

SATPAK2003 Manual - DRAFT

Overview

The structure of SATPAK2003 is such that many projects can be stored and analyzed. Each project can have multiple and varying instruments associated with it. This means that within a given project, SDR-T16s, SPLASHs, PATs, and SPOTs can all be stored and analyzed. In addition, for each instrument within a project, there can be multiple deployments. This is useful when a tag is deployed multiple times and on multiple subjects during a field season.

The first 3 tabs (Project, Instrument, and Deployment) of SATPAK2003, aid in the setup of a project, the setup of the associated instruments, and the setup of the deployment information. The fourth tab (Convert Raw Argos) takes an Argos data file as input and adds this data to the database for the deployments listed in the Process list box (only one of the possible multiple deployments for a given tag can be processed at a time). Data can be added incrementally or all at once.

The Create Data Files tab is used to create formatted data files of a given project's data.

When SATPAK2003 is first opened, data can be either entered into the database by stepping through the first 4 tabs, starting at the project tab, or files may be created by going directly to the Create Data Files Tab.

Project Tab

The screenshot shows the 'Project' tab of the SATPAK2003 application. The window has a title bar with the text 'SATPAK2003' and standard Windows window controls. Below the title bar is a menu bar with the following items: 'File', 'Project', 'Instrument', 'Deployment', 'Convert Raw Argos', and 'Create Data Files'. The 'Project' tab is currently selected. The main area of the window contains the following text and controls:

Only one Project may be analyzed at a time. Therefore, you may either select a project from the list below, or input a new one, but not both.

Please Select the Project ID associated with the tag data you would like to analyze

Project ID
test

Then press the next button.

- OR -

If this is the first project you are analyzing and the combobox is blank, or if you would like to add another project to your database, then input a new ProjectID below. Remember, you can only select a project from above or input a new one below, not both.

[Blank text box]

Enter the New ID

Press the next button.

Delete Selected Project

Next >>

On the project tab, you select the project for which you would like to add data.

If this is the first time you have opened SATPAK2003, or the project does not exist, then a new one can be started by typing in a project name in the blank text box and selecting Enter New ID.

Press the Next >> button to proceed using an existing project, or the Enter the New ID button to proceed by creating a new project.

You will then be moved to the Instrument tab.

Additionally, if you wish to delete unused or old projects from the database, this can be done through the Delete Selected Project button. Pressing this button will delete the project listed in the project ID drop down box. This deletion is permanent, so be sure you wish to proceed with its removal.

Instrument Tab

File

Project Instrument Deployment Convert Raw Argos Create Data Files

Add or make any necessary changes to the list of Instrument Serial Numbers and associated tag types for this project.

Project test

	ProjectID	SerialNum	TagType
▶	test	03T0001	T01
	test	04S0001	S04
	test	04L0001	L01
	test	04P0001	P04
*			

List of Possible TagTypes:

T01 = SDR-T16 v 3.14 and up
C01 = SSC3
S02 = SPOT2
S03 = SPOT3
S04 = SPOT4
P02 = PAT2
P03 = PAT3
P04 = PAT4
L01 = SPLASH

Click Next When Done Editing

Next >>

The instrument tab is used to add or update information pertaining to the project's instruments.

Within the table, information pertaining to the projects instruments can be added and updated. The list on the right gives the key for entering the correct TagType for a given instrument.

Clicking the Next >> Button will update any changes and move you to the deployment tab.

Deployment Tab

File

Project Instrument Deployment Convert Raw Argos Create Data Files

Step through your list of serial number making any needed additions to the deployment information

03T0001

<< <<| >> >>|

Delete Selected Deployment Data

	ProjectID	SerialNum	DeployID	Ptt	DateDeploy	ClockCorrect	DepthResolu	LocalTime00
▶	test	03T0001	test1	42908	8/5/2004	0	2	0
*								

Add to Process List

Process data using these tag headings.

Delete from Process List

Ptt	ProjectID	Serial#	DeployID	TagType
	test	03T0001		T01
	test	04S0001		S04
	test	04L0001		L01
	test	04P0001		P04

Next >>

The Deployment tab is used to update and add deployment information for the instruments contained within the current project.

By using the arrows (<< and >>) you can step through the instruments contain within the project and update or add deployment information for the listed Instrument. The arrows (<<| and >>|) will move you to the end or beginning of the instrument list.

Multiple deployments for a single instrument may be added by tabbing down to or selecting a new line once the appropriate information has been filled in on the first or current line.

Within the table, the first five fields need to be filled in for each deployment. Thus each deployment needs a:

ProjectID: this is the current project and will be filled in automatically.

SerialNum: This is the Wildlife Computers' Serial Number for the instrument and will be automatically filled in with the information entered or displayed in the table on the Instrument tab.

DeployID: This is a user defined ID. This field can be alpha or numeric and up to 50 characters in length.

Ptt: This is the Argos decimal Ptt for the instrument.

DateDeploy: This is the date that the instrument was deployed.

The following fields should **only** be filled in for T01 type instruments (SDR-ST-16 v3.14 and up):

ClockCorrect: This is the number of seconds that will be subtracted from the SDR clock time to accommodate for incorrectly programmed clock time or clock drift.

DepthResolution: This will be a number from 1 (for 0-250 m range instruments) to 7 (0-1750 m).

LocalTime00UT: This is the time (0-23) at the place of deployment that corresponds to midnight UT (GMT). This must be the same value that was programmed into your SDR.

SATPAK2003

File

Project | Instrument | Deployment | Convert Raw Argos | Create Data Files

Step through your list of serial number making any needed additions to the deployment information

04S0001

<< < > >>

Delete Selected Deployment Data

	ProjectID	SerialNum	DeployID	Ptt	DateDeploy	ClockCorrect	DepthResolu	LocalTime00
▶	test	04S0001	Test2	42908	8/5/2004	(null)	(null)	(null)
*								

Add to Process List

Process data using these tag headings.

Delete from Process List

Ptt	ProjectID	Serial#	DeployID	TagType
42909	test	03T0001	test1	T01
42908	test	04S0001	Test2	S04
	test	04L0001		L01
	test	04P0001		P04

Next >>

Once all of the information is up-to-date, the next step is to pick the deployments for which there is data to add to the database.

Only one deployment per instrument can be chosen. A deployment is chosen by selecting the appropriate deployment from the deployment table. The selected deployment will have a black triangle on the far left of the row. Then when the Add to Process List button is pressed, the information for the selected deployment will be added to the list at the bottom of the tab.

Only those Deployments for which there is a **Ptt listed** in the “Process data using these tag headings” list will have their data added to the database. In the example above, only ids 42909 and 42908 will have their data entered into the database, if any is encountered within the Argos data file.

SATPAK2003

File

Project | Instrument | **Deployment** | Convert Raw Argos | Create Data Files

Step through your list of serial number making any needed additions to the deployment information

04S0001

<< < > >>

Delete Selected Deployment Data

	ProjectID	SerialNum	DeployID	Ptt	DateDeploy	ClockCorrect	DepthResolu	LocalTime00
▶	test	04S0001	Test2	42908	8/5/2004	(null)	(null)	(null)
*								

Add to Process List

Process data using these tag headings.

Delete from Process List

Ptt	ProjectID	Serial#	DeployID	TagType
42909	test	03T0001	test1	T01
42908	test	04S0001	Test2	S04
	test	04L0001		L01
	test	04P0001		P04

Next >>

Deployments can be removed from the list by selecting the deployment to be removed and pressing the Delete from Process List button.

SATPAK2003

File

Project | Instrument | Deployment | Convert Raw Argos | Create Data Files

Step through your list of serial number making any needed additions to the deployment information

04S0001

<< < > >>

Delete Selected Deployment Data

	ProjectID	SerialNum	DeployID	Ptt	DateDeploy	ClockCorrect	DepthResolu	LocalTime00
▶	test	04S0001	Test2	42908	8/5/2004	(null)	(null)	(null)
*								

Add to Process List

Process data using these tag headings.

Delete from Process List

Ptt	ProjectID	Serial#	DeployID	TagType
42909	test	03T0001	test1	T01
	test	04S0001		S04
	test	04L0001		L01
	test	04P0001		P04

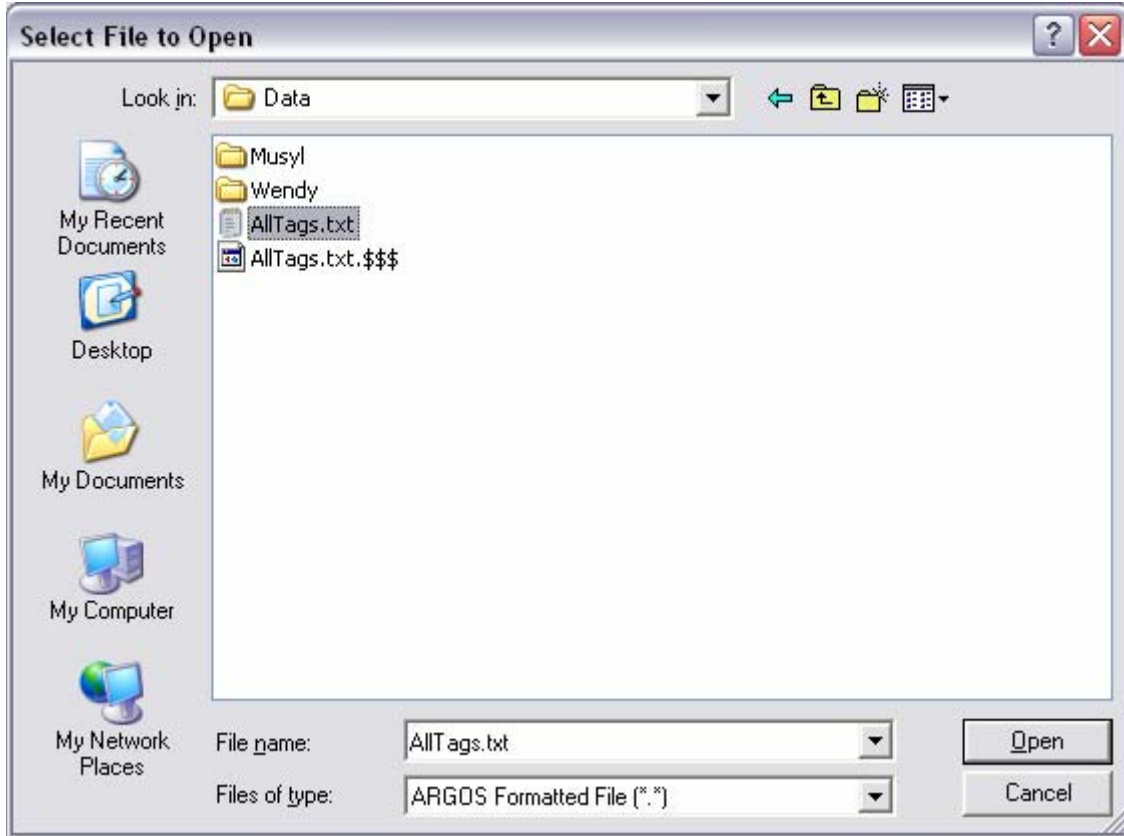
Next >>

In this case, only data for the deployment from Ptt 42909 will be added to the database.

Once all the proper deployments are selected, clicking the next button will move you to an open dialog box and to the Convert Raw Argos tab.

Additionally, if you wish to delete an unused deployment or incorrectly formatted deployment from the database, this can be done through the Delete Selected Deployment Data button. Pressing this button will delete the selected deployment (the one with the triangle next to it). This deletion is permanent, so be sure you wish to proceed with its removal.

Convert Raw Argos Tab



Select the file which contains the DS, Diag, or both DS and Diag data you wish to have processed. DS and Diag data do not need to be separated and can be concatenated into one file. If they are in separate files, you will need to run through the above steps for each file.

SATPAK2003

File

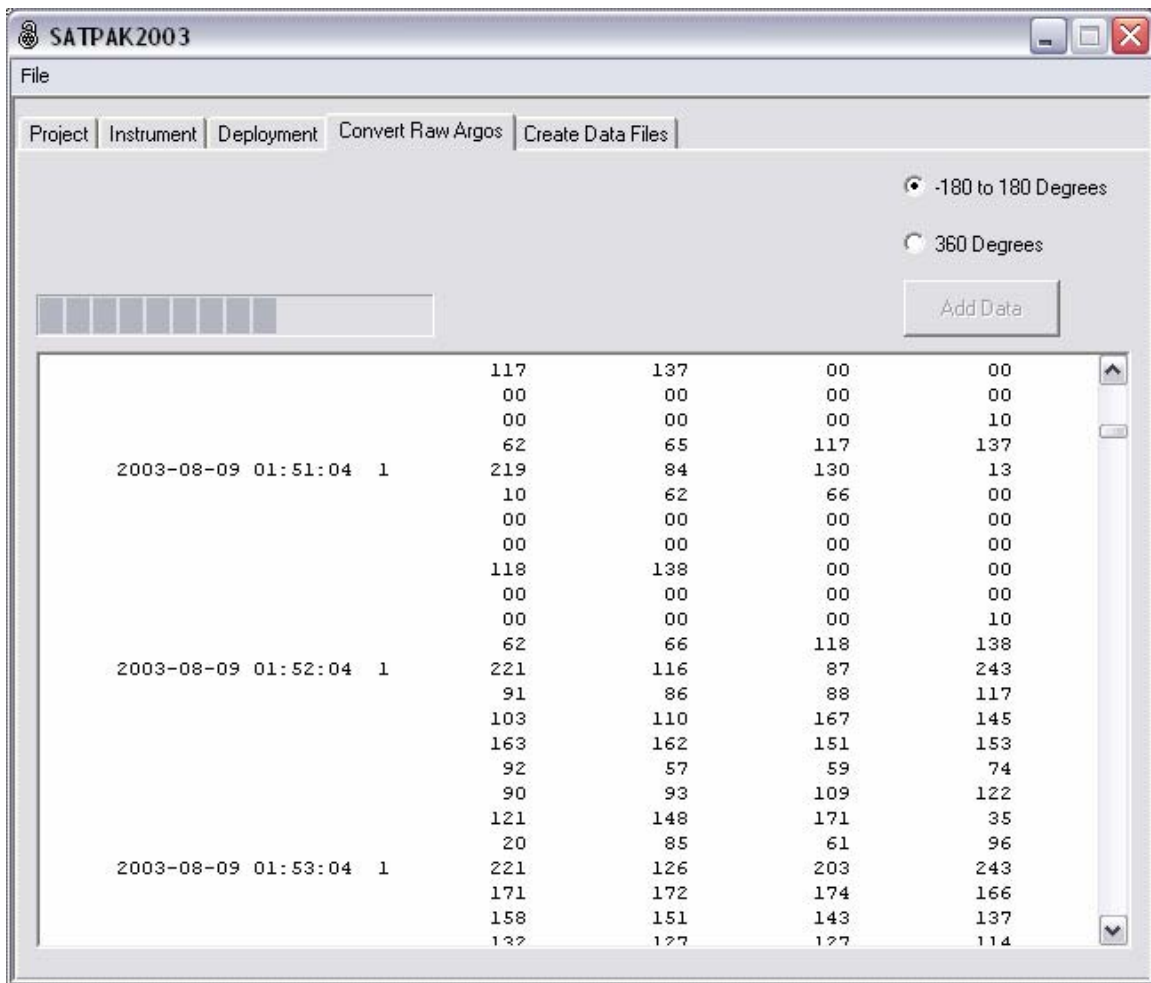
Project | Instrument | Deployment | **Convert Raw Argos** | Create Data Files

☒ -180 to 180 Degrees
☐ 360 Degrees

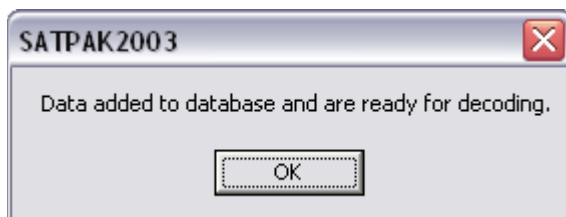
	117	137	00	00
	00	00	00	00
	00	00	00	10
	62	65	117	137
2003-08-09 01:51:04 1	219	84	130	13
	10	62	66	00
	00	00	00	00
	00	00	00	00
	118	138	00	00
	00	00	00	00
	00	00	00	10
	62	66	118	138
2003-08-09 01:52:04 1	221	116	87	243
	91	86	88	117
	103	110	167	145
	163	162	151	153
	92	57	59	74
	90	93	109	122
	121	148	171	35
	20	85	61	96
2003-08-09 01:53:04 1	221	126	203	243
	171	172	174	166
	158	151	143	137
	132	127	127	114

Once the file is opened, it will be displayed in the text box. At this point, you can select the format for which you would like your longitude data to be added to the database. The choices are either 0 to 360, or -180 to 180.

Pressing the Add Data button will start the conversion process that will result in the addition of these data to your tag database.

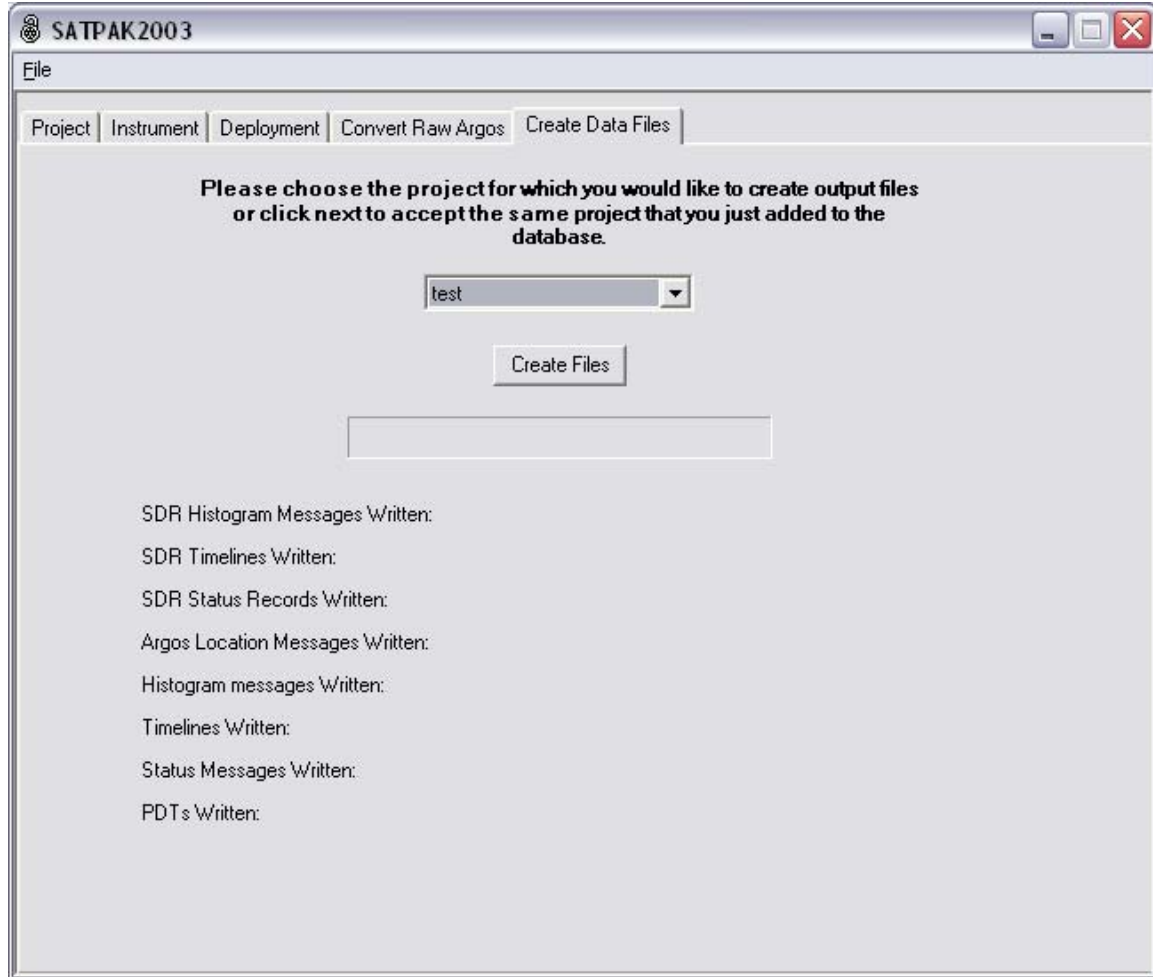


Once the database has been updated with the converted data, the following message will appear on the tab. The program may appear not to respond, but in all actuality, something is occurring and you will need to wait for the message below before continuing.



Once the OK is pressed, focus will change to the Create Data Files tab, where you can create CSV files the project.

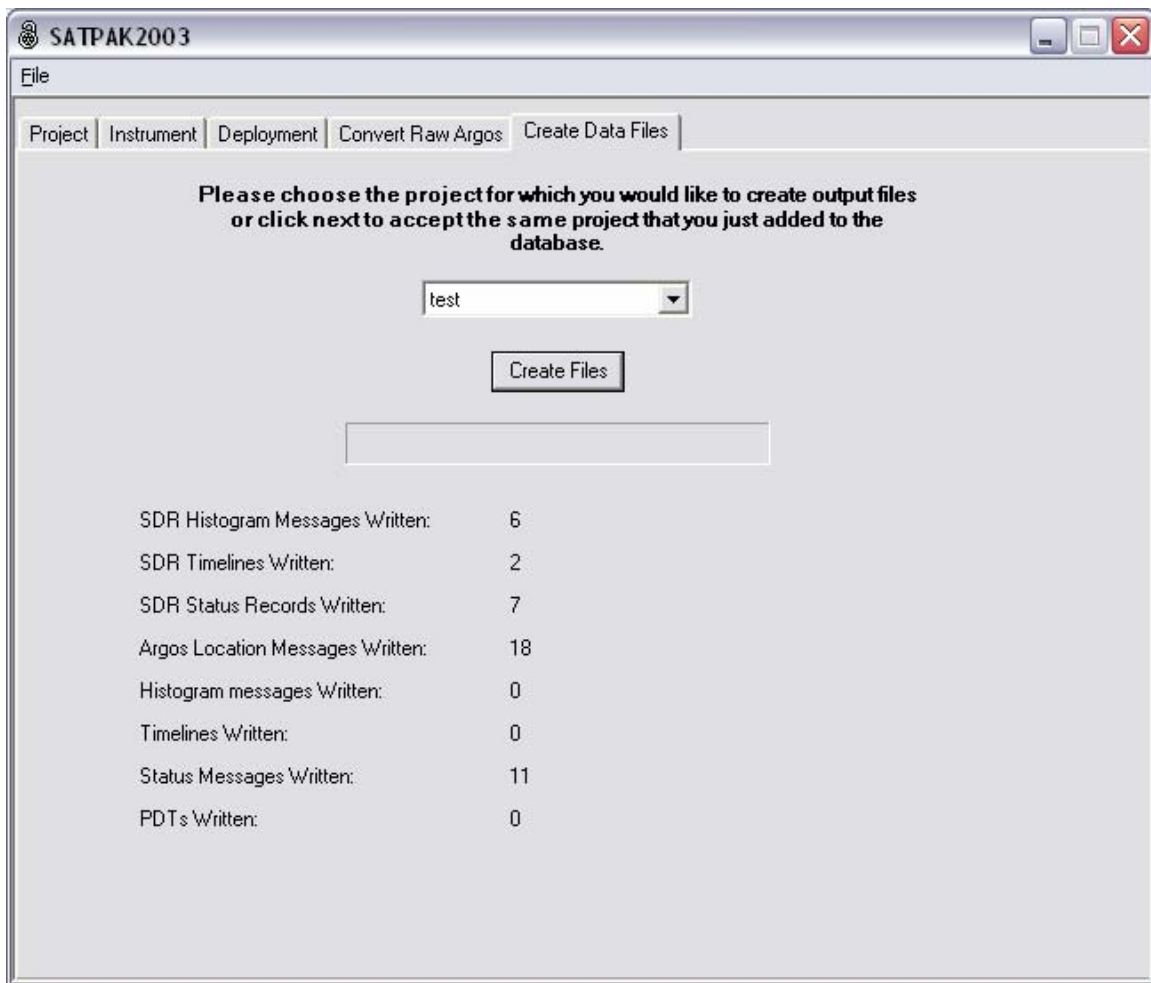
Create Data Files Tab



This tab can be accessed either through the normal manner of stepping through the tabs and thus entering new data to the database, or it may be accessed directly after program initiation.

Chose the project for which you wish to create data files and click the Create Files button. The program will then start to list the number of records written to each file.

The data files are recreated anew each time. Thus any previous data file will be rewritten. If you have done any data manipulation with these files, it is suggested that you rename the files or remove them from the directory before creating the files again.



Once the files are all created, the following prompt will be displayed.



You can then find your files through going to the STARTmenu > Programs> Wildlife Computers> DataOutputFiles. All files are CSV and will readily open in Excel.

Compacting the Database



Throughout the addition, deletion and creation of data files, the database will be heavily used. Proper maintenance of it will need to be performed routinely to assure proper program functioning. This maintenance can be easily done by selecting the compact database file menu option.

This option will create a copy of your existing database with the date appended to the file name, for example, WCTagDB21Oct2004.mdb.

Then the program will compact the database and save it with the correct name: WCTagDB.mdb. This file will be significantly smaller than the dated copy.

Once the process is finished, you will get the following message box:



The database copies can be removed, once you are sure of the new compacted database's functionality. Basically if you are able to add and retrieve data from it, then it is safe to delete the dated copies if you are concerned about disk space. Otherwise it does not hurt to keep them.

Description of created files

All files will begin with the project name and end with the following additional names and the CSV extension. Example: TestHistoSDR.csv, where Test is the name of the project.

HistoSDR.csv – This file contains the Histogram data from SDR-T16s, and SDR-SSC3s within the selected project.

TimelinesSDR.csv – This file contains the Timeline data from SDR-T16s, and SDR-SSC3s within the selected project.

StatusSDR.csv – This file contains the Status data from SDR-T16s, and SDR-SSC3s within the selected project.

Locations.csv – This contains the Argos derived location information for the selected project.

Histograms.csv – This file contains the histogram data from all other tags (SPLASH, all PATs, and all SPOTs) within the selected project.

Timelines.csv – This file contains the timeline data from all other tags (SPLASH and SPOT4) within the selected project.

Status.csv – This file contains the Status data from all other tags (SPLASH, all PATs, and all SPOTs) within the selected project.

PDTs.csv – This file contains the PDT data from PAT tags within the selected project.

SATPAK2003.rpt – This file contains detailed information about the file used to add data to the database as well as information pertinent to the creation of the above CSV files. This file can be found in the same directory as SATPAK2003.exe. The default directory is c:\Program Files\Wildlife Computers\Satpak2003.

Description of Created Files

The following headings are common to almost all of the files:

ProjectID – This is the name given to the project. This should also be at the beginning of the name of the file.

SerialNum – This is the serial number of the tag as displayed on the Instrument tab.

Ptt – This is the Ptt id of the tag.

DeployID – This is the user defined deployment ID displayed on the Deployment tab for the associated Serial number.

MsgDateTime – This is the Argos Date and Time of receipt of the associated data.

TagType – This is the 3 character designator of the tags type as displayed on the Instrument tab.

Repeats – This is the number of times the given data type was received by Argos.

DataDateTime – This is the date and time that the associated data was collected.

MsgType – This is the type of data listed.

Histogram.csv file:

ProjectID – see above

SerialNum – see above

Ptt – see above

DeployID – see above

MsgDateTime – see above

TagType – see above

Repeats – see above

DataDateTime – see above

MsgType – This is the type of histogram message being decoded.

Bin 1 – the following values are relative counts for the given bin. Percentage of time spent can be calculated by taking the sum of all the bins and dividing the bin count by this sum to get the fraction of time spent within the given bin widths. The bin width will need to be retrieved from the deployment setup of your tag.

Bin 2

....

Bin 14

BackupThermistor – This column represents whether or not the Backup thermistor on PAT tags was in use.

HistoSDR.csv file:

ProjectID – see above

SerialNum – see above

Ptt – see above

DeployID – see above

RecordType – see above

TagType – see above

LocalTime00UT – This is the value displayed in the deployment information and should correspond to the offset value programmed into the tag at deployment.

MsgDateTime – see above

MsgType - This is the type of histogram message being decoded.

Repeats – see above

State – this is the state of the tag at transmission. The value will either be OnLand or AtSea.

Comments – This column lists any processing difficulty associated with decoding the data.

DateCollected – This is the date on which the data were collected

PeriodCollected – This is the period of collection

Data01 – the following values are relative counts for the given bin. Percentage of time spent can be calculated by taking the sum and all the bins and dividing the bin count by this sum to get the fraction of time spent within the given bin widths. The bin width will need to be retrieved from the deployment setup of your tag.

Data02

....

Data14

Locations.csv file:

This file is created by comparing Dispose and DIAG pass dates and times. If the dates and times are equal, then only the dispose location is listed. If the dates vary, then both locations are listed.

ProjectID – see above.

SerialNum – see above.

Ptt – see above.

DeployID – see above.

TagType – see above.

RecordType – This is the type of Argos file from which the location was used. DS for Dispose and DI for DIAG.

DateDeploy – This is the Deploy data as displayed on the Deployment tab for the associated tag's deployment.

ReceptionDateTime – This is the Pass Date and Time as listed by Argos. If the Pass Date and time are missing from the pass header, then the date and time of the first message in the pass is used.

Satellite – This is the satellite which collected the data. In the case of Diag data, DI is used.

LocationQuality – This is the Argos classification of the quality of the derived location.

Latitude – This is either the Latitude as calculated in the Dispose message or in the case of DIAG messages, it is Latitude1.

Longitude - This is either the Longitude as calculated in the Dispose message or for DIAG messages, it is Longitude1.

Latitude2 – This is only used if the listed location is from a DIAG message.

Longitude2 - This is only used if the listed location is from a DIAG message.

PDTs.csv file:

(Currently only in use for PAT tags)

ProjectID – see above.

SerialNum – see above.

Ptt – see above.

DeployID – see above.

MsgDateTime – see above.

TagType – see above.

Repeats – see above.

DataDateTime – see above.

1 Depth – This is the minimum depth.

MinTemp – This is the minimum temperature associated with the preceding depth.

MaxTemp – This is the maximum temperature associated with the preceding depth.

2 Depth – This is a one of the most common depths between the Min and Max determined at a resolution of 4 meters.

MinTemp – This is the minimum temperature associated with the preceding depth.

MaxTemp – This is the maximum temperature associated with the preceding depth.

3 Depth – This is a one of the most common depths between the Min and Max determined at a resolution of 4 meters.

MinTemp – This is the minimum temperature associated with the preceding depth.

MaxTemp – This is the maximum temperature associated with the preceding depth.

4 Depth – This is a one of the most common depths between the Min and Max determined at a resolution of 4 meters.

MinTemp – This is the minimum temperature associated with the preceding depth.

MaxTemp – This is the maximum temperature associated with the preceding depth.

5 Depth – This is a one of the most common depths between the Min and Max determined at a resolution of 4 meters.

MinTemp – This is the minimum temperature associated with the preceding depth.

MaxTemp – This is the maximum temperature associated with the preceding depth.

6 Depth – This is a one of the most common depths between the Min and Max determined at a resolution of 4 meters.

MinTemp – This is the minimum temperature associated with the preceding depth.

MaxTemp – This is the maximum temperature associated with the preceding depth.

7 Depth – This is a one of the most common depths between the Min and Max determined at a resolution of 4 meters.

MinTemp – This is the minimum temperature associated with the preceding depth.

MaxTemp – This is the maximum temperature associated with the preceding depth.

8 Depth – This is the maximum depth.

MinTemp – This is the minimum temperature associated with the preceding depth.

MaxTemp – This is the maximum temperature associated with the preceding depth.

Data1Cksum

Data2Cksum

BackupThermistor – This column represents whether or not the Backup thermistor on PAT tags was in use.

Status.csv file:

Not all tags send all of the information listed below. The appropriate tag specific data will be filled in and the other left blank for a given tag. Please check with you tag manual to determine which values should be expected for each tag type.

ProjectID – see above.

SerialNum – see above.

DeployID – see above.

Ptt – see above.

TagType – see above.

RecordType – This is the type of Argos file from which the location was used, DS for Dispose and DI for DIAG.

MsgType – This will be Status.

MsgDateTime – see above.

Transmissions – This is the number of transmissions to date

BatteryVoltage – This is the current battery voltage

Temperature – This is the current tag temperature.

TagTime – This is the Time as reported by the tag.

Clockerror – This is the difference in seconds between the tag time and Argos time, thus showing clock error drift.

DeepDiveCount – This is the number of time the tag passed 600 meters

Depth – This is the current depth of the tag.

PinCorrosionHours – This is the number of hours it took to corrode through the pin.

ZeroDepthOffset – This is the value of the current depth offset.

PinBrokeBefore – This is set to yes if the pin was broke before Corrosion was started.

TagSoftwareVer – This is the version of tagware for this tag.

TagHardwareVer – This is the hardware version of the tag.

PrematureReleaseDepth – This is the depth at which premature release was detected and corrosion began.

PrematureReleaseDateTime – This is the date and time when premature release was detected and corrosion began.

LastDepth>600m – This is the last depth that the tag saw below 600 meters.

DateTimeDive>600m – This is the date and time of that Last Depth greater than 600 meters.

Cumulative Status – This is a value representing the cumulative runtime status of the tag.

Today's Status – This is today's and only today's status value. This value will be added to the cumulative status.

Today's Deepest Dive – This value is the deepest depth seen since Midnight.

Haulout – This value is yes if the tag was in haul out during the time of transmission.

Conductivity Threshold – This is the current conductivity threshold value.

Yesterdays Minimum Conductivity Reading – This is the minimum conductivity value used in determining the current threshold.

Yesterdays Maximum Conductivity Reading – This is the maximum conductivity value used in determining the current threshold.

Current Draw – This is the tag's current draw during transmission.

StatusSDR.csv file:

For more complete details, please see the SDR – T16 manual.

ProjectID – see above.

SerialNum – see above.

Ptt – see above.

DeployID – see above.

MsgDateTime – see above.

SDRTime – This is the time as reported by the tag at time of transmission.

ClockError – This is the difference in seconds between the SDR time and Argos time, thus showing clock error drift.

Transmissions

BatteryVoltage – This is the battery voltage of the tag at time of transmission.

ATSurfaceTime - This is the current at surface time.

PriorATSurfaceTime – This is the prior at surface time.

MaxDepth – This is the maximum depth as seen by the tag.

SWResistanceDepth – This is the tags assessment of seawater at depth.

PressureZero – This is the tags internal value used to offset the depth for drift.

Timelines.csv file:

ProjectID – See Above.

SerialNum – See Above.

Ptt – See Above.

DeployID – See Above.

MsgDateTime – See Above.

TagType – See Above.

Repeats – See Above.

DataDateTime – See Above.

MsgType - This will be either 20MinuteTimelines or PercentageTimelines.

0:00 – For 20MinuteTimelines, the data will be represented by a 1, if the tag was wet or deeper than the threshold, or 0, if the tag was shallower than the threshold or dry. This value is determined every 20 minutes.

0:20

0:40

1:00 – For the PercentageTimelines, This value will be a percentage of the time spent either dry or above the threshold depth. This value is determined hourly.

....

23:40

TimelinesSDR.csv file:

ProjectID – See above.

SerialNum – See above.

Ptt – See above.

DeployID – See above.

MsgType – This value will be 20MinuteTimeline

MsgDateTime – See above.

Repeats – See above.

Timeline date – This is the date of timeline collection. If the date cannot be accurately determined, then the raw value is listed.

State – this is the state of the tag at transmission. The value will either be OnLand or AtSea.

0:20 – For 20MinuteTimelines, the data will be represented by a 1, if the tag was wet or deeper than the threshold, or 0, if the tag was shallower than the threshold or dry. This value is determined every 20 minutes.

0:40

1:00

....

0:00