

FAO Maintenance Guideline from GeoDAS

1. Introduction

• This procedure describes a typical monthly check of a GeoSIG system. It will give some basic information about the state of recorder and sensor.

2. Required Tools

Recorder and Sensor you want to check, running and connected to network
 Access to GeoDAS server (computer with GeoDAS the recorder is connecting to)

3. Check for existing Procedures

• Please check if there is a project-specific procedure for your system to follow instead. Especially if your system is tied to an alarm system as the execution of the test pulse described in this procedure may cause an alarm.

Update Close

×

4. Access the latest Status Information

• In GeoDAS window Stations: General Information, right-click on the station and choose More Information...

H GeoSIG Data Acquisition System File Edit View Analyse Settings Tools Window Help Eccasa • 편 계승은 속
 Ecoso
 ●
 ▲
 ●
 ▲
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●
 ●</t a 300037 More Information... Disable File Operations Delete All Files Make sure the field Status date and time shows a recent date GMSplus Status and Basic Information Station EC833 ▼ Serial number 102833 Status date and time 2023-03-27 19:58:54 Firmware Encres and Wannings
 Event storage is used for more than 90%
 Event storage is used for more than 90%
 Encorect parameter or another configuration error
 A nerror in a system call
 Encre opening a file
 Encr oblem in the interval is immeasure resource
 Memory allocation error (tast)
 Reads access error
 Encr processing a user request
 Encr oploading file() to a server
 Encr oploading file() to a server
 Encr obloading for configuring a terversere securce
 General CoPP encr (Communication on hardware)
 DSP Duter covertion
 General CTC encr (Communication on hardware)
 SP allocation error with indjuffers
 Whingo a last india Ele promoted? Linux GeoSIG/ARM rootts-gms-149 Linux gms 2.6.39.4+25 RTC 80.02.03 Bootloader 21.12.29 Firmware 21.12.29 DSP 51.03.06 Files and Memory Total events 1291 Queued events 0 Lest event 2023-03-27 15:30:19 Oldest data 2023-03-27 19:45:28 Total space 60629.4 MB Free space 37081.3 MB Power Source External Voltage 14.0 V

Minimum voltage since last SOH report 14.0 V Backup battery voltage 33.3 V		Reading from a fi Non-critical config Missing or unexp Unexpected but r	Reading from a file failed. File corrupted? Non-critical configuration problem Missing or unexpected file, its name and/or size Unexpected but not critical event			warnings Error SWarning nation available yet	
Configuration and Restarts	•		Timing and GPS				Miscellaneous
Runs since	2023-03-27 15:29:13		Time source	NTP	GPS Status	Unavailable	Temperature, C 13.8
Last configuration	2008-01-01 01:54:02		RTC sync status	Locked			
Last shutdown	2023-03-27 15:29:08		Estimated drift rate	0.3 PPS			
Last shutdown reason	RTC logged: Incorrect S	Witching	Last sync 2023-03	3-27 19:58:49			

• If it is outdated, you can request new information from GeoDAS window Stations: General Information, right-click on the station and choose Instrument Control... -> Send a Request -> GETSOH -> [Send]



5. Check Errors and Warnings

Check the field Errors and Warnings and make sure no errors are present (all bullets green)

ation EC	0833	•	Serial number	102833	Status date and time	2023-03-27 19	58:54		Update	Close
-irmware				- 6	Errors and Warnings					
Linux Bootloader Firmware Files and Me Total events Last event Oldest data Total space Power Source Minimum vol Backup bath	GeoSIQ/APM [21.12.29] [21.12.29] [21.12.29] [21.12.29] [21.12.29] [21.12.29] [21.12.29] [21.12.29] [21.12.29] [21.12.29] [21.12.29] [21.12.29] [21.12.29] [20.23-03-22] [2023-03-22]	Outlingme-143 Linux gr RTC DSP Outling 15:30:19 19:45:28 9 Free space Voltage OH report	me 2.6.39.4-25 80.02.03 51.03.06 vents 0 57081.3.MB 14.0 V 14.0 V 3.3 V		Even storage is us Even storage is us Incoract parameter Error opening after Error openin	el dor more than in ro e another config- ic cell tem request a firmware resource more (deta) super request (s) to a server communication of communication of communication of communication of communication of relian by the compro- ted in potentian ted file, its name ted file ted fi	90% guration error ce ware resource whardware) ar hardware) rin ardware) and/or size	Non-critical particle Non-critical energy Non-critical energy Non-critical energy Non-critical energy Non-critical energy Reversing (con Data processing) Reversing (con Data processing) Alam manding pn Wvid sector energy Non-critical synch Proteinn is synch Sector context fail Message Gauses Sector context fail Message Gause Sector backens Sector	In with the time synchrono timing operation with hingh is error or unexpected evaluary for more the sense of the sense more the sense of the sense more sense of the sense transaction publics with NT consistion publics with NT consistion publics with NT consistion publics and the sense reference of the sense for the sense f	sation utters ent TP rs
Configuration	n and Restarts	[Timing and GPS	LUTD.	GPS Statue	Unavailabla	Miscellaneous	138
Huns since		2023-03-27 15:29:13			Time source	NIP	GI O Oldius	CHARGEORE	remperante, e	110.0
Last configu	ration	2008-01-01 01:54:02			RTC sync status	Locked				
Last shutdo	wn	2023-03-27 15:29:08			Estimated drift rate	0.3 PPS				
		Terrer .	2000							

6. Check Battery Voltages

Check the field **Power** If the recorder is powered from AC (Source External), **Voltage** should at least show **13.5V** If your recorder (only GMS-xx, GMSplus and CR-6plus) has a backup battery, the **Backup battery voltage** should be at least **3.0V**

MSplus Status a	and Basic Information							>
tation EC833	3 _	Serial number	102833	Status date and time	2023-03-27 15	158.54		Update Close
Firmware				Errors and Warnings				
Limux GG Bootlooder 21 Firmwere 21 Filmwere 21 Files end Memor Totel events Last event Oldest data Totel space Power Source Ed Minimum voltage Backup battery v	eoSiQAPA nosts-gms-143 112.29 122.9 123.1 122.9 123.1 122.9 123.1 122.9 123.1 122.2 123.1 123.2 123.1 123.2 123.1 123.2 123.1 123.2 123.1 123.2 123.1 123.2 123.1 123.2 124.2	1 Linux gne 2 & 39 4/25 ATC [00.82.03 DSP [51.01.06 Useued events [0] 400 Voltage [14.0 V 14.0 V 14.0 V 13.0 V		E Even storage is us Even storage is us Incorect permeters Error copering afte An error in a system Error copening afte An error in a filesystem Beyond the limit of Memory elicotation Plash access error Error rupicaling afte Error rupicaling after Despected after Herroritical configur Herroritical configur	ed for more than or a nother confi- cell smrare request ismmare resources and a strange that is the second strange and communication of communication communication of communication of communication of communication communication of communication of communicatio	99% garation emor ce were resource or hardware) or hardware) or hardware) or hardware) or hardware) and (or size	Anor-citical perior Non-critical perior Non-critical antern Non-critical antern Non-critical antern Non-critical antern Recurrent period Recurre	em with the time synchronisation during performan with indputents six encror or unexpected avent during the file transfer amor encro encro colored to the advance encro colored to the advance received to the advance received to the advance interface encro file/ solution solution solution solution and the advance dollage is circles/ty low college is circle
Configuration and	d Restarts			Timing and GPS				Miscellaneous
Runs since	2023-03-27 1	15:29:13		Time source	NTP	GPS Status	Unavailable	Temperature, C 13.8
Last configuration	on 2008-01-01 0	01:54:02		RTC sync status	Locked			
Last shutdown	2023-03-27 1	15:29:08		Estimated drift rate	0.3 PPS			
Last shutdown m	eason RTC logged	I Incorrect Switching		Last sync 2023-03-2	7 19:58:49			

Main battery should be replaced every 3 years (See Warnings and Safety in User Manual)
 Backup battery should be replaced every 5 years (See Warnings and Safety in User Manual)

• To set battery installation date : In GeoDAS window Stations: General Information, right-click on the station and choose Instrument Control... -> Send a Request -> SETBATDATE yyyy-mm-dd -> [Send] or from the webinterface under Status and Maintenance -> Maintenance or through the serial console in Test and Configuration Menu -> T - Battery installation dates

7. Check Time Synchronisation

Check the field Timing and GPS

· check the held ining and of b		
 Time source should show NTP or GPS 	(whenever possible, an external time source	ce such as NTP or GPS should be used)

Time source should show NTP or GPS RTC sync status should show Locked

MSplus Sta	atus and Basic li	nformation						- 0
ation E	EC833	•	Serial number	102833	Status date and time	2023-03-27 19:58:54		Update Close
Firmware -				Error	rs and Warnings			
Linux Bootloader Firmware	GeoSIG/APM 21.12.29 21.12.29	rootts-gms-149 Linux gr RTC DSP	60.02.03		Event storage is full Event storage is use Incorrect parameter of An error in a system Error opening a file Error deleting a file	d for more than 90% or anather configuration error call	Non-critical problem Non-critical error duri Non-critical network o Non-critical network o Non-critical error duri I2C data transfer erro RTC werning (comm	with the time synchronisation ing operation with ringbutters error or unexpacted event ing the file transfer unication or hardware)
Files and M	lemory			- 1	An error in a filesyste Beyond the limit of a	m request firmware resource	Data processing error Alarm handling problem	or lem
Total event Last event Oldest date Total spac Power Source Minimum vi Backup ba	ts 1291 2023-03-2 a 2023-03-2 e 60629.4 M Externel Ottage since last 1 ttery voltage	Oueved e 715:30:19 719:45:28 8 Free space Voltage Voltage	vents 0 37081.3 MB 14.0 ∨ 14.0 ∨ 3.3 ∨		Memory ellocation e Flash access error Error processing a u Error uploading filed Error allocating or co Generic FLC error (c DSP buffer overflow Generic FLC error (c An error during oppert Viring to 6 file failed Network error Unexpected error Reeding from a file fa Non-chical configure Missing or unexpect Unexpected but not c	mor (Idea) Ser request Infiguing a hardware resource ammunication on hardware) ation with ringfutfers Diak kul? Jake Hile compted? aden problem of tile, it mare and/or size minical work	Wind sensor error Non-critical synchron Problem in synchrons Sensor offset fellure Massage Ousue Inte Sensor hardware fel Backup battey volte Backup battey volte Backup battey volte Digitizer or DSA error Meine battey verring Other arrors or warni Status OK E Fe No status information	leation problem with NTP seation with NTP servers drace error use ge is clucitly low ge is low reader in a bed stelle bed stelle detected rigs co
Configuratio	on and Restarts -			Timi	ng and GPS			Miscellaneous
Runs since	•	2023-03-27 15:29:13		Tim	ie source	NTP GPS Status	Unavailable	Temperature, C 13.8
Last config	guration	2008-01-01 01:54:02		RT	C sync status	Locked		
Last shutd	lown	2023-03-27 15:29:08		Est	imated drift rate	0.3 PPS		
Last shutd	own reason	BTC logged: Income	at Switching	1.00	2023-03-27	10.59.49		

8. Remove offset

• In GeoDAS window Stations: General Information, right-click on the station and choose Instrument Control... -> Send a Request -> REMOVEDC -> [Send]

Action or a con	nmand	Send a Requ	iest	~	Send
Request and p	arameters	REMOVEDO	1		× 1.
Send unco	nditionally				~
Sends a user r	equest to the ins	trument. Enter po	rameters as advi	sed below	

9. Request Test Pulse

• In GeoDAS window Stations: General Information, right-click on the station and choose Instrument Control... -> Send a Request -> TSTSENSOR 1 -> [Send]



• A miniseed file with the recorded pulse (file prefix CAL_) will be uploaded to the Data folder of your station in GeoDAS (C:\GeoDAS_DATA\Data\)

C:\GeoDAS_DATA\Data\EC833			
Name	Date modified	Туре	Size
CAL_102833_20230327_153019_Trigger1.msd	27.03.2023 17:30	GeoDAS Document	75 KB

10. Check Test Pulse

• The shape of the test pulse is depending on the sensor type. A reference pulse recorded at the factory is shipped for each sensor on the usb key, the file can be found in the folder Calibration\Test_files_Sensors (file prefix TP_ with the SN of the sensor). It is also recommended to record a test pulse after installation and keep it with later records for comparison.

10.1 Test pulse of AC-7x

Double-click the file to open it in GeoDAS
Click into the yellow part of the window to make the cursor appear
Move the cursor to the flat part of the pulse
Check that the value of the flat part for each axis is within the range of 0.1125g-0.1375g



10.2 Test pulse of AC-2x



10.3 Test pulse of AC-4x

Double-click the file to open it in GeoDAS
 Click into the yellow part of the window to make the cursor appear
 Move the cursor to the flat part of the pulse, x- and y-axis should show a similar value, the z-axis should show a higher value
 Open a reference file of the same sensor and check that the flat part for each axis on the newly recorded pulse does not deviate more than +/-10%

GSGMS File: TP_58324_102845_20220505_072002_Start: 05.05.2022_07:20:01.400 Length: 13.305 sec (2661 samples at 200 sps)

Peak: 0.2492	g at 07:20:06 Window RMS / PP: 0.0446 / 0.2682	g 0.2290					
0.20 E							
8 0.00 F							
-0.10				Reference			
-0.20			0.22991				
E	- 107.00.00 HC - DND (DD 0.0450.00.0700			7		1	
0.24 Peak: 0.2532	g at 07:20:06 VVIndow RIVIS / PP: 0.045270.2720	g 0.2330					
0.16					Axi	s New TP Reference	Deviation %
p 0.08			0.2315		X	0.2290 0.2299	-0.39
8 0.00					Y	0.2330 0.2315	0.65
9 -0.08					7	0 3134 0 3128	0.19
-0.16						0.0101	
-0.24			0.3128	-1			
0.32 Peak: 0.3388	g at 07:20:06 Window RMS / PP: 0.0606 / 0.3661	g 0.3134					
-							
0.16							
5.6							
8 0.00	· · · · · · · · · · · · · · · · · · ·						
-0.16							
E.							
-0.32							
07:20:02	07:20:04	07:20:06.475	07:20:08	07:20:10	07:20:12	Time	07:20:1

10.4 Test pulse of AC-6x

Double-click the file to open it in GeoDAS
Click into the yellow part of the window to make the cursor appear
Move the cursor to the flat part of the pulse, depending on the sensor generation, the pulse may be negative or positive
Open a reference file of the same sensor and check that the flat part for each axis on the newly recorded pulse does not deviate more than +/-10%



10.5 Test pulse of VE-1x

Double-click the file to open it in GeoDAS
Click into the yellow part of the window to make the cursor appear
Check that the pulse is with similar shape as shown in the picture below
Move the cursor to the peak of the positive pulse to read the value for each axis
Open a reference file of the same sensor and check that the peak for each axis on the newly recorded pulse does not deviate more than +/-10%

6	Peak - 6.76 mm/s at 12.01.54 Window RMS / PP: 1.54 / 15.76 mm/s 6. 59		Reference
20 - C- 0			6.93
9 6 3 0 5 6 6 3 0 6	Peak- 9.00 mm/s at 12.01.54 Window RMS / PP. 1.61 / 16.30 mm/s 2 13		6.60
-9 6 3 0 3 -3	Peak8.78 mm/a at 12.01.54 Window RWS / PP: 1.55 / 15.73 mm/a		Axis New TP Reference Deviation % X 6.99 6.93 0.87 Y 7.19 6.80 5.74 Z 6.95 6.60 5.30
-6	40 12:01:53 680	12 01 55 12 01 57	12/11/59 Turns 1

10.6 Test pulse of VE-2x

Orotable-click the file to open it in GeoDAS
 Click into the yellow part of the window to make the cursor appear
 Check that the pulse is with similar shape as shown in the picture below
 Move the cursor to the peak of the positive pulse to read the value for each axis

• Open a reference file of the same sensor and check that the peak for each axis on the newly recorded pulse does not deviate more than +/-10%

File: TP_59220_SL1_57704_SL2_57781 Start: 14	3.09.2019 09:10:52.600 Length: 26.800 sec (5	360 samples at 200 sps)						
Peak: 1.553 mm/s at 09.11.02.330 Window RMS	/ PP: 0.197 / 2.739 mm/s 1.553							
				R	efe	renc	e	
				1.652				
E					A			
					N			
						10		
		V V				V		
		V		1 609				
09:11:00.567	09:11:01:591 09:11:02:330 09:	11.02.615 09.11:0	3.639 09.11.04.663	1.000	1			Time
File: TP_59220_SL1_57704_SL2_57781 Start: 1	8.09.2019 09:10:52.600 Length: 26.800 sec (5	360 samples at 200 sps)	erseen heren oor oor oor oor					66,210,93
Peak: 1.560 mm/s at 09:11:02.330 Window RMS	/ PP: 0 203 / 2 759 mm/s 1.560					1000		
	IN IN					V		
						×		
				1.596				
					A			
						7		
						V		
		V				v		
		V						
09:11:00.567	09:11:01:591 09:11:02:330 09:	11:02.615 09:11:0	3.639 09.11.04.663	09.1	1:05.687	.09:	11:06.711	Time
File: TP_59220_SL1_57704_SL2_57781 Start: 1	3.09.2019 09:10:52.600 Length: 26.800 sec (5	360 samples at 200 sps)	the target in the second s	20100	5/2-0705X			20.9245
Fear: 1.622 mm/s at 09 11.02.330 Window RWS	7 PP- 0.2057 2.861 mm/s 1622					-		
E	IN IN			Axis Ne	ew TP	Reference	Deviation %	
				X	1.5530	1.6520	-5.99	
		many		Y	1.5600	1.6080	-2.99	
				7	1,6220	1.5960	1.63	man
						2.00000		
		- V						
09-11-00-567	09 11 01 591 09 11 02 330 09	11 02 615 09 11 0	3 639 09 11 01 663	09-1	1:05 687	09 -	11.05.711	Time

10.7 Test pulse of VE-5x-SP



10.8 Test pulse of VE-5x-BB

Double-click the file to open it in GeoDAS
Click into the yellow part of the window to make the cursor appear
Check that the pulse is with similar shape as shown in the picture below
Move the cursor to the peak of the positive pulse to read the value for each axis
Open a reference file of the same sensor and check that the peak for each axis on the newly recorded pulse does not deviate more than +/-10%

