DSDCODE Software User Manual

Introduction

DSDCODE is a simple program that allows the user to process an Argos DS data file and display the location and sensor data in an easy to read format. The decoding process will also create a generic database file in .dbf format that can be opened using any software application that supports this format such as Microsoft Excel. The DS file that is to be processed can contain multiple Argos ID's and the result will be a single .dbf file that will be created for each Argos ID. If subsequent DS files are processed from the same folder location on the user's PC, any additional data for an Argos ID that was previously processed will be appended to the existing .dbf file and allow the user to maintain a cumulative set of data for each Argos ID in one file. In addition, the Argos ID data displayed within the DSDCODE program will also be cumulative.

While DSDCODE is not required to view Doppler location data contained in DS data files, it is required in order to decode the GPS fixes as well as the sensor data transmitted from the PTT's. Sensor data, if equipped and available include GPC fix info, battery voltage, temperature, activity, etc.

Installation

The installation of the DSDCODE software is very easy in that the program file/executable merely needs to be copied to your hard drive and run from that location. To launch the application, simply double click on the file "dsdcode4.exe".

Included with the DSDCODE program is an executable file named "msjavx86.exe" which will install Microsoft VM (Virtual Machine). This should only be installed in the event that you receive "Java" errors when the application is run or during file processing.

Processing Data

The first step in processing a DS file is to copy it to your hard drive. It is recommended that you create a directory dedicated to your Argos data. For the purposes of this manual, we'll assume that you've created a directory named "Argos Data" on your C: drive (c:\Argos Data). Copy your DS file to this directory for processing.

Before processing your DS file, you will need to know whether your data has been formatted by Argos in decimal or hexadecimal format. If you are not sure of the format of your ID's, refer to APPENDIX A.

Next, from within the DSDCODE application, you'll need to be sure the application is configured to process the DS file using the appropriate formatting. By default, DSDCODE is configured to process DS files using "Decimal" formatting. If your data is in "Hexadecimal", click on the "Setup" pull-down menu and uncheck the "Force Decimal Processing" option.

DS	Dcode						
File	Setup Utilities	Help					
ID n	Input Format		put File	File Size	Record Count	Comment	
l	Force Decimal F	rocessing					
		N					
-							-

After configuring DSDCODE for the appropriate formatting, click on the "File" pull-down and choose "Select File To Process" from the menu items.

DS Dcode						
ile Setup Utilities	Help					
Select File To Proce View a File Exit	:SS <u>S</u>	Output File	File Size	Record Count	Comment	
	-		_	_		_

From within the file open window, browse to the location where you copied your DS file. If your file does not show up in the window, you may need to change the "File of Type:" selection depending on the file extension of the DS file (typically either .ds or .txt). Select your DS data file and choose "Open".

DS De	ode							_ 🗆 ×
File Setup	Utilities. He	slip						
ID number	Parsing Sta C	utput File	File Si	Record Co	Comm			
1	Open						? ×	
	Look in: 🔯	Argos Data			-	∎ 💣 🖩 🔻		
	Argos PTT E	Data.txt						
	-							A
	File name:	[pen	
	Files of type:	Text Data	a (*.txt)			- C	ancel	
(Argos DS Text Data All Files(*	6 Data (*.d: a (*.txt) :**)	s,*.cap)				×
Characters P	e File size	DS For	ce Decima	d				14

After selecting the DS file, DSDCODE will process the data and display a list of the Argos ID's in which data was processed.

DS Deod	e				
File Setup	Utilities Help				
ID number	Parsing Status	Output File	File Size	Record Count	Comment
10001 10002 ks 10003	Completed Completed Completed	C:Vargos DataVID_DataV10001 fpx C:Vargos DataVID_DataV10002.fpx C:Vargos DataVID_DataV10003.fpx	19200 22200 20400	64 74 68	
Filtering Doub Converting co Opening sour Assigning re Pass 1writi Numeric Conv	le Carriage Returns mpressed DS Data cord typewriting to ng to file: C: Vargos ersion Error Count =	from source file: C:\Argos Data\Argos in source file: C:\Argos Data\Argos ta\Argos PTT DS Data File.txt o file: C:\Argos Data\Argos PTT DS D Data\Argos PTT DS Data File.ps1 =0	:PTT DS Data File.tx TT DS Data File.txt ata File.tmp	t Filtering Comp Compressed pro	oleted
Pass 2write Creating dBas record cou Pass 3build Creating File: Sorting and P > CopyOver	ng to hile: C:\Argos ielV File: C:\Argos I int: 447 ding PTT ID list file: C:\Argos Data\ID_1 acking File: C:\Argo File: C:\Argos Data	Data Vargos PTT DS Data File.ps2 Data Vargos PTT DS Data File.dbf C: Vargos Data Vargos PTT DS Data F Data V10001.fpx Sa Data VID_Data V10001.fpx (C: Vargos a VID_Data V10001.dbg (C: Vargos Data	ïle.IDs Data\ID_Data\1000 \ID_Data\10001.fpx)	11.dbg)	-
5		- II			2
134700	134100	DS Fi	hished		

NOTE: Processing the DS data file also creates a generic database .dbf file(s) for each Argos ID which will be discussed later. For now, we'll concentrate on reviewing data from within the DSDCODE application.

Reviewing Data

Double-click an ID to review the processed data for that PTT. Each line of data represents either an Argos calculated Doppler fix, a GPS fix or a transmission that was received by satellite from the PTT and contains the corresponding sensor data that was received in that message. If a Doppler location/fix was successfully calculated for a given set of transmissions/messages received during a satellite pass, this group of messages will be preceded by the line "Doppler Fix" along with the location time of fix, location quality, accuracy, latitude, longitude, etc.

Each line of data can be identified & summarized as follows:

- Doppler Fix This will be an Argos calculated Doppler fix based upon the messages received from the PTT by an Argos satellite. This line of data will contain the Lat/Long, date & time of fix (GMT), location quality, accuracy & satellite name.
- 2. **GPS Fix** This line contains a GPS fix and corresponding data transmitted by the PTT. This line of data will contain the Lat/Long, date & time of fix (GMT), accuracy, GPS acquisition time in seconds, etc.
- 3. Sensor Data This represents a message received that is transmitted by the PTT that contains sensor data such as voltage, temperature, activity, transmission counter, etc. Typically on a GPS PTT this sensor data message is sent in one out of every 5 transmissions with all other transmissions/messages containing GPS location data. On Doppler only PTT's, this sensor data is sent in every transmission with each message containing certain pieces of sensor info & cycled through in a round robin fashion in order to send out all pertinent sensor data.

NOTE: The example images & data included within this documentation is for a GPS PTT. The Doppler only PTT data will look very similar with the exception of GPS fixes not being present. When looking at GPS PTT data as shown above, it is important to understand that there are likely many more messages received from the PTT than what is reflected in DSDCODE. The reason for this is that the PTT sends out GPS fixes in a messages and it cycles through a certain number/window of recent GPS fixes stored in memory. After it has transmitted out all the GPS fixes in this window it will cycle through and transmit them again in a round robin fashion. As a new GPS fix is acquired, it is added into this sliding window and the oldest fix will be moved out (FIFO). This method of cycling through the GPS fixes increases the chances of all locations being received by ARGOS. When DSDCODE processes the GPS data, it will only list a particular fix once even though it may have been transmitted and received by Argos numerous times.

Perform	mance									
item	PTT ID Number	Program	Satellite	Record Type	Time Of Measure	Time Of Measure (Long)	Quality Index	Quality Description	Latitude	Longitude
36	10001	00001		GPS Fix	2009-08-20 07:01:03	602622108630		< 26 m	39.9449	-106.9182
17	10001	00001		Doppler Fix	2009-08-20 08:52:05	602622175249	3	accuracy < 150m	39.946	-106.919
18	10001	00001		Sensor Data	2009-08-20 08:55:05	602622177050	3	accuracy < 150m	39.946	-106.919
19	10001	00001		Sensor Data	2009-08-20 08:57:05	602622178250	3	accuracy < 150m	39.946	-106.919
10	10001	00001	NOAA18	Doppler Fix	2009-08-20 09:01:05	602622180649	3	accuracy < 150m	39.945	-106.917
1	10001	00001	NOAA18	Sensor Data	2009-08-20 09:02:05	602622181250	3	accuracy < 150m	39.945	-106.917
2	10001	00001		GPS Fix	2009-08-20 13:00:59	602622324589		< 26 m	39.9428	-106.9130
13	10001	00001		GPS Fix	2009-08-20 14:00:39	602622360390		< 26 m	39,9429	-106.9129
14	10001	00001		GPS Fix	2009-08-20 20:00:57	602622576569		< 26 m	39.9403	-106.9129
15	10001	00001		GPS Fix	2009-08-21 07:00:57	602622972570		< 26 m	39,9397	-106.9137
16	10001	00001		GPS Fix	2009-08-21 13:01:57	602623189170		< 26 m	39,9399	-106,9116
7	10001	00001		GPS Fix	2009-08-21 14:00:21	602623224210		< 26 m	39,9410	-106,9119
8	10001	00001		GPS Fix	2009-08-21 20:01:03	602623440630		< 26 m	39,9410	-106,9115
9	10001	00001		GPS Fix	2009-08-22 07:00:39	602623836390		< 26 m	39,9403	-106,9117
0	10001	00001		GPS Fix	2009-08-22 13:01:09	602624052690		< 26 m	39,9401	-106,9110
1	10001	00001		GPS Fix	2009-08-22 14:01:03	602624088630		26 m - 50 m	39,9401	-106,9107
2	10001	00001		GPS Fix	2009-08-22 20:02:07	602624305269		< 26 m	39,9394	-106.9111
3	10001	00001		GPS Fix	2009-08-23 07:01:03	602624700630		< 26 m	39,9391	-106,9043
4	10001	00001		GPS Fix	2009-08-23 13:00:57	602624916570		< 26 m	39.9400	-106.9111
5	10001	00001		GPS Fix	2009-08-23 14:00:34	602624952340		< 26 m	39,9401	-106.9111
6	10001	00001		GPS Fix	2009-08-23 20:00:39	602625168390		< 26 m	39,9400	-106.9111
7	10001	00001		GPS Fix	2009-08-24 07:00:39	602625564390		< 26 m	39,9402	-106,9069
58	10001	00001		GPS Fix	2009-08-24 13:00:57	602625780570		26 m - 50 m	39,9403	-106,9106
59	10001	00001		GPS Fix	2009-08-24 14:00:40	602625816400		< 26 m	39,9401	-106,9107
ŝ	10001	00001		GPS Fix	2009-08-24 20:00:39	602626032390		< 26 m	39 9393	-106 9108
61	10001	00001		GPS Fix	2009-08-25 07:00:39	602626428390		< 26 m	39,9390	-106,9114
12	10001	00001	NOAA15	No Fix	2009-08-25 11:11:00	602626578599		1.9940	000000	
13	10001	00001	NOAA15	Sensor Data	2009-08-25 11:11:00	602626578600				
4	10001	00001	NOAA15	Sensor Data	2009-08-25 11:12:00	602626579200				
5	10001	00001	NOAA16	Doppler Fix	2009-08-25 12:35:00	602626628999	2	149m < accuracy < 35	39,938	-106.912
6	10001	00001	NOAA16	Sensor Data	2009-08-25 12:35:00	602626629000	2	149m < accuracy < 35	39,938	-106,912
17	10001	00001	NOAA16	Sensor Data	2009-08-25 12:38:00	602626630800	2	149m < accuracy < 35	39,938	-106.912
18	10001	00001	NOAA16	Sensor Data	2009-08-25 12:40:00	602626632000	2	149m < accuracy < 35	39,938	-106 912
9	10001	00001	NOAA15	Doopler Fix	2009-08-25 12:46:00	602626635599	3	accuracy < 150m	39.940	-106 912
'n	10001	00001	NOAA15	Sensor Data	2009-08-25 12:46:00	602626635600	3	accuracy < 150m	39.940	-106 912
ä	10001	00001	NOAA15	Sensor Data	2009-08-25 12:48:00	602626636800	3	accuracy < 150m	39.940	-106.912
2	10001	00001	invento.	GPS Fix	2000-08-25 12:40:00	602626644630	2	< 26 m	30 0403	-106 0100
13	10001	00001		GPS Fix	2003-08-25 13:01:05	602626680250		< 26 m	39 9403	-106 9111
74	10001	00001	NOAA16	Doppler Fix	2003-00-25 14:00.25	602626688660	3	accuracy < 150m	30 0/1	-106.9111
-	10001	00001	NOAMID	Doppier i ix	2003-00-23 (4.14.27	00202000003	2	accuracy s room	33.341	-100.314

If you wish to review a summary of the Doppler Fixes/Locations, click "Performance" option at the top of the window to bring up the GPS & Doppler location summary for the Argos ID. Within this window, you may also filter the locations displayed to a specific date/time period by selecting the "Time Span" link and entering this information accordingly.

Time Span	Report																	
ETTID	St	art Time	St	on Time		Locations	Duality 3	Quality 2	Dualite 1	ារ	ality. Fi	Guality A	Quality B	Average	Quality 1	RESI	ocations	
10001	2009-08	-14 13:01:0	9 2009-08	-25 16	17:27	55	4	1	2	-		2	Same -	0.010.0	1 10.0		46	
	Street Cale	ANY MACHINE			11.00									1				
																		1
10001	00001	METOPA	Doppler	Fix	2009	-08-20	05:48:00	60262	2064799	Ĥ	no	estimate	. < 4 m	nsgs.	39.9	43	-106.927	1
10001	00001		GPS	Fix	2009	-08-20	07:01:03	60262	2108630				< <	26 m	39.94	49	-106.9182	i.
10001	00001	NOAA19	Doppler	Fix	2009	-08-20	08:52:05	60262	2175249	3		accuracy	/ < 150r	n -	39.9	46	-106.919	
10001	00001	NOHH18	Doppler	Fix	2005	-08-20	09:01:05	60262	2180649	3		accuracy	/ < 150n		39.9	95	-106.917	
10001	00001		GPS	Pix	2002	-08-20	13-00-57	60262	2324587				2	26 11	37.74	20	-106.7130	
10001	00001		GPS	Fix	2003	-08-20	20.00.57	60262	2576569				2	26 m	39 94	03	-106 9129	í.
10001	00001		GPS	Fiv	2009	-08-21	02:00:57	60262	2972570				č	26 m	39 93	97	-106 9137	1
10001	RANN1		GPS	Fix	2005	-08-21	13:01:57	60262	3189170				č	26 m	39.93	99	-106.9116	2
10001	00001		GPS	Fix	2005	-08-21	14:00:21	60262	3224210				ć	26 m	39.94	10	-106.9119	P-
10001	00001		GPS	Fix	2009	-08-21	20:01:03	60262	3440630				<	26 m	39.94	10	-106.9115	
10001	00001		GPS	Fix	2009	-08-22	07:00:39	60262	3836390				<	26 m	39.94	03	-106.9117	
10001	00001		GPS	Fix	2009	-08-22	13:01:09	60262	4052690				- <	26 m	39.94	01	-106.9110	I.
10001	00001		GPS	Fix	2009	-08-22	14:01:03	60262	4088630		26	m	-	50 m	39.94	01	-106.9107	5
10001	00001		GPS	Fix	2009	-08-22	20:02:07	60262	4305269				<	26 m	39.93	94	-106.9111	
10001	00001		GPS	Fix	2005	-08-23	07:01:03	60262	4700630				5	26 m	39.93	91	-106.9043	5
10001	00001		GPS	Fix	2005	-08-23	13:00:57	60262	4916570				5	26 m	39.94	NN	-106.9111	<u> </u>
10001	00001		GPS	Fix	2003	-08-23	14:00:34	60262	4752340				2	26 1	37.74	100	-106.9111	e -
10001	00001		GFS	Pix	2002	-08-23	20.00.37	60262	5166370				>	20 1	37.74	00	-100.7111	6
10001	00001		CPC	Pix	2001	-09-24	13-00-57	60262	5780570		26	-		50 m	37.79	02	-106.7007	
10001	00001		GPS	Fix	2003	-08-24	14-00-40	60262	5816400		20	10	1	26 m	39 94	0.3	-106 9107	í
10001	00001		GPS	Fix	2009	-08-24	20:00:39	60262	6032390				2	26 m	39 93	93	-106 9108	£
10001	00001		GPS	Fix	2005	-08-25	07:00:39	60262	6428390				i i	26 m	39.93	90	-106.9114	
10001	00001	NOAA16	Doppler	Fix	2005	-08-25	12:35:00	60262	6628999	2	149	A C accu	acy (3	350m	39.9	38	-106.912	la -
10001	00001	NOAA15	Doppler	Fix	2009	-08-25	12:46:00	60262	6635599	3	0.00	accuracy	< 150r		39.9	40	-106.912	<u> </u>
10001	00001		GPS	Fix	2009	-08-25	13:01:03	60262	6644630			Converse stera	<	26 m	39.94	03	-106.9109	5
10001	00001	A series to	GPS	Fix	2009	-08-25	14:00:25	60262	6680250				<	26 m	39.94	04	-106.9111	
10001	00001	NOAA16	Doppler	Fix	2009	-08-25	14:14:27	60262	6688669	3	and a	accuracy	/ < 150m	1	39.9	41	-106.914	Ľ
10001	00001	NOAA17	Doppler	Fix	2009	-08-25	15:44:27	60262	6742669	1	349	n < accu	macy < 1	.000m	39.9	38	-106.912	l,
10001	00001	METOPA	Doppler	Fix	2009	-08-25	16:17:27	60262	6762469	1	349	accus	acy < 1	.000m	39.9	40	-106.885	k

When the DS file was processed, a database (.dbf) file was created that includes all the decoded data from the DS file. This file with the .dbf extension will be located in the same location as the DS data file that was processed and will have the same filename as the DS file that was processed. Additionally, a database file is created for each of the Argos ID's that was contained in the DS file. These files will be located in the folder "ID Data" that was automatically created in the same folder location and will have a filename that matches the Argos ID for the PTT data it contains. These are generic database files that can be opened by any software application that supports the generic dBASE/database .dbf file format such as Microsoft Excel or Access.

These files contain the same decoded data that is displayed from within the DSDCODE application. Having these .dbf files will provide you options for sharing data, creating reports, spreadsheets, etc.

An example of the directory listing and files created by DSDCODE is illustrated below. There are numerous other files that are created by DSDCODE as necessary for processing. The .dbf files are the only files typically needed or used by the end user.

Name	Size	Туре	Date Modified
DD_Data		File Folder	8/26/2009 11:20 AM
Argos PTT DS Data File.ads	128 KB	ADS File	8/27/2009 9:56 AM
Argos PTT DS Data File.dbf	132 KB	DBF File	8/27/2009 9:56 AM
Argos PTT DS Data File.IDs	1 KB	IDS File	8/27/2009 9:56 AM
Argos PTT D5 Data File.ps1	28 KB	PS1 File	8/27/2009 9:56 AM
Argos PTT DS Data File.ps2	131 KB	PS2 File	8/27/2009 9:56 AM
📾 Argos PTT D5 Data File.tmp	136 KB	TMP File	8/27/2009 9:56 AM
🗐 Argos PTT DS Data File.txt	128 KB	Text Document	8/27/2009 9:56 AM
🗐 Argos PTT DS Data File.x	128 KB	X File	8/26/2009 11:20 AM
🔟 mrgy0	4 KB	File	8/27/2009 9:56 AM
🖬 srtx0	4 KB	File	8/27/2009 9:56 AM
2	5		

Name	Size	Туре	Date Modified	
Shapefiles		File Folder	8/26/2009 11:20 AM	
10001;dbF	26 KB	DBF File	8/27/2009 9:56 AM	
🛅 10001.dbg	25 KB	DBG File	8/27/2009 9:56 AM	
🛅 10001.fdt	25 KB	FDT File	8/27/2009 9:56 AM	
🛅 10001.fpx	25 KB	FPX File	8/27/2009 9:56 AM	
🛅 10001.srt	4 KB	SRT File	8/27/2009 9:56 AM	
10002.dbf	30 KB	DBF File	8/27/2009 9:56 AM	
🔟 10002.dbg	30 KB	DBG File	8/27/2009 9:56 AM	
🛅 10002.Fdt	30 KB	FDT File	8/27/2009 9:56 AM	
🔤 10002.fpx	30 KB	FPX File	8/27/2009 9:56 AM	
10002.srt	5 KB	SRT File	8/27/2009 9:56 AM	
10003.dbf	25 KB	DBF File	8/27/2009 9:56 AM	
🛅 10003.dbg	25 KB	DBG File	8/27/2009 9:56 AM	
📾 10003.fdt	25 KB	FDT File	8/27/2009 9:56 AM	
🛅 10003.fpx	25 KB	FPX File	8/27/2009 9:56 AM	
🖬 10003.srt	4 KB	SRT File	8/27/2009 9:56 AM	

As mentioned earlier, any time a new DS data file is to be used, it should be copied to the same folder location as previous ones and processed from there. This will guarantee that the new data will be appended to the existing PTT data in the directory structure. Otherwise new files will be created in the new locations and will contain only the data in the current DS file. Although not necessary, the DS files to be processed should always have the same filename or be renamed by the user accordingly each time before the file is processed. Backups of the DS and data files should be made periodically to prevent data loss in the event of a computer hardware failure.

To view previous PTT data without processing a DS file, you can either manually open the.dbf files using a compatible software application as explained above or by viewing from within DSDCODE. To view PTT data from within DSDCODE, choose "View a File" option from the "File" pull-down menu. Then browse to the ID_Data directory where your files are located and choose the filename with the .fpx extension that matches the ID of the PTT whose data you would like to view.

DS Dcode							
File Setup L	Jtilities	Help					
Select File T	o Process	s	Output File	File Size	Record Count	Comment	
View a File	N						
Exit	12						
	-	_					
		_			-		
Characters Rea	d File size		DS For	ce Decimal			

Open		? 🛛
Look in: shapefiles 10001.fpx 10002.fpx 10003.fpx	D_Data Type: FPX File Date Modified: 8/27/2009 9:56 AM Size: 24.6 KB	
File name:	10001.fpx	Open
Files of type:	Formatted PTT Files(*.fpx)	Cancel

APPENDIX A

Determining DS Data File/Argos Format:

Knowing the format in which Argos has processed and sent your data in is important before processing DS files within DSDCODE. If the appropriate format is not selected within DSDCODE, the resulting processed data may be missing sensor data, fixes, etc.

The two formats used are "Decimal" or "Hexadecimal". To determine what format your data is in, you can either consult an Argos user's service representative or by simply opening the DS file in a text editor such as Notepad. Upon inspection, you'll see multiple column's of data following the dates/times. If this data contains alphabetic characters (A-F) in addition to numeric characters, then the formatting is "Hexadecimal". If you see nothing but numeric characters, then the formatting is likely "Hexadecimal".

Example of Decimal formatted data:

10001, DS, 231/22,	A 2009-08-2	0 05.28.00	20 025 752 068	2 460 40	1662051
2009-08-20 05:2	7:00 1	00	01	94	95
		01	36	236	201
		02	190	19	169
		50	6E	84	00
		01	2B	ZA	01
		11	A2	В2	02
		03	19	157	141
		38	134	136	
2009-08-20 05:2	8:00 1	81	24	239	175
		202	06	24	89
		74	139	247	147
		32	33	00	68
		38	239	176	05
		06	24	156	74
		133	110	11	20
		05	01	00	
2009-08-20 05:2	9:00 1	191	28	239	1/5
		205	06	24	105
		74	139	105	41
		27	220	170	22
		28	239	1/0	13
		122	24	145	74
		135	194	123	29

Example of Hexadecimal formatted data:

Format View	Help						
001, D5, 231	/22,						
10001 22 :	19 M A 20	09-08-20	05:28:00	39,935	253.068	2,460 401	.663951
2009-08-20	05:27:00	1	46	0	0	73	D1
			1A	40	2	0A	D3
			5D	2,	<u>ц</u>	4F	96
			50	6	5.1	84	AO
			02	B	5	D7	4A
			93	BI	8	8D	18
			01	0	0	1E	F4
			46	93	3	00	
2009-08-20	05:28:00	1	46	0	0	73	D1
			1A	40	D	0A	F3
			5D	2,	α,	4F	96
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