             |
|                 | OFCP142D | TC Seq. Name : OFCP142D ( CdmuRMBlogs CleanUp )<br>CDMU RM B Logs clean up<br><br>TimeTag Type: B<br>Sub Schedule ID:<br><br><input type="checkbox"/>  |        |                  |             |
| 11              |          | Manual Stack manipulation<br>Load command stack file for TTR B RAM0 memory dump on Manual Stack  |        | Next Step:<br>12 |             |
|                 |          | Select file<br><br><b>CTTRBMEM_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine</b><br><br>from directory<br><br><a href="#">/home/pmcops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CTTRBMEM</a><br><br>as indicated by the OBSM engineer |        |                  |             |

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| Step No.             | Time     | Activity/Remarks   | TC/TLM           | Display/ Branch  | AIT Comment |                      |          |            |          |          |           |  |    |  |
|----------------------|----------|--|------------------|------------------|-------------|----------------------|----------|------------|----------|----------|-----------|--|----|--|
|                      |          | <p>IMPORTANT:</p> <p>XXXXYYY = Image ID(X) and Version(Y) - depend on image used for stack generation</p> <p>YYYY_DDD hhmmss - depend on stack generation time</p> <p>machine - depends on the name of the machine used for stack generation</p>   |                  |                  |             |                      |          |            |          |          |           |  |    |  |
|                      |          | <p>File name <b>examples</b></p> <p>- No model associated to the memory image:</p> <p>CTTRBMEM_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043</p> <p>- CT CTTRBMEM1, ID 0003, Version 001 associated to the memory image:</p> <p>CTTRBMEM_DI_0002001_C_CTTRBMEM1_0003001_2007_337T093320.sun043</p>   |                  |                  |             |                      |          |            |          |          |           |  |    |  |
| 11.1                 |          | Check memory dump command stack loaded   |                  |                  |             |                      |          |            |          |          |           |  |    |  |
|                      |          | Check that loaded stack contains TC <b>DC602180</b>  |                  |                  |             |                      |          |            |          |          |           |  |    |  |
|                      |          | <p><b>Note:</b></p> <p>RM B Log is stored in the not-protected TTR B RAM0 area defined by:</p> <p><b>Memory ID</b> = 00D hex<br/> <b>Start Address</b> = F.FE00 hex<br/> <b>End Address</b> = F.FF00 hex<br/> <b>Length</b> = 100 hex</p>  |                  |                  |             |                      |          |            |          |          |           |  |    |  |
|                      |          | Display the Manual Stack in 'Full mode' and check the <b>DC602180</b> command.   |                  |                  |             |                      |          |            |          |          |           |  |    |  |
|                      |          | <p>Execute Telecommand</p> <p style="text-align: right;"><b>DumpMem_AbsAddr</b></p> <p style="text-align: right;"><b>DC602180</b></p> <p>Command Parameter(s) :</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"><b>Memory_ID</b></td> <td style="width: 20%;">DH003180</td> <td style="width: 20%;">00DF &lt;hex&gt;</td> </tr> <tr> <td><b>Start_Address</b></td> <td>DH004180</td> <td>FE00 &lt;hex&gt;</td> </tr> <tr> <td><b>N</b></td> <td>DH105180</td> <td>100 &lt;hex&gt;</td> </tr> </table> <p>TC Control Flags :</p> <p style="text-align: right;"><b>GBM IL DSE</b><br/> --Y -- ---</p> <p>Subsch. ID : 10<br/> Det. descr. : Dump Memory Using Absolute Addresses<br/> This Telecommand will not be included in the export</p> | <b>Memory_ID</b> | DH003180         | 00DF <hex>  | <b>Start_Address</b> | DH004180 | FE00 <hex> | <b>N</b> | DH105180 | 100 <hex> |  | TC |  |
| <b>Memory_ID</b>     | DH003180 | 00DF <hex>   |                  |                  |             |                      |          |            |          |          |           |  |    |  |
| <b>Start_Address</b> | DH004180 | FE00 <hex>   |                  |                  |             |                      |          |            |          |          |           |  |    |  |
| <b>N</b>             | DH105180 | 100 <hex>  |                  |                  |             |                      |          |            |          |          |           |  |    |  |
| 12                   |          | MCS OBSM preparation for Image update in LIVE mode   |                  | Next Step:<br>13 |             |                      |          |            |          |          |           |  |    |  |
|                      |          | <p><b>Note:</b></p> <p>It is assumed that the OBSM application is already running and the OBSM Desktop is displayed on the MCS client.<br/> Starting the OBSM application is not covered by the current procedure.</p>   |                  |                  |             |                      |          |            |          |          |           |  |    |  |

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| Step No. | Time | Activity/Remarks  | TC/TLM | Display/ Branch  | AIT Comment |
|----------|------|---|--------|------------------|-------------|
| 12.1     |      | Select 'Image UPDATE' from the menu   |        |                  |             |
|          |      | Select the <b>Image</b> menu of the <i>OBSM Desktop</i> .<br><br>From the Image menu, select <b>Update</b> .<br><br>The 'Image Catalog' window opens.               |        |                  |             |
| 12.2     |      | Select image to be updated  |        |                  |             |
|          |      | Select the image to be updated for the memory device <b>CTTRBMEM</b> .<br><br>The 'Image UPDATE' window opens.  |        |                  |             |
| 12.3     |      | Start dump TM processing  |        |                  |             |
|          |      | In <b>LIVE</b> mode, processing of incoming real-time telemetry starts automatically after the image selection.   |        |                  |             |
| 13       |      | Dump current CDMU RM B Log  |        | Next Step:<br>14 |             |
| 13.1     |      | Upload command to dump the CDMU RM B Log  |        |                  |             |
|          |      | <b>Uplink</b> the <b>DC602180</b> memory dump command with <b>ARM-GO</b>  |        |                  |             |
|          |      | After successful execution of the command, a TM(6,6) packet must be received on ground.   |        |                  |             |
| 13.2     |      | Verify reception of TM(6,6)   |        |                  |             |
|          |      | <b>Note:</b><br>A TM(6,6) packet will be received for the memory dump commands uplinked.  |        |                  |             |
|          |      | Verify Packet Reception<br><br>Memory Dump - Absolute Addresses - SAU 8<br>Packet Mnemonic : MemDmpAbsAdd<br>APID : 16<br>Type : 6<br>Subtype : 6<br>PI1 :<br>PI2 : |        |                  |             |

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| Step No. | Time | Activity/Remarks  | TC/TLM | Display/ Branch  | AIT Comment |
|----------|------|---|--------|------------------|-------------|
| 13.2.1   |      | Check OBSM dump packet processing   |        |                  |             |
|          |      | Check that the OBSM is processing the incoming memory dump packets.   |        |                  |             |
| 13.3     |      | Save merged image   |        |                  |             |
|          |      | Save merged image with <b>new ID</b> .  |        |                  |             |
| 14       |      | Manual Stack manipulation<br>Load memory load command stack for RM B Log clean up   |        | Next Step:<br>15 |             |
|          |      | <b>NOTE:</b><br>The current procedure assumes that the memory load is performed using commands with immediate execution.  |        |                  |             |
|          |      | Select the File -> <b>LoadStack</b> option from the main menu of the Manual Stack window  |        |                  |             |
|          |      | Select file<br><b>CTTRBMEM_PI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine</b><br>from directory<br><a href="#">/home/pmcops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CTTRBMEM</a><br>as indicated by the OBSM engineer  |        |                  |             |
|          |      | <b>IMPORTANT:</b><br><b>XXXXYYY</b> = Image ID(X) and Version(Y) - depend on image used for stack generation<br><b>YYYY_DDD hhmmss</b> - depend on stack generation time<br><b>machine</b> - depends on the name of the machine used for stack generation                         |        |                  |             |
|          |      | File name <b>examples</b><br>- No model associated to the memory image:<br>CTTRBMEM_PI_0002001_N_NoModel_NoModel_2007_254T123300.sun043<br>- CT CTTRBMEM1, ID 0003, Version 001 associated to the memory image:<br>CTTRBMEM_PI_0002001_C_CTTRBMEM1_0003001_2007_337T093320.sun043 |        |                  |             |
| 14.1     |      | Check memory load command stack loaded  |        |                  |             |
|          |      | Check that loaded stack contains 2 TCs <b>XC000999</b> .  |        |                  |             |

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| Step No. | Time | Activity/Remarks   | TC/TLM   | Display/ Branch  | AIT Comment |
|----------|------|--|----------|------------------|-------------|
|          |      | <b>Note:</b><br>RM B Log is stored in the not-protected TTR B RAMO area defined by:<br><br><b>Memory ID</b> = 00D hex<br><b>Start Address</b> = F.FE00 hex<br><b>End Address</b> = F.FF00 hex<br><b>Length</b> = 100 hex   |          |                  |             |
|          |      | Display the Manual Stack in 'Full mode' and check the 2 XC000999 commands.   |          |                  |             |
|          |      | Execute Telecommand<br><div style="text-align: right; margin-right: 20px;">Patch APID 16</div><br><i>Command Parameter(s) :</i><br><b>Memory Id</b> (-----) XH000999<br><b>Start Address</b> (-----) XH001999<br><b>Length of Block (8 bits)</b> XH003999<br><b>Variable len. octet str</b> XH004999<br><b>Checksum</b> (-----) XH005999<br><br><i>TC Control Flags :</i><br><div style="text-align: right; margin-right: 20px;">GBM IL DSE<br/>--Y -- --</div><br><i>Subsch. ID :</i> 1<br>Det. descr. : Patch APID 16<br><br>This Telecommand will not be included in the export | XC000999 | TC               |             |
|          |      | Execute Telecommand<br><div style="text-align: right; margin-right: 20px;">Patch APID 16</div><br><i>Command Parameter(s) :</i><br><b>Memory Id</b> (-----) XH000999<br><b>Start Address</b> (-----) XH001999<br><b>Length of Block (8 bits)</b> XH003999<br><b>Variable len. octet str</b> XH004999<br><b>Checksum</b> (-----) XH005999<br><br><i>TC Control Flags :</i><br><div style="text-align: right; margin-right: 20px;">GBM IL DSE<br/>--Y -- --</div><br><i>Subsch. ID :</i> 1<br>Det. descr. : Patch APID 16<br><br>This Telecommand will not be included in the export | XC000999 | TC               |             |
| 15       |      | Clean up CDMU RM B Log   |          | Next Step:<br>16 |             |
|          |      | Memory Patch details:<br><br><b>Start address:</b> 00DF.FE00 hex<br><b>Length:</b> 100 hex<br><b>Patch data:</b> all zeroes  |          |                  |             |
|          |      | <b>Uplink TCs XC000999 with ARM-GO</b>   |          |                  |             |
|          |      | For each TC XC000999 successfully executed on-board, a TM(1,1) and a TM(1,7) packet shall be received on ground.   |          |                  |             |
|          |      | Verify Packet Reception<br><br>Telecommand Acceptance Report - Success<br>Packet Mnemonic : D_TcAccSucc<br>APID : 16<br>Type : 1<br>Subtype : 1<br>PI1 :<br>PI2 :  |          |                  |             |

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| Step No. | Time | Activity/Remarks  | TC/TLM | Display/ Branch  | AIT Comment |
|----------|------|---|--------|------------------|-------------|
|          |      | Verify Packet Reception<br><br>Telecommand Execution Report - Completed<br>Packet Mnemonic : D_TcExeComp<br>APID : 16<br>Type : 1<br>Subtype : 7<br>PI1 :<br>PI2 :  |        |                  |             |
| 16       |      | Manual Stack manipulation<br>Load command stack file for TTR B RAM0 memory dump on Manual Stack   |        | Next Step:<br>17 |             |
|          |      | Select file<br><br><b>CTTRBMEM_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine</b><br><br>from directory<br><br><a href="#">/home/pmcops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CTTRBMEM</a><br><br>as indicated by the OBSM engineer  |        |                  |             |
|          |      | IMPORTANT:<br><br><b>XXXXYYY</b> = Image ID(X) and Version(Y) - depend on image used for stack generation<br><br><b>YYYY_DDD hhmmss</b> - depend on stack generation time<br><br><b>machine</b> - depends on the name of the machine used for stack generation                                    |        |                  |             |
|          |      | File name <b>examples</b><br><br>- No model associated to the memory image:<br><br>CTTRBMEM_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043<br><br>- CT CTTRBMEM1, ID 0003, Version 001 associated to the memory image:<br><br>CTTRBMEM_DI_0002001_C_CTTRBMEM1_0003001_2007_337T093320.sun043 |        |                  |             |
| 16.1     |      | Check memory dump command stack loaded  |        |                  |             |
|          |      | Check that loaded stack contains 1 TC <b>DC602180</b>   |        |                  |             |
|          |      | <b>Note:</b><br>RM B Log is stored in the not-protected TTR B RAM0 area defined by:<br><br><b>Memory ID</b> = 00D hex<br><b>Start Address</b> = F.FE00 hex<br><b>End Address</b> = F.FF00 hex<br><b>Length</b> = 100 hex  |        |                  |             |
|          |      | Display the Manual Stack in 'Full mode' and check the <b>DC602180</b> command.  |        |                  |             |



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| Step No. | Time | Activity/Remarks  | TC/TLM | Display/ Branch   | AIT Comment |
|----------|------|---|--------|-------------------|-------------|
|          |      | Execute Telecommand<br><p style="text-align: right;">DumpMem_AbsAddr</p> <p style="text-align: right;">DC602180</p> Command Parameter(s) :<br>Memory_ID          DH003180    00DF <hex><br>Start_Address     DH004180    FE00 <hex><br>N          DH105180    100 <hex><br><br>TC Control Flags :<br>GBM IL DSE<br>--Y -- ---<br><br>Subsch. ID : 10<br>Det. descr. : Dump Memory Using Absolute Addresses<br>This Telecommand will not be included in the export |        | TC                |             |
| 17       |      | MCS OBSM preparation for Image monitor in LIVE mode   |        | Next Step:<br>18  |             |
|          |      | <b>Note:</b><br>It is assumed that the OBSM application is already running and the OBSM Desktop is displayed on the MCS client.<br>Starting the OBSM application is not covered by the current procedure.   |        |                   |             |
| 17.1     |      | Select 'Image MONITOR' from the menu  |        |                   |             |
|          |      | Select the <b>Image</b> menu of the <b>OBSM Desktop</b> .<br><br>From the Image menu, select <b>Monitor</b> .<br><br>The 'Image Catalog' window opens.  |        |                   |             |
| 17.2     |      | Select image to be monitored  |        |                   |             |
|          |      | Select the image to be monitored for the memory device <b>CTTRBMEM</b> .<br><br>The 'Image MONITOR' window opens.   |        |                   |             |
| 17.3     |      | Start dump TM processing  |        |                   |             |
|          |      | In <b>LIVE</b> mode, processing of incoming real-time telemetry starts automatically after the image selection.   |        |                   |             |
| 18       |      | Dump CDMU RM B Log after clean up   |        | Next Step:<br>END |             |
| 18.1     |      | Upload command to dump the CDMU RM A Log  |        |                   |             |

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| Step No.                | Time | Activity/Remarks  | TC/TLM | Display/ Branch | AIT Comment |
|-------------------------|------|---|--------|-----------------|-------------|
|                         |      | Uplink the DC602180 memory dump command with ARM-GO   |        |                 |             |
|                         |      | After successful execution of the command, a TM(6,6) packet must be received on ground.   |        |                 |             |
| 18.2                    |      | Verify reception of TM(6,6)   |        |                 |             |
|                         |      | <b>Note:</b><br>A TM(6,6) packets will be received for the memory dump commands uplinked.   |        |                 |             |
|                         |      | Verify Packet Reception<br><br>Memory Dump - Absolute Addresses - SAU 8<br>Packet Mnemonic : MemDmpAbsAdd<br>APID : 16<br>Type : 6<br>Subtype : 6<br>PI1 :<br>PI2 : |        |                 |             |
| 18.2.1                  |      | Check OBSM dump packet processing   |        |                 |             |
|                         |      | Check that the OBSM is processing the incoming memory dump packets.   |        |                 |             |
| 18.3                    |      | 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.    |        |                 |             |
| 18.3.1                  |      | Save merged image   |        |                 |             |
|                         |      | <b>IF</b> there are <b>mismatches</b> reported by OBSM, save merged image with <b>new ID</b> .  |        |                 |             |
|                         |      | Conduct off-line analysis of the reported mismatches.   |        |                 |             |
| End of Sequence         |      |   |        |                 |             |
| <b>End of Procedure</b> |      |   |        |                 |             |