

MTL rejoin
File: H_CRP_DHS_MTLRJ.xls
Author: S. Manganelli



Procedure Summary

Objectives

This sequence defines the steps needed to rejoin the MTL after MTL was stopped, either manually or by a CDMU OBSW reconfiguration.

It is stressed here that in case the MTL has been stopped due to a level 3a/3b FDIR, the situation at restart can be quite complex, with

- old TCs being discarded (deleted from MTL) at a rate of 4 TCs per second
- TCs now in execution becoming overdue and being discarded as well
- OBQD being unresponsive
- need to uplink to MTL before LOS

so it is suggested to simplify as much as possible following the branch CLEAR MTL?-> YES

This will

- clear the MTL and restart it
- cold-start the OBQM
- configure the subschedules

If the OBQM cold start is performed while the MTL is restarting, the total time needed before being able to start the new uplink to MTL should be less than 20 minutes.

Summary of Constraints

At least one MTL buffer in one of the SSMM must be operational.

Spacecraft Configuration

Start of Procedure

MTL function stopped

End of Procedure

MTL function started with subschedules enabled as required

Reference File(s)

Input Command Sequences

Output Command Sequences

HRDRTLRA
HRDRTLZZ
HRDMLLRB
HRDMLLRC

Referenced Displays

ANDs GRDs SLDs

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ZAZAQ999 ZGZ3C999 (None)
 ZAZ9T999
 ZAZAI999
 ZAZ8T999

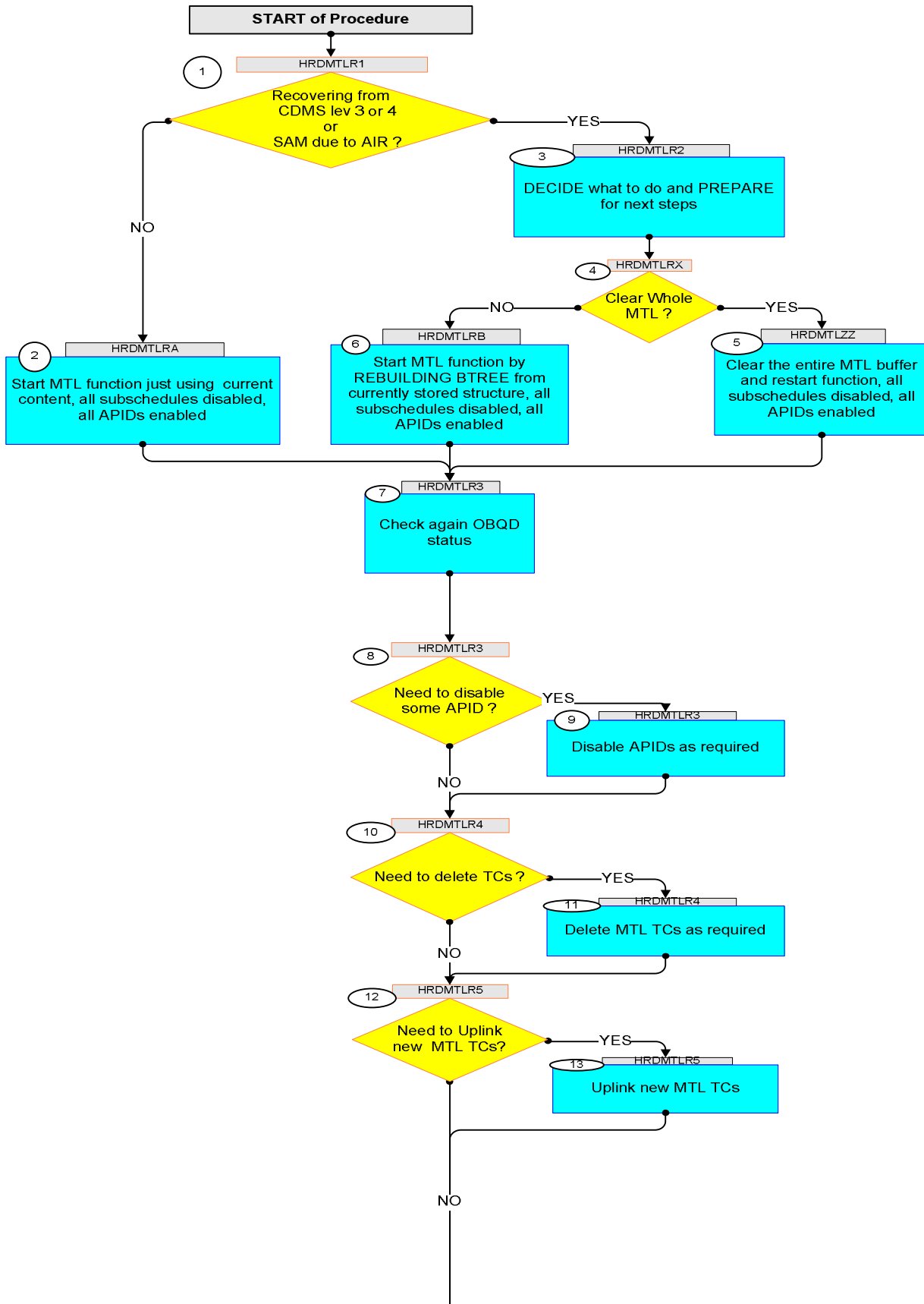
Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
27/02/2009	2.1	1	Created	S. Manganelli	
24/02/2010		2	General revision after the experience gained during rejoin on DOY 034 2010.	S. Manganelli	
08/03/2010	3	3	Revision after sim validation	S. Manganelli	
23/08/2010	3.1	4	Added some extra comments to manage the case of MTL stopped in SAM due to ACC AIR	S. Manganelli	

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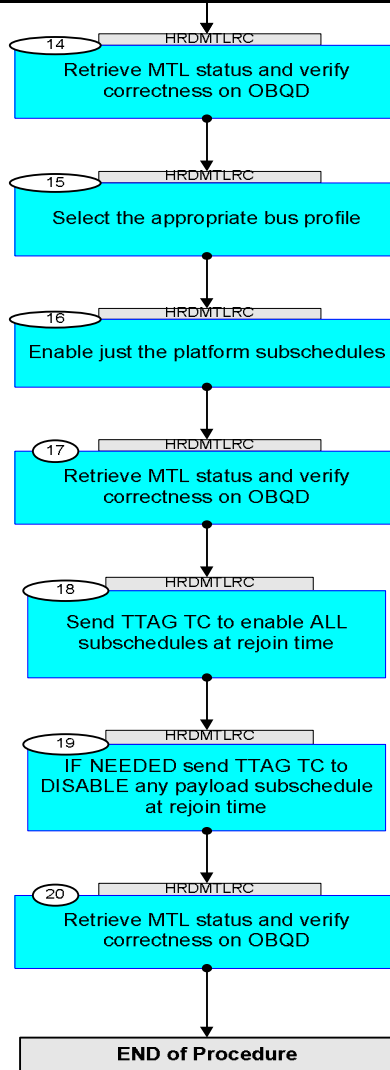
Procedure Flowchart Overview



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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					
HRDMTLR1 <i>TC Seq. Name :HRDMTLR1 (Dummy)</i> <i>TimeTag Type:</i> <i>Sub Schedule ID:</i> <input type="checkbox"/>					
1		Recovering from CDMS lev 3 or 4 or SAM due to AIR ? type: [If]		Next Step: NO 2 YES 3	
		If coming from a CDMU reconfiguration (level 3a, 3b or 4) choose YES . Choose YES as well if the MTL was stopped by entering SAM due to the AIR EAT. If the MTL was stopped by TC in a nominal situation choose NO . In both cases , initial status at MTL start shall be set by ASW : - all subschedules shall be disabled - all APIDs shall be enabled so follow this procedure to restore status as desired			
		***** DO NOT TRY TO UPLINK TCs TO MTL ***** Adding TCs to MTL is impossible with the MTL function disabled: if you do, you will a) fill up the CEL with TC acceptance failures b) corrupt the OBQD information			
End of Sequence					
HRDMTLRA <i>TC Seq. Name :HRDMTLRA (MTL start RBO RL0)</i> <i>TimeTag Type:</i> <i>Sub Schedule ID:</i> <input type="checkbox"/>					
2		Start MTL function just using current content, all subschedules disabled, all APIDs enabled		Next Step: 7	
		The assumption here is that the MTL has been stopped by ground in a controlled way (not due to FDIR) and that no special action has to be taken in order to rejoin. <u>If this is not the case, abandon this branch and go to STEP 6 of this procedure.</u>			
		Verify Telemetry MtlFirstStrtSts DENAE170 = No AND=ZAZAQ999			
		Verify Telemetry MtlResetStatus DENAD170 = No AND=ZAZAQ999			
		Verify Telemetry MtlInitInProgr DENAC170 = No AND=ZAZAQ999			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Verify Telemetry MtlSts DEH26170	= Stopped	AND=ZAZ9T999	
		Execute Telecommand StartOnBoardSched_Rb0R10 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : StartOnBoardScheduling TC(8,1,105) + Rebuild = 0 + Release = 0	DCS0G170	TC	
		The ASW will compare the MTL buffer in use against the one that was in use before the MTL was stopped. If the MTL buffer in use has changed, the automatic B-tree rebuild is forced. In this case the MTL start will need about 11 minutes. If the MTL buffer in use has not changed, the MTL start will be immediate.			
2.1		Verify MTL start			
		Verify Packet Reception CdmuAsw Event 5-1 MTL Function Started Packet Mnemonic : D_EvRp_051 APID : 16 Type : 5 Subtype : 1 PI1 : 26885 PI2 : 0			
		Verify Packet Telemetry TM5xEventID DEZSJ170	= MtlFuncStarted	(None)	
		Verify Packet Telemetry Exact time of the occurrence Time DELA1170		(None)	
		Verify Packet Telemetry EventSeqCounter DE069170		(None)	
2.2		Verify that TM(5,1,105,1) has been received			
		If a Release was requested in TC(8,1,105), an event TM(5,1,105,1) will be generated indicating that the status of all the permanent sub-schedules (1<=ID<=4095) have changed. If no Release was requested in TC(8,1,105), an event TM(5,1,105,1) will be generated indicating that the status of all the sub-schedules is disabled.			
		Verify Packet Reception CdmuAsw Event 5-1 Subschedule Status Changed Packet Mnemonic : D_EvRp_048 APID : 16 Type : 5 Subtype : 1 PI1 : 26881 PI2 : 0			
		Verify Packet Telemetry TM5xEventID DEZSJ170	= SuschedStsChan	(None)	
		Verify Packet Telemetry SubscheduleId_A DE075170	= 0 <dec>	(None)	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Verify Packet Telemetry Status_16bit DE099170	= Disabled = Enabled	(None)	
		Verify Packet Telemetry SubScStsChReas DE287170	= Tc8_1or2_105	(None)	
		Verify Packet Telemetry EventSeqCounter DE069170			
		Verify Packet Telemetry Time DELA1170			
2.3		More TM verification			
		Verify Telemetry MtlFirstStrtSts DENAE170	= No	AND=ZAZAQ999	
		Verify Telemetry MtlResetStatus DENAD170	= No	AND=ZAZAQ999	
		Verify Telemetry MtlInitInProgr DENAC170	= No	AND=ZAZAQ999	
		Verify Telemetry MtlSts DEH26170	= Running	AND=ZAZAI999	
		Verify Telemetry MtlNextTcTime XM653991	First to be executed	AND=ZAZ8T999	
		Verify Telemetry MtlLastTcTime XM652991	last in MTL queue	AND=ZAZ8T999	
		Execute Telecommand RetStatusOfCmdSchedule TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE ReportStatusOfCmdSchedule, TC(11,18), no appl. data	DCT25170	TC	
		Verify reception of a number of TM(11,19). These contain the current enabled / disabled status of subschedules and APIDs. The OBQD will be updated accordingly. WARNING: if the TC is not verified due to MCS or timing issues, the OBQD will NOT be updated even if the TM(11,19) is received. In this case re-uplink the TC with ack flags set to 0.			
		Execute Telecommand ReptSummaryMtl Command Parameter(s) : N_Repetition DH041170 SubscheduleId DH053170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : ReportWhole MTL TcSchedule in summary form, TC(11,12)	DC86F170 1 <dec> (Def) 0 <dec>	TC	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		<p>Verify reception of a number of TM(11,13). These contain the sumamry data of TCs in MTL. The OBQD will be updated accordingly.</p> <p>WARNING : if the TC is not verified due to MCS or timing issues, the OBQD will NOT be updated even if the TM(11,13) is received. In this case re-uplink the TC with ack flags set to 0.</p>			
		Note that subschedules are still disabled : follow this procedure to enable them.			
End of Sequence					
<p>TC Seq. Name : HRDMLR2 (Dummy)</p> <p>HRDMLR2</p> <p>TimeTag Type:</p> <p>Sub Schedule ID:</p> <p style="text-align: center;">□</p>					
3		DECIDE what to do and PREPARE for next steps		Next Step: 4	
		<p>After a SW restart use AND ZAZ8T999 :</p> <p>DEA74170 MtlTcCnt shall show 0. This is NOT the real number of TCs on board. The real number can be read on the OBQD and will be displayed in TM only after the MTL function is restarted.</p> <p>NOTE: by this procedure the MTL function shall always be started with option "release=0" that means no TCs will be released until you enable manually all needed subschedules.</p> <p>Read below to decide which option to take next (see as well the diagram at the end of the procedure)</p>			
		<p>The BEST OPTION is to choose YES : this will CLEAR THE COMPLETE MTL while the function is still disabled. Eleven minutes after the TC to start MTL the function will show "running" and it will be immediately possible to start the UU uplink. You do not need to read the other comments here below.</p>			
		<p>If you choose NO : this will restart MTL preserving the current command content. At MTL start, expired TCs will be automatically removed from the queue (due to disabled subschedule) at a rate of 4 per second. This will be visible by parameter DE839170 SkipSubschCnt increasing by 4 counts per second.</p>			
		<p>If you choose NO : you must be prepared, after the MTL function starts, to delete</p> <ul style="list-style-type: none"> - all MTL TCs with exe time in the past plus - those MTL TCs having exe time in the future, up to the time of MTL rejoin. <p>You can do this with a single TC.</p> <p>So, if possible, ESTABLISH THE TIME to be used for MTL REJOIN before continuing, or while the MTL is being restarted.</p>			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		<p>If you choose NO : the chosen rejoin time shall be used as input to the manual MTL TC deletion.</p> <p>The manual deletion is recommended because it is much faster than the automatic deletion, therefore it will allow to start the new MTL uplink much sooner.</p> <p>If possible DO NOT start uplink before having deleted the TCs up to MTL rejoin, otherwise it will be very difficult to follow the status of the MTL queue.</p>			
		Verify Telemetry MtlFirstStrtSts DENAE170	Yes (No if after AIR)	AND=ZAZAQ999	
		Verify Telemetry MtlResetStatus DENAD170	= No	AND=ZAZAQ999	
		Verify Telemetry MtlInitInProgr DENAC170	= No	AND=ZAZAQ999	
		Verify Telemetry MtlSts DEH26170	= Stopped	AND=ZAZ9T999	
End of Sequence					
TC Seq. Name :HRDMLTRX (Dummy) HRDMLTRX TimeTag Type: Sub Schedule ID: <input type="checkbox"/>					
4		Clear Whole MTL ? type: [If]		Next Step: YES 5 NO 6	
End of Sequence					
TC Seq. Name :HRDMLZZ (Clear Restart MTL) HRDMLZZ TimeTag Type: N Sub Schedule ID: <input type="checkbox"/>					
5		Clear the entire MTL buffer and restart function, all subschedules disabled, all APIDs enabled		Next Step: 7	
		Verify Telemetry MtlSts DEH26170	= Stopped	AND=ZAZ9T999	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		<p>COLD START THE OBQM on the server NOW</p> <p>Login the SERVER HMCA Open Task Manager push EDIT push OBQM password: sta delete from the arguments window the "-w" push CONFIRM This clears the OBQM "memory". Do the same on HMCB !</p>			
		<p>Following TC will delete all TCs from MTL buffer. The final status will be 0 TCs on board, all subschedules disabled, all APIDs enabled.</p>			
		<p>Execute Telecommand</p> <p style="text-align: center;">ResetTcSchedule</p> <p>TC Control Flags :</p> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <p>Subsch. ID : 10 Det. descr. : ResetTcSchedule, TC(11,3), no application data</p>	DC58F170	TC	
		<p>Verify Telemetry</p> <p style="text-align: center;">MtlFirstStrtSts DENAE170</p> <p style="text-align: center;">Yes (No if after AIR)</p>	AND=ZAZAQ999		
		<p>Verify Telemetry</p> <p style="text-align: center;">MtlResetStatus DENAD170</p> <p style="text-align: center;">= Yes</p>	AND=ZAZAQ999		
		<p>Verify Telemetry</p> <p style="text-align: center;">MtlInitInProgr DENAC170</p> <p style="text-align: center;">= No</p>	AND=ZAZAQ999		
		<p>Execute Telecommand</p> <p style="text-align: center;">StartOnBoardSched_Rb0R10</p> <p>TC Control Flags :</p> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <p>Subsch. ID : 10 Det. descr. : StartOnBoardScheduling TC(8,1,105) + Rebuild = 0 + Release = 0</p>	DCS0G170	TC	
		<p>The ASW will erase all stored TCs and rebuild in RAM a new MTL command structure (B-tree). The MTL start will need about 11 minutes.</p> <p>At restart, expect no TCs in MTL, all APID enabled, all subschedules disabled.</p>			
		<p>Verify behaviour as shown in procedure attachment</p> <p style="text-align: center;">BSW_CPU_LOAD DEF10160</p>		GRD=ZGZ3C999	
		<p>Verify Telemetry</p> <p style="text-align: center;">MtlInitInProgr DENAC170</p> <p style="text-align: center;">= Yes</p>	AND=ZAZAQ999		
5.1		<p>Verify MTL start after about 11 minutes</p>			
		<p>Verify Packet Reception</p> <p>CdmuAsw Event 5-1 MTL Function Started Packet Mnemonic : D_EvRp_051 APID : 16 Type : 5 Subtype : 1 P11 : 26885 P12 : 0</p>			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Verify Packet Telemetry TM5xEventID DEZSJ170	= MtlFuncStarted	(None)	
		Verify Packet Telemetry Exact time of the occurrence Time DELA1170		(None)	
		Verify Packet Telemetry EventSeqCounter DE069170		(None)	
5.2		Verify that TM(5,1,105,1) has been received			
		If a Release was requested in TC(8,1,105), an event TM(5,1,105,1) will be generated indicating that the status of all the permanent sub-schedules (1<=ID<=4095) have changed. If no Release was requested in TC(8,1,105), an event TM(5,1,105,1) will be generated indicating that the status of all the sub-schedules is disabled.			
		Verify Packet Reception CdmuAsw Event 5-1 Subschedule Status Changed Packet Mnemonic : D_EvRp_048 APID : 16 Type : 5 Subtype : 1 PI1 : 26881 PI2 : 0			
		Verify Packet Telemetry TM5xEventID DEZSJ170	= SuschedStsChan	(None)	
		Verify Packet Telemetry SubscheduleId_A DE075170	= 0 <dec>	(None)	
		Verify Packet Telemetry Status_16bit DE099170	= Disabled = Enabled	(None)	
		Verify Packet Telemetry SubScStsChReas DE287170	= Tc8_lor2_105	(None)	
		Verify Packet Telemetry EventSeqCounter DE069170			
		Verify Packet Telemetry Time DELA1170			
		Verify Telemetry MtlTcCnt DE82F170	should show 0	AND=ZAZ8T999	
		Verify Telemetry MtlNextTcTime XM653991	not initialized	AND=ZAZ8T999	
		Verify Telemetry MtlLastTcTime XM652991	not initialized	AND=ZAZ8T999	
5.3		More TM verifications			
		Verify Telemetry MtlFirstStrtSts DENAE170	= No	AND=ZAZAQ999	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
End of Sequence					
TC Seq. Name : HRDMLTRB (MTL start Rb1 RL0)					
HRDMLTRB					
TimeTag Type: N Sub Schedule ID: □					
6		Start MTL function by REBUILDING BTREE from currently stored structure, all subschedules disabled, all APIDs enabled		Next Step: 7	
		Execute Telecommand StartOnBoardSched_Rb1RL0	DCS0E170	TC	
		TC Control Flags : Subsch. ID : 10 Det. descr. : StartOnBoardScheduling TC(8,1,105) + Rebuild = 1 + Release = 0	GBM IL DSE --Y -- ---		
		Verify Telemetry MtlFirstStrtSts DENAE170	Yes (No if after AIR)	AND=ZAZAQ999	
		Verify Telemetry MtlResetStatus DENAD170	= No	AND=ZAZAQ999	
		Verify Telemetry MtlInitInProgr DENAC170	= Yes	AND=ZAZAQ999	
		Verify behaviour as shown in procedure attachment BSW_CPU_LOAD DEF10160		GRD=ZGZ3C999	
		The ASW will use the command data stored in Mass Memories and rebuild in RAM a new MTL command structure (B-tree) from that data. The MTL start will need about 11 minutes.			
		While the restart is going on, double check that the time of MTL rejoin is known. Be prepared, after MTL is restarted, to delete all TCs that are already expired and all those that must not be executed until the time of rejoin. If you do nothing, at MTL restart all TCs having expired exe time shall be deleted autonomously from MTL at the rate of 4 per second. This is not a problem per se, but it may confuse the situation.			
6.1		Verify MTL start after about 11 minutes			
		Verify Packet Reception CdmuAsw Event 5-1 MTL Function Started Packet Mnemonic : D_EvRp_051 APID : 16 Type : 5 Subtype : 1 PI1 : 26885 PI2 : 0			
		Verify Packet Telemetry TM5xEventID DEZSJ170	= MtlFuncStarted	(None)	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Verify Packet Telemetry Exact time of the occurrence Time DELA1170		(None)	
		Verify Packet Telemetry EventSeqCounter DE069170		(None)	
6.2		Verify that TM(5,1,105,1) has been received			
		If a Release was requested in TC(8,1,105), an event TM(5,1,105,1) will be generated indicating that the status of all the permanent sub-schedules (1<=ID<=4095) have changed. If no Release was requested in TC(8,1,105), an event TM(5,1,105,1) will be generated indicating that the status of all the sub-schedules is disabled.			
		Verify Packet Reception CdmuAsw Event 5-1 Subschedule Status Changed Packet Mnemonic : D_EvRp_048 APID : 16 Type : 5 Subtype : 1 PI1 : 26881 PI2 : 0			
		Verify Packet Telemetry TM5xEventID DEZSJ170	= SuschedStsChan	(None)	
		Verify Packet Telemetry SubscheduleId_A DE075170	= 0 <dec>	(None)	
		Verify Packet Telemetry Status_16bit DE099170	= Disabled = Enabled	(None)	
		Verify Packet Telemetry SubScStsChReas DE287170	= Tc8_lor2_105	(None)	
		Verify Packet Telemetry EventSeqCounter DE069170			
		Verify Packet Telemetry Time DELA1170			
		Verify Telemetry MtlNextTcTime XM653991	First to be executed	AND=ZAZ8T999	
		Verify Telemetry MtlLastTcTime XM652991	last in MTL queue	AND=ZAZ8T999	
6.3		More TM verification			
		Verify Telemetry MtlFirstStrtSts DENAE170	= No	AND=ZAZAQ999	
		Verify Telemetry MtlResetStatus DENAD170	= No	AND=ZAZAQ999	
		Verify Telemetry MtlInitInProgr DENAC170	= No	AND=ZAZAQ999	
		Verify Telemetry MtlSts DEH26170	= Running	AND=ZAZ9T999	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Verify Telemetry MtlTcCnt DE82F170	will jump from zero to the number of TCs in mTL	GRD=ZGZ3C999	
		From now onwards, TCs that are overdue (that is, with expired Execution Time) are automatically deleted from MTL at a rate of 4 per second. ALL expired TCs will be autonomously deleted since ALL subschedules are disabled.			
		Verify Telemetry SkipSubschCnt DE839170	will increase 4 TC per second	AND=ZAZ8T999	
6.4		Delete Overdue TCs and TCs not needed until rejoin time (TC not included in TC sequence, needs actual times !!)			
		Execute Telecommand DeleteTcs_OverTimePeriod Command Parameter(s) : AbsTime DHA56170 Start Time AbsTime2 DHA61170 End time SubscheduleId DH053170 0 <dec> (Def) N_Repetition DH041170 0 <dec> TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE DeleteTcsOverTimePeriod, TC(11,6) This Telecommand will not be included in the export	DC82F170	TC	
		Verify Telemetry MtlTcCnt DE82F170	will decrease according to the number of TCs deleted	GRD=ZGZ3C999	
		Verify Telemetry SkipSubschCnt DE839170	stays stable	AND=ZAZ8T999	
		REFRESH (not RETRIEVE) the OBQD dump display now. All deleted TCs should be flagged as UNEXPECTED (still on board but deleted from ground) You can check that the range deleted is correct.			
		Execute Telecommand RptOBoardSchedSts TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : Report on-board scheduling status TC(8,5,105)	DC92F170	TC	
		This report should "assist" the OBQM to understand the current status. It shall report all subschedules DISABLED and all APIDs ENABLED.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand <p style="text-align: right;">ReptSummaryMtl</p> Command Parameter(s) : N_Repetition DH041170 SubscheduleId DH053170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : ReportWhole MTL TcSchedule in summary form, TC(11,12)	DC86F170	TC	
		Verify reception of a number of TM(11,13). These contain the summary data of TCs in MTL. The OBQD will be updated accordingly. WARNING : if the TC is not verified due to MCS or timing issues, the OBQD will NOT be updated even if the TM(11,13) is received. In this case re-uplink the TC with ack flags set to 0.			
		RETRIEVE the OBQD dump display now to ingest the new report TM information. The display should now show no UNEXPECTED, no MISSING. The first TC with exe time in the future shown by the display should be the one by which the MTL rejoin starts.			
		Note that subschedules are still disabled: follow this procedure to enable them.			
End of Sequence					
HRDMTLR3 TC Seq. Name : HRDMTLR3 (Dummy) TimeTag Type: Sub Schedule ID: <input type="checkbox"/>					
7		Check again OBQD status		Next Step: 8	
		<u>ONLY IF THE OBQD does not respond or its content is corrupted</u> : before uplinking TCs to MTL you should "cold" restart the application OBQM on the MCS SERVER (not the workstation). To COLD START THE OBQM on the server Login the SERVER HMCA Open Task Manager push EDIT push OBQM password: sta delete from the arguments window the "-w" push CONFIRM This clears the OBQM "memory". Do the same on HMCB !			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		<p>After an OBQM cold start:</p> <p>a) Any TC that was in MTL before the restart and still found in MTL after the restart will be flagged as "UNEXPECTED" (they are on-board but not in the ground model)</p> <p>b) The new TCs uplinked from now onwards will get the proper status.</p>			
8		<p>Need to disable some APID ?</p> <p>type: [If]</p>		<p>Next Step: YES 9 NO 10</p>	
9		<p>Disable APIDs as required</p>		<p>Next Step: 10</p>	
		<p>In case an APID is failed and it is needed to disable it as a TC destination, Use the H_FCP_DHS_3022 to disable it.</p> <p>Note that while the non-execution of a TC due to <u>disabled subschedule</u> is a nominal case, the non-execution of a TC due to <u>disabled APID</u> results in a command failure with TM(1,8,34053) for each TC.</p>			
End of Sequence					
<p>TC Seq. Name : HRDMTLR4 (Dummy)</p> <p>HRDMTLR4</p> <p>TimeTag Type:</p> <p>Sub Schedule ID:</p> <p><input type="checkbox"/></p>					
10		<p>Need to delete TCs ?</p> <p>type: [If]</p>		<p>Next Step: YES 11 NO 12</p>	
11		<p>Delete MTL TCs as required</p>		<p>Next Step: 12</p>	
		<p>Use the OBQD to select the TCs to be deleted and to generate the stack to delete them. This is the preferred option : the OBQD will automatically select the correct "raw execution time" of the MTL TC to be deleted and use it to encode the deletion TC.</p> <p>In case the OBQD is not available, use H_FCP_DHS_3024 to manually delete the TCs.</p>			
End of Sequence					

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
HRDMLR5 TC Seq. Name : HRDMLR5 (Dummy) TimeTag Type: Sub Schedule ID: <input type="checkbox"/>					
12		Need to Uplink new MTL TCs? type: [If]		Next Step: NO 14 YES 13	
13		Uplink new MTL TCs		Next Step: 14	
		This action has to be performed under the advice of the SOE / SOM and input from MPS.			
HRDMLRC TC Seq. Name : HRDMLRC (Rejoin MTL) TimeTag Type: N Sub Schedule ID: <input type="checkbox"/>					
14		Retrieve MTL status and verify correctness on OBQD		Next Step: 15	
		Execute Telecommand <div style="text-align: right; margin-right: 100px;">RetStatusOfCmdSchedule</div> TC Control Flags : <div style="text-align: right; margin-right: 100px;">GBM IL DSE --Y -- ---</div> Subsch. ID : 10 Det. descr. : TEMPLATE ReportStatusOfCmdSchedule, TC(11,18), no appl. data	DCT25170	TC	
		Verify reception of a number of TM(11,19). These contain the current enabled / disabled status of subschedules and APIDs. The OBQD will be updated accordingly. WARNING: if the TC is not verified due to MCS or timing issues, the OBQD will NOT be updated even if the TM(11,19) is received. In this case re-uplink the TC with ack flags set to 0.			
		Execute Telecommand <div style="text-align: right; margin-right: 100px;">ReptSummaryMtl</div> Command Parameter(s) : <div style="text-align: right; margin-right: 100px;">N_Repetition DH041170 SubscheduleId DH053170</div> TC Control Flags : <div style="text-align: right; margin-right: 100px;">GBM IL DSE --Y -- ---</div> Subsch. ID : 10 Det. descr. : ReportWhole MTL TcSchedule in summary form, TC(11,12)	DC86F170	TC	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		<p>Verify reception of a number of TM(11,13). These contain the summary data of TCs in MTL. The OBQD will be updated accordingly.</p> <p>WARNING : if the TC is not verified due to MCS or timing issues, the OBQD will NOT be updated even if the TM(11,13) is received. In this case re-uplink the TC with ack flags set to 0.</p>			
15		Select the appropriate bus profile		Next Step: 16	
		<p>The bus profile has to be selected according to the first instrument that shall go PRIME. Edit the parameter in the following TC as required.</p> <p>HIFI : 2 SPIRE : 3 FACS : 4 Burst mode : 7 Parallel mode : 8</p> <p>More info in H_FCP_DHS_3053.</p>			
		<p>Execute Telecommand</p> <p style="text-align: center;">SelectActiveSCBP</p> <p style="text-align: center;">DC819160</p> <p>Command Parameter(s) :</p> <p style="padding-left: 40px;">SCBP DH049160 SCBP_02</p> <p>TC Control Flags :</p> <p style="padding-left: 100px;">GBM IL DSE --Y -- ---</p> <p>Subsch. ID : 10 Det. descr. : Select Active SCBP from SCBP Table</p>		TC	
16		Enable just the platform subschedules		Next Step: 17	
		<p>Execute Telecommand</p> <p style="text-align: center;">EnableRelOfTcs_Templ</p> <p style="text-align: center;">DCT22170</p> <p>Command Parameter(s) :</p> <p style="padding-left: 40px;">N_Repetition DH041170 7 <dec> SubscheduleId DH053170 10 <dec> SubscheduleId DH053170 20 <dec> SubscheduleId DH053170 30 <dec> SubscheduleId DH053170 31 <dec> SubscheduleId DH053170 40 <dec> SubscheduleId DH053170 45 <dec> SubscheduleId DH053170 50 <dec> M_nrOfApids DH054170 0 <dec></p> <p>TC Control Flags :</p> <p style="padding-left: 100px;">GBM IL DSE --Y -- ---</p> <p>Subsch. ID : 10 Det. descr. : TEMPLATE EnableReleaseOfTcs, TC(11,1)</p>		TC	
17		Retrieve MTL status and verify correctness on OBQD		Next Step: 18	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand <p style="text-align: center;">RetStatusOfCmdSchedule</p> TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE ReportStatusOfCmdSchedule, TC(11,18), no appl. data	DCT25170	TC	
		Verify reception of a number of TM(11,19). These contain the current enabled / disabled status of subschedules and APIDs. The OBQD will be updated accordingly. WARNING: if the TC is not verified due to MCS or timing issues, the OBQD will NOT be updated even if the TM(11,19) is received. In this case re-uplink the TC with ack flags set to 0.			
		Execute Telecommand <p style="text-align: center;">ReptSummaryMtl</p> Command Parameter(s) : <p style="text-align: right;">N_Repetition DH041170 SubscheduleId DH053170</p> TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : ReportWhole MTL TcSchedule in summary form, TC(11,12)	DC86F170	TC	
		Verify reception of a number of TM(11,13). These contain the sumamry data of TCs in MTL. The OBQD will be updated accordingly. WARNING : if the TC is not verified due to MCS or timing issues, the OBQD will NOT be updated even if the TM(11,13) is received. In this case re-uplink the TC with ack flags set to 0.			
17.1		OBQD verification			
		After reception of service 11 TM commanded above is completed, check the dump display of OBQD. The display shall retrieve and refresh. In the nominal case all TCs shall have a MATCH status. If not, the situation has to be assessed case by case by SOE / SOM.			
18		Send TTAG TC to enable ALL subschedules at rejoin time		Next Step: 19	
		<u>TC not included in sequence.</u> The time tag shall be chosen case by case by SOM. At this time the ASW shall re-enable MTL execution for all subschedules. TCs to disabled APIDs shall still fail.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		<p style="text-align: center;">EnableRelOfTcs_Templ</p> <p>Command Parameter(s) :</p> <p style="margin-left: 40px;">N_Repetition DH041170 1 <dec> (Def) SubscheduleId DH053170 0 <dec> M_nrOfApids DH054170 0 <dec></p> <p>TC Control Flags :</p> <p style="margin-left: 100px;">GBM IL DSE --Y -- ---</p> <p>Subsch. ID : 10 Det. descr. : TEMPLATE EnableReleaseOfTcs, TC(11,1) This Telecommand will not be included in the export</p>	DCT22170	TC	
19		IF NEEDED send TTAG TC to DISABLE any payload subschedule at rejoin time		Next Step: 20	
		<p><u>TC not included in sequence.</u></p> <p>The time tag shall be chosen case by case by SOM. At this time the ASW shall DISABLE commanding for some specific subschedules, if this is needed for some reason.</p>			
		<p>Execute Telecommand</p> <p style="text-align: center;">DisableRelOfTcs_Templ</p> <p>Command Parameter(s) :</p> <p style="margin-left: 40px;">N_Repetition DH041170 1 <dec> (Def) SubscheduleId DH053170 as required M_nrOfApids DH054170 0 <dec></p> <p>TC Control Flags :</p> <p style="margin-left: 100px;">GBM IL DSE --Y -- ---</p> <p>Subsch. ID : 10 Det. descr. : TEMPLATE DisableReleaseOfTcs, TC(11,2) This Telecommand will not be included in the export</p>	DCT23170	TC	
20		Retrieve MTL status and verify correctness on OBQD		Next Step: END	
		<p>Execute Telecommand</p> <p style="text-align: center;">RetStatusOfCmdSchedule</p> <p>TC Control Flags :</p> <p style="margin-left: 100px;">GBM IL DSE --Y -- ---</p> <p>Subsch. ID : 10 Det. descr. : TEMPLATE ReportStatusOfCmdSchedule, TC(11,18), no appl. data</p>	DCT25170	TC	
		<p>Verify reception of a number of TM(11,19). These contain the current enabled / disabled status of subschedules and APIDs. The OBQD will be updated accordingly.</p> <p>WARNING: if the TC is not verified due to MCS or timing issues, the OBQD will NOT be updated even if the TM(11,19) is received. In this case re-uplink the TC with ack flags set to 0.</p>			

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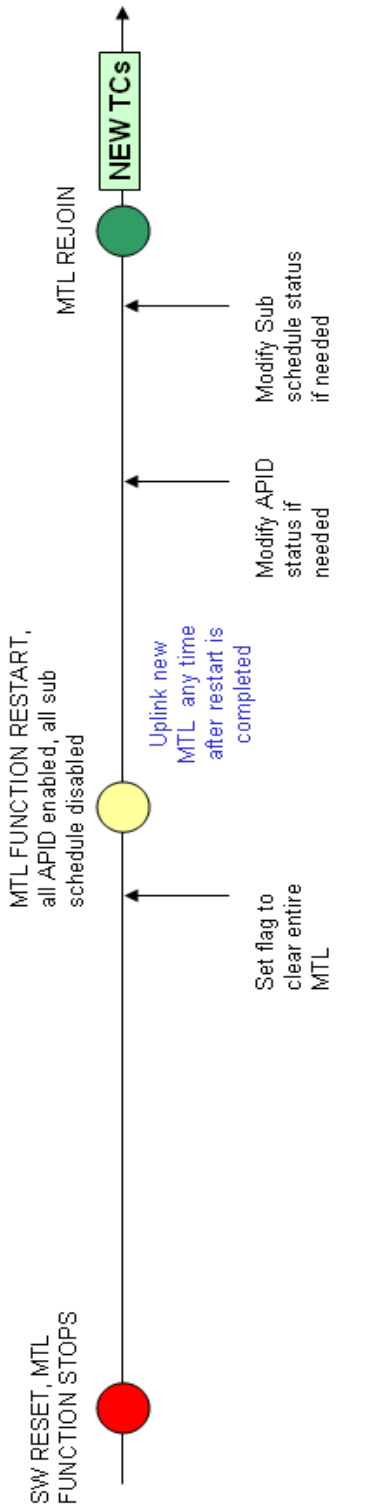
Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand <p style="text-align: right;">ReptSummaryMtl</p> Command Parameter(s) : N_Repetition DH041170 SubscheduleId DH053170 TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : ReportWhole MTL TcSchedule in summary form, TC(11,12)	DC86F170	TC	
		Verify reception of a number of TM(11,13). These contain the sumamry data of TCs in MTL. The OBQD will be updated accordingly. WARNING : if the TC is not verified due to MCS or timing issues, the OBQD will NOT be updated even if the TM(11,13) is received. In this case re-uplink the TC with ack flags set to 0.			
20.1		OBQD verification			
		After reception of service 11 TM commanded above is completed, check the dump display of OBQD. The display shall retrieve and refresh. In the nominal case all TCs shall have a MATCH status. If not, the situation has to be assessed case by case by SOE / SOM.			
End of Sequence					
End of Procedure					

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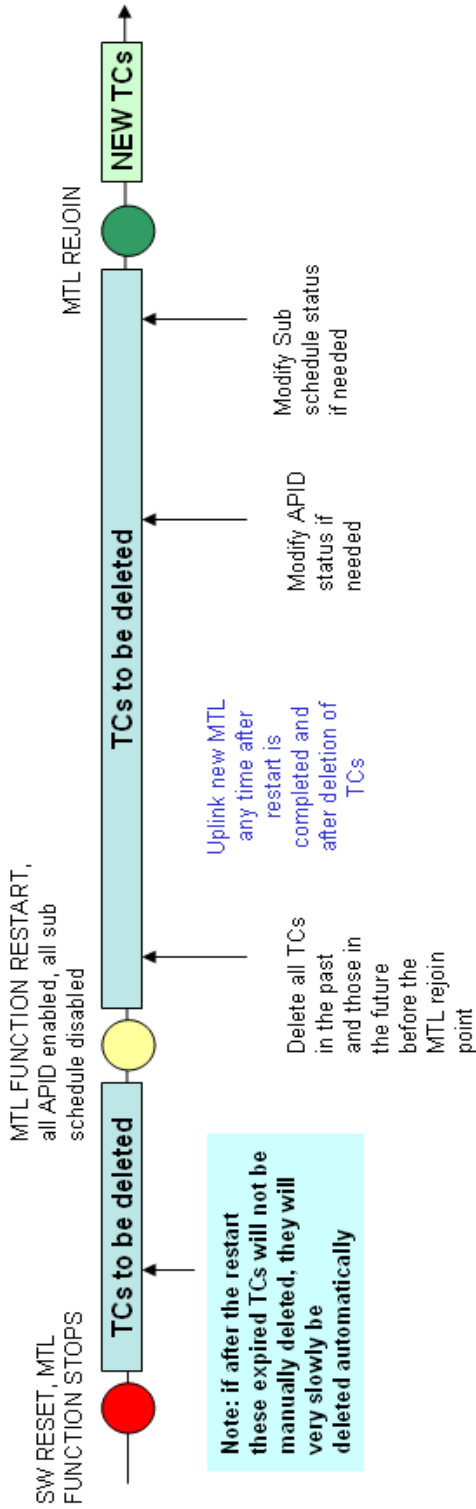


Overview of MTL rejoin

Option: Clear whole MTL



Option: Keep existing MTL



Note: if after the restart these expired TCs will not be manually deleted, they will very slowly be deleted automatically

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CPU load values to be expected

