Change Status of 1553 Bus
File: H_CRP_DHS_1006.xls
Author: S. Manganelli

Procedure Summary

Objectives

This procedure describes the steps needed to manually change the 1553 BUS statuses (Unhealthy to Healthy, Not Active to Active).

Summary of Constraints

Only an HEALTHY bus can be declared ACTIVE.
The procedure should be run only if the reason of the former bus status change (by FDIR) have been understood and the RT statuses have already been set correctly. This means, any RT that is not nominally responding to the bus wraparound check should be set to OFF and INVALID before changing the bus status.
The procedure does not alter the status of the bus FDIR. It is assumed that FDIR is ENABLED as a general spacecraft protection.
If some RT status is not nominal, the bus status change may not work, and it will be impossible to set the bus HEALTHY.

Spacecraft Configuration

Start of Procedure

CDMU in default configuration, that is:
- PM A or B ON (nominally A)
- TM Encoder/OBT A or B active (nominally A)
- RM A and B enabled
- MM A and B ON

End of Procedure

CDMU in default configuration, that is:
- PM A or B ON (nominally A)
- TM Encoder/OBT A or B active (nominally A)
- RM A and B enabled
- MM A and B ON

Reference File(s)

Input Command Sequences

Output Command Sequences

HRD1006A
HRD1006B
HRD1006C
HRD1006D

Referenced Displays

ANDs	GRDs	SLDs
ZAZAF999		

Configuration Control Information

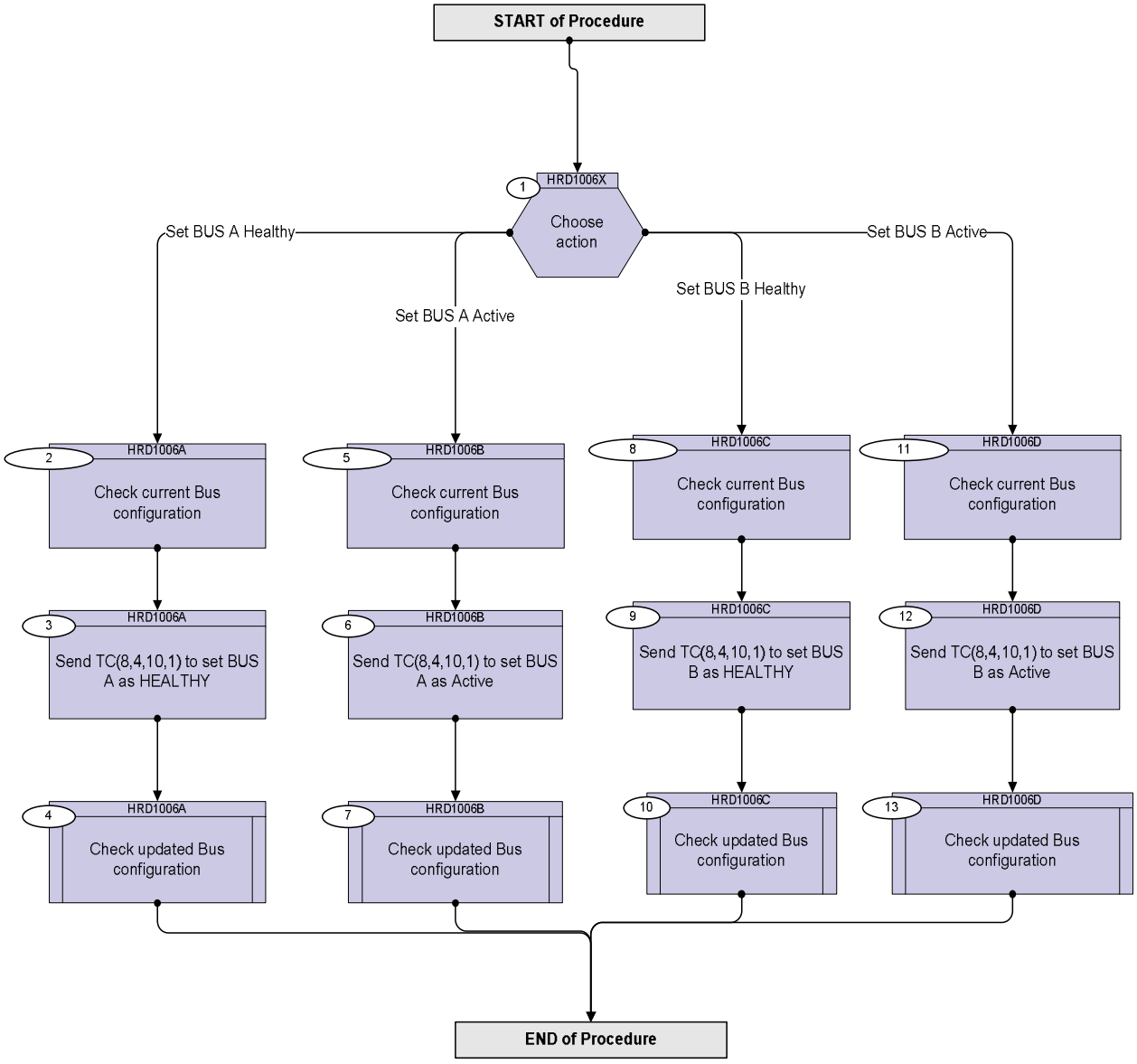
Status : Version 1 - Unchanged
Last Checkin: 14/06/09

Change Status of 1553 Bus
File: H_CRP_DHS_1006.xls
Author: S. Manganelli

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
14/06/09	2.5	1	Created	S. Manganelli	

Change Status of 1553 Bus
File: H_CRP_DHS_1006.xls
Author: S. Manganelli

Procedure Flowchart Overview



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Beginning of Procedure		
		TC Seq. Name :HRD1006X (Choose Option) *TimeTag Type:* *Sub Schedule ID:*		
1		*Choose action*		Next Step: Set BUS A Healthy 2 Set BUS A Active 5 Set BUS B Healthy 8 Set BUS B Active 11
		TC Seq. Name :HRD1006A (Set Bus A Healthy) *TimeTag Type: N* *Sub Schedule ID:*		
2		*Check current Bus configuration*		Next Step: 3
		Verify Telemetry **Active_Bus_A_B DEFJ1160**	**= BUS_B**	AND=ZAZAF999
		Verify Telemetry **BusA_HealthySts DEFJ2160**	**= Unhealthy**	AND=ZAZAF999
		Verify Telemetry **BusB_HealthySts DEFJ3160**	**= Healthy**	AND=ZAZAF999
		Verify Telemetry (only set by Ground) **SDB_FDIR DEFJ4160**	**= ENABLED**	AND=ZAZAF999
		It is assumed that BUS A was ACTIVE, and there was a reconfiguration to BUS B ACTIVE **because one RT failed the wraparound test on BUS A while having successful wraparound test on BUS B.** In this condition BUS A will have been declared UNHEALTHY and BUS B will have been selected as ACTIVE. The following step declares BUS A as healthy. **This will work only if the correct status of all RTs has been already set (any RT failing wraparound test has been declared OFF and INVALID).**		
3		*Send TC(8,4,10,1) to set BUS A as HEALTHY*		Next Step: 4

Change Status of 1553 Bus
File: H_CRP_DHS_1006.xls
Author: S. Manganelli

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand **ConfigureSDBFDIR** *Command Parameter(s) :* **RTA DH011161** **M0 DH030161** **M1 DH031161** **M2 DH032161** **M3 DH033161** **M4 DH034161** **M5 DH035161** **M6 DH036161** **M7 DH037161** **F0 DH018161** **F1 DH019161**	**DC005161** **ACC B** **Ignore Flag** **Ignore Flag** **Ignore Flag** **Ignore Flag** **Ignore Flag** **Ignore Flag** **Ignore Flag** **Ignore Flag** **ON** **Alive**	
		F2 DH020161 **F3 DH021161** **F4 DH022161** **F5 DH023161** **F6 DH024161** **F7 DH025161** **M12 DH051161** **M_C DH043161** **M8 DH038161** **M9 DH039161** **M10 DH040161** **M11 DH041161** **F12 DH050161** **CNT DH042161** **F8 DH026161**	**Well TC** **Well TM** **Valid** **Non-vital** **NOMINAL** **ON** **Ignore Flag** **Ignore CNT** **Ignore Flag** **Update status** **Ignore Flag** **Ignore Flag** **DISABLED** **LoopCnt1** **Bus A**	
		F9 DH027161 **F10 DH028161** **F11 DH029161** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : Configure SDB FDIR	**Healthy** **Healthy** **ENABLED**	
4		*Check updated Bus configuration*		Next Step: END
		Verify Telemetry **Active_Bus_A_B DEFJ1160**	**= BUS_B**	AND=ZAZAF999
		Verify Telemetry **BusA_HealthySts DEFJ2160**	**= Healthy**	AND=ZAZAF999
		Verify Telemetry **BusB_HealthySts DEFJ3160**	**= Healthy**	AND=ZAZAF999
		Verify Telemetry (only set by Ground) **SDB_FDIR DEFJ4160**	**= ENABLED**	AND=ZAZAF999

Change Status of 1553 Bus
File: H_CRP_DHS_1006.xls
Author: S. Manganelli

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		TC Seq. Name :HRD1006B (Set Bus A Active) *TimeTag Type: N* *Sub Schedule ID:*		
5		*Check current Bus configuration*		Next Step: 6
		Verify Telemetry **Active_Bus_A_B** **DEFJ1160**	**= BUS_B**	AND=ZAZAF999
		Verify Telemetry **BusA_HealthySts** **DEFJ2160**	**= Healthy**	AND=ZAZAF999
		Verify Telemetry (only set by Ground) **SDB_FDIR** **DEFJ4160**	**= ENABLED**	AND=ZAZAF999
6		*Send TC(8,4,10,1) to set BUS A as Active*		Next Step: 7
		Execute Telecommand **ConfigureSDBFDIR**	**DC005161**	
		Command Parameter(s) : **RTA** **DH011161**	**ACC B**	
		M0 **DH030161**	**Ignore Flag**	
		M1 **DH031161**	**Ignore Flag**	
		M2 **DH032161**	**Ignore Flag**	
		M3 **DH033161**	**Ignore Flag**	
		M4 **DH034161**	**Ignore Flag**	
		M5 **DH035161**	**Ignore Flag**	
		M6 **DH036161**	**Ignore Flag**	
		M7 **DH037161**	**Ignore Flag**	
		F0 **DH018161**	**ON**	
		F1 **DH019161**	**Alive**	
		F2 **DH020161**	**Well TC**	
		F3 **DH021161**	**Well TM**	
		F4 **DH022161**	**Valid**	
		F5 **DH023161**	**Non-vital**	
		F6 **DH024161**	**NOMINAL**	
		F7 **DH025161**	**ON**	
		M12 **DH051161**	**Ignore Flag**	
		M_C **DH043161**	**Ignore CNT**	
		M8 **DH038161**	**Update status**	
		M9 **DH039161**	**Ignore Flag**	
		M10 **DH040161**	**Ignore Flag**	
		M11 **DH041161**	**Ignore Flag**	
		F12 **DH050161**	**DISABLED**	
		CNT **DH042161**	**LoopCnt1**	
		F8 **DH026161**	**Bus A**	

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		F9 DH027161 **F10 DH028161** **F11 DH029161** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : Configure SDB FDIR	**Healthy** **Healthy** **ENABLED**	
7		*Check updated Bus configuration*		Next Step: END
		Verify Telemetry **Active_Bus_A_B DEFJ1160**	**= BUS_A**	AND=ZAZAF999
		Verify Telemetry **BusA_HealthySts DEFJ2160**	**= Healthy**	AND=ZAZAF999
		Verify Telemetry (only set by Ground) **SDB_FDIR DEFJ4160**	**= ENABLED**	AND=ZAZAF999
		TC Seq. Name :HRD1006C (Set Bus B Healthy) *TimeTag Type:* *Sub Schedule ID:*		
8		*Check current Bus configuration*		Next Step: 9
		Verify Telemetry **Active_Bus_A_B DEFJ1160**	**= BUS_A**	AND=ZAZAF999
		Verify Telemetry **BusA_HealthySts DEFJ2160**	**= Healthy**	AND=ZAZAF999
		Verify Telemetry **BusB_HealthySts DEFJ3160**	**= Unhealthy**	AND=ZAZAF999
		Verify Telemetry (only set by Ground) **SDB_FDIR DEFJ4160**	**= ENABLED**	AND=ZAZAF999
		It is assumed that BUS B was ACTIVE, and there was a reconfiguration to BUS A ACTIVE **because one RT failed the wraparound test on BUS B while having successful wraparound test on BUS A.** In this condition BUS B will have been declared UNHEALTHY and BUS A will have been selected as ACTIVE. The following step declares BUS B as healthy. **This will work only if the correct status of all RTs has been already set (any RT failing wraparound test has been declared OFF and INVALID).**		

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
9		*Send TC(8,4,10,1) to set BUS B as HEALTHY*		Next Step: 10
		Execute Telecommand **ConfigureSDBFDIR**	**DC005161**	
		Command Parameter(s) :		
		RTA DH011161	**ACC B**	
		M0 DH030161	**Ignore Flag**	
		M1 DH031161	**Ignore Flag**	
		M2 DH032161	**Ignore Flag**	
		M3 DH033161	**Ignore Flag**	
		M4 DH034161	**Ignore Flag**	
		M5 DH035161	**Ignore Flag**	
		M6 DH036161	**Ignore Flag**	
		M7 DH037161	**Ignore Flag**	
		F0 DH018161	**ON**	
		F1 DH019161	**Alive**	
		F2 DH020161	**Well TC**	
		F3 DH021161	**Well TM**	
		F4 DH022161	**Valid**	
		F5 DH023161	**Non-vital**	
		F6 DH024161	**NOMINAL**	
		F7 DH025161	**ON**	
		M12 DH051161	**Ignore Flag**	
		M_C DH043161	**Ignore CNT**	
		M8 DH038161	**Ignore Flag**	
		M9 DH039161	**Ignore Flag**	
		M10 DH040161	**Update status**	
		M11 DH041161	**Ignore Flag**	
		F12 DH050161	**DISABLED**	
		CNT DH042161	**LoopCnt1**	
		F8 DH026161	**Bus A**	
		F9 DH027161	**Healthy**	
		F10 DH028161	**Healthy**	
		F11 DH029161	**ENABLED**	
		TC Control Flags : **GBM IL DSE** **--Y -- ---**		
		Subsch. ID : 10		
		Det. descr. : Configure SDB FDIR		
10		*Check updated Bus configuration*		Next Step: END
		Verify Telemetry **Active_Bus_A_B DEFJ1160**	**= BUS_A**	AND=ZAZAF999
		Verify Telemetry **BusA_HealthySts DEFJ2160**	**= Healthy**	AND=ZAZAF999
		Verify Telemetry **BusB_HealthySts DEFJ3160**	**= Healthy**	AND=ZAZAF999
		Verify Telemetry (only set by Ground) **SDB_FDIR DEFJ4160**	**= ENABLED**	AND=ZAZAF999

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		TC Seq. Name :HRD1006D (Set Bus B Active) *TimeTag Type: N* *Sub Schedule ID:*		
11		*Check current Bus configuration*		Next Step: 12
		Verify Telemetry **Active_Bus_A_B** **DEFJ1160**	**= BUS_A**	AND=ZAZAF999
		Verify Telemetry **BusB_HealthySts** **DEFJ3160**	**= Healthy**	AND=ZAZAF999
		Verify Telemetry (only set by Ground) **SDB_FDIR** **DEFJ4160**	**= ENABLED**	AND=ZAZAF999
12		*Send TC(8,4,10,1) to set BUS B as Active*		Next Step: 13
		Execute Telecommand **ConfigureSDBFDIR**	**DC005161**	
		Command Parameter(s) : **RTA** **DH011161**	**ACC B**	
		M0 **DH030161**	**Ignore Flag**	
		M1 **DH031161**	**Ignore Flag**	
		M2 **DH032161**	**Ignore Flag**	
		M3 **DH033161**	**Ignore Flag**	
		M4 **DH034161**	**Ignore Flag**	
		M5 **DH035161**	**Ignore Flag**	
		M6 **DH036161**	**Ignore Flag**	
		M7 **DH037161**	**Ignore Flag**	
		F0 **DH018161**	**ON**	
		F1 **DH019161**	**Alive**	
		F2 **DH020161**	**Well TC**	
		F3 **DH021161**	**Well TM**	
		F4 **DH022161**	**Valid**	
		F5 **DH023161**	**Non-vital**	
		F6 **DH024161**	**NOMINAL**	
		F7 **DH025161**	**ON**	
		M12 **DH051161**	**Ignore Flag**	
		M_C **DH043161**	**Ignore CNT**	
		M8 **DH038161**	**Update status**	
		M9 **DH039161**	**Ignore Flag**	
		M10 **DH040161**	**Ignore Flag**	
		M11 **DH041161**	**Ignore Flag**	
		F12 **DH050161**	**DISABLED**	
		CNT **DH042161**	**LoopCnt1**	
		F8 **DH026161**	**Bus B**	

Change Status of 1553 Bus
File: H_CRP_DHS_1006.xls
Author: S. Manganelli

Step No.	Time	Activity/Remarks		TC/TLM	Display/ Branch
		F9	**DH027161**	**Healthy**	
		F10	**DH028161**	**Healthy**	
		F11	**DH029161**	**ENABLED**	
		TC Control Flags :			
			GBM IL DSE		
			--Y -- ---		
		Subsch. ID : 10			
		Det. descr. : Configure SDB FDIR			
13		*Check updated Bus configuration*			Next Step: END
		Verify Telemetry			
		Active_Bus_A_B	**DEFJ1160**	**= BUS_B**	AND=ZAZAF999
		Verify Telemetry			
		BusB_HealthySts	**DEFJ3160**	**= Healthy**	AND=ZAZAF999
		Verify Telemetry (only set by Ground)			
		SDB_FDIR	**DEFJ4160**	**= ENABLED**	AND=ZAZAF999

End of Procedure

Info

RTA	Remote Term Addr	See below	The remote terminal address for which the FDIR flags shall be updated.
M0	Mask for F0	0..1	0 = Ignore Flag 1 = Update the status
M1	Mask for F1	0..1	0 = Ignore Flag 1 = Update the status
M2	Mask for F2	0..1	0 = Ignore Flag 1 = Update the status
M3	Mask for F3	0..1	0 = Ignore Flag 1 = Update the status
M4	Mask for F4	0..1	0 = Ignore Flag 1 = Update the status
M5	Mask for F5	0..1	0 = Ignore Flag 1 = Update the status
M6	Mask for F6	0..1	0 = Ignore Flag 1 = Update the status
M7	Mask for F7	0..1	0 = Ignore Flag 1 = Update the status
F0	RTA On/Off Status	0..1	Set the on/off status of the supplied RTA 0 = Off 1 = On
F1	RTA Dead/Alive	0..1	Set the status of the supplied RTA to Dead or Alive. 0 = Dead 1 = Alive
F2	RTA Well_TC/ Sick_TC	0..1	Set the status of the supplied RTA to Well_TC or Sick_TC. 0 = Sick_TC 1 = Well_TC
F3	RTA Well_TM/Sick_TM	0..1	Set the status of the supplied RTA to Well_TM or Sick_TM. 0 = Sick_TM 1 = Well_TM
F4	RTA Valid/Invalid	0..1	Set the status of the supplied RTA to Valid/Invalid. 0 = Invalid 1 = Valid
F5	RT Vital/Non-vital	0..1	Set the status of the logical RT (corresponding to supplied RTA) to Vital/Non-vital. 0 = Non-vital 1 = Vital
F6	RT Nominal/Redundant	0..1	Set the logical RT (corresponding to supplied RTA) to use nom or redund unit as active. 0 = Nom 1 = Redund
F7	RT TM Retry On/Off	0..1	Enables or disables the TM Retry for the logical RT (corresponding to supplied RTA). 0 = Off 1 = On
M12	Mask for F12	0..1	0 = Ignore Flag 1 = Update the status
M_C	Mask for Vital RT Loop	0..1	0 = Ignore CNT field 1 = Update Vital RT Loop counter
M8	Mask for F8	0..1	0 = Ignore Flag 1 = Update the status
M9	Mask for F9	0..1	0 = Ignore Flag 1 = Update the status
M10	Mask for F10	0..1	0 = Ignore Flag 1 = Update the status
M11	Mask for F11	0..1	0 = Ignore Flag 1 = Update the status
F12	TFL-TM FDIR Enable/Disable	0..1	Enables or disables the TFL-TM FDIR for the supplied RTA. 0 = Disable 1 = Enable
CNT	Vital RT Loop	1..3	Loop counter for vital RT DLL FDIR Retry for the logical RT (corresponding to supplied RTA)
F8	Active Bus A/B	0..1	Selects bus A or B for SDB 0 = Bus A 1 = Bus B
F9	Bus A Healthy/Unhealthy	0..1	Sets Bus A status flag to Healthy/Unhealthy 0 = Unhealthy 1 = Healthy
F10	Bus B Healthy/Unhealthy	0..1	Sets Bus B status flag to Healthy/Unhealthy 0 = Unhealthy 1 = Healthy
F11	SDB FDIR Enable/disable	0..1	Enables or disables the FDIR for the SDB. 0 = Disable 1 = Enable

Color code for the different parameters

in blue	RTA Configuration Matrix
in brown	RT Configuration Matrix
in red	Bus Configuration Matrix
	can be updated by FDIR

Remote Term Addr	
RTA	Herschel Unit
13	ACC A
14	ACC B
5	PCDU A
6	PCDU B
7	CCU A
8	CCU B
9	XPND 1
10	XPND 2
16	HIFI A
19	HIFI B
21	SPIRE A
22	SPIRE B
25	PACS A
26	PACS B
31	Broadcast

Exe order if more than one flag is updated by same TC

1. Disable FDIR
2. Update RTA On/Off Status
3. Update RTA Dead/Alive
4. Update RTA Well_TC/Sick_TC
5. Update RTA Well_TM/Sick_TM
6. Update RTA Valid/Invalid
7. Update RTA TFL-TM FDIR Enabled/Disabled
8. Update RT Vital/Non-Vital
9. Update RT Nominal/Redundant
10. Update RT TM Retry On/Off
11. Update Active Bus A/B
12. Update Bus A Healthy/Unhealthy
13. Update Bus B Healthy/Unhealthy
14. Update Vital RT Loop
15. Flush TC and Message queues
16. Enable FDIR