

Documenting Multibeam System Parameters in SIS

Multibeam Advisory Committee

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SIS 3.8.3

Outline

- Exporting system configuration parameters
- Screen grabs
 - Installation parameters
 - I/O configuration of sensors
 - Installation geometry
 - Runtime parameters
 - Preferred sounder mode of operation
 - External Sensors
 - Communication configuration for other sensors
 - Datagram Distribution
 - Distributing data to other software

1. Exporting Parameter Files

- Much of the system configuration can be exported as readable text configuration files which can later be imported. This is useful in quickly reconstructing a working system after a SIS re-installation.
- There are exporting options under the SIS “File” menu.
 - Export PU parameters: saves “Installation Parameters” and “Runtime Parameters”
 - Export User Settings: saves user preferences, datagram distribution list, etc.
- Do
 - store the configuration files off the SIS machine in a write protected, yet easily accessible, location on the ship’s network
 - prepare some metadata for the files describing the date/time and hardware/software/firmware versions of the system they pertain to
 - Setup a naming convention that captures the date, platform, sonar type and file contents, e.g. 2012_081_Kilo_Moana_EM122_PU_parameters.txt
- Don’t
 - edit the configuration files, they are easily corrupted by wayward keystrokes

Exporting PU Parameters

The screenshot shows the SIS software interface. The 'File' menu is open, and 'Export PU parameters...' is highlighted. The main display area shows a bathymetric map with a depth profile plot below it. The parameter table on the right side of the interface is as follows:

Numerical display	
N 24.66675	North DD.
W 154.53329	East DD.D
225.95	Heading
1.58	Pitch
-1.53	Roll
-0.41	Heave
12.40	Speed kn
2012 3 21	ZDA Date
06:05:40	ZDA Time
06:05:39	PU Time
1	PU - ZDA
161	PU - POS
4907.11	Depth
DEEP	Mode
HIDENS EQDIST	Beam sp.
205/216	Beams
57/56	Coverage
6941/5893	Port/Stb.
1529.00	SV Profile
1529.30	SV Used
1529.4	SV sensor
0.05	Ping Hz
2786	Pingno.
1	Qfactor
0	Qnc

At the bottom of the interface, the status bar shows: Mode: DEEP, Depth: 4907.11, Across: 12835.14, Soundspeed: 1529.00. The Windows taskbar at the bottom shows the Start button and several open applications including SIS, C:\Pyth..., SVP Edit..., user_se..., common, and EM122_... The system clock shows 6:05 AM.

Exporting PU Parameters

The screenshot displays the SIS software interface. A central dialog box titled "Export PU parameters..." is open, showing a file explorer view of the "E:\" directory. The "pu_param" folder is selected. The dialog includes fields for "Directory:", "Name", "File Name:", and "File Filter:" (set to "Parameter settings file (*.txt)").

The background interface shows a map with coordinates (1:170000 (24.66N,-154.55E)) and various data plots including "Beam intensity", "Cross track", "Seabed image", and "Wave display". A status bar at the bottom displays "Mode: DEEP", "Depth: 4822.65", "Across: 11856.87", and "Soundspeed: 1529.00".

Exporting PU Parameters

The screenshot displays the SIS software interface with the 'Export PU parameters...' dialog box open. The dialog box is titled 'Export PU parameters...' and shows the following details:

- Directory: pu_param
- File Name: 2012081_Kilo_Moana_EM122_PU_parameters.txt
- File Filter: Parameter settings file(*.txt)

The background interface shows a map with coordinates (1:170000 (24.65N,-154.56E)) and various data plots including 'Beam intensity', 'Cross track', 'Seabed image', and 'Save display'. The status bar at the bottom indicates 'Ready' and provides real-time data: Mode: DEEP, Depth: 4824.33, Across: 8091.98, Soundspeed: 1529.00.

Exporting PU Parameters

The screenshot displays the SIS software interface with a 'User comment' dialog box open. The dialog box contains the following text:

Backed up after fresh SIS v3.8.3 (build90) installation.

The background interface shows various data plots and a parameter table. The parameter table is as follows:

Geographical		Numerical display	
N 24.62117	North DD.	227.63	Heading
W 154.58948	East DD.D	-0.31	Pitch
		-1.41	Roll
		0.44	Heave
		11.60	Speed kn
		2012 3 21	ZDA Date
		06:25:54	ZDA Time
		06:25:55	PU Time
		264	PU - ZDA
		140	PU - POS
		4825.83	Depth
		DEEP	Mode
HIDENS EQDIST	Beam sp.	169/216	Beams
		61/56	Coverage
		6337/3579	Port/Stb.
		1529.00	SV Profile
		1529.90	SV Used
		1529.8	SV sensor
		0.04	Ping Hz
		2906	Pingno.
		1	Qfactor
			unc

The status bar at the bottom shows: Mode: DEEP, Depth: 4825.83, Across: 9916.60, Soundspeed: 1529.00. The taskbar shows the start button and several open applications: SIS, C:\Pyth..., SVP Edit..., user_se..., common, and EM122_... The system clock shows 6:25 AM.

Exporting User Settings

The screenshot shows the SIS software interface. The 'File' menu is open, and 'Export User settings...' is highlighted. The main window displays a bathymetric map with a grid and a depth scale. The right-hand panel shows a table of data points.

Numerical display	
N 24.60908	North DD.
W 154.60460	East DD.D
228.54	Heading
1.66	Pitch
-0.38	Roll
0.53	Heave
12.09	Speed kn
2012 3 21	ZDA Date
06:31:21	ZDA Time
06:31:22	PU Time
253	PU - ZDA
139	PU - POS
4830.47	Depth
DEEP	Mode
HIDENS EQDIST	Beam sp.
169/216	Beams
58/54	Coverage
5468/3332	Port/Stb.
1529.00	SV Profile
1529.50	SV Used
1529.5	SV sensor
0.04	Ping Hz
2936	Pingno.
1	Qfactor

Mode: DEEP Depth: 4830.47 Across: 8800.25 Soundspeed: 1529.00

Exporting User Settings

The screenshot displays the SIS software interface with two dialog boxes open. The 'Save User settings' dialog is in the foreground, showing a 'Storage path' field with the text 'mon\user_settings' and a 'Settings name' field. Below these fields is a list of exportable settings: 'User Parameters', 'Datagram subscriptions', 'Survey templates', 'Projections', 'Frame settings', and 'External sensor settings'. The 'Accept' button is highlighted. In the background, the 'Select Raw Data Folder Root' dialog is open, showing a file explorer view of the 'E:\' drive. The 'user_settings' folder is selected under the path 'E:\sisdata\common'. The 'Directory:' field at the bottom of this dialog contains the path 'E:\sisdata\common\user_settings'. The main SIS interface shows various data plots, including 'Beam intensity', 'Cross track', 'Seabed image', and 'Wave display'. The status bar at the bottom indicates 'Mode: DEEP', 'Depth: 4856.53', 'Across: 9679.01', and 'Soundspeed: 1529.00'. The taskbar shows the 'start' button and several open applications, including 'C:\Pyth...', 'SVP Edit...', and 'user_se...'.

Choose the path first, then enter a filename prefix that follows your naming convention.

Exporting User Settings

The screenshot shows the SIS software interface with a 'Save User settings' dialog box open. The dialog box contains the following information:

- Storage path: mon\user_settings ...
- Settings name: 122_User_Settings
- Export selection:
 - User Parameters
 - Datagram subscriptions
 - Survey templates
 - Projections
 - Frame settings
 - External sensor settings
- Buttons: Accept, Cancel

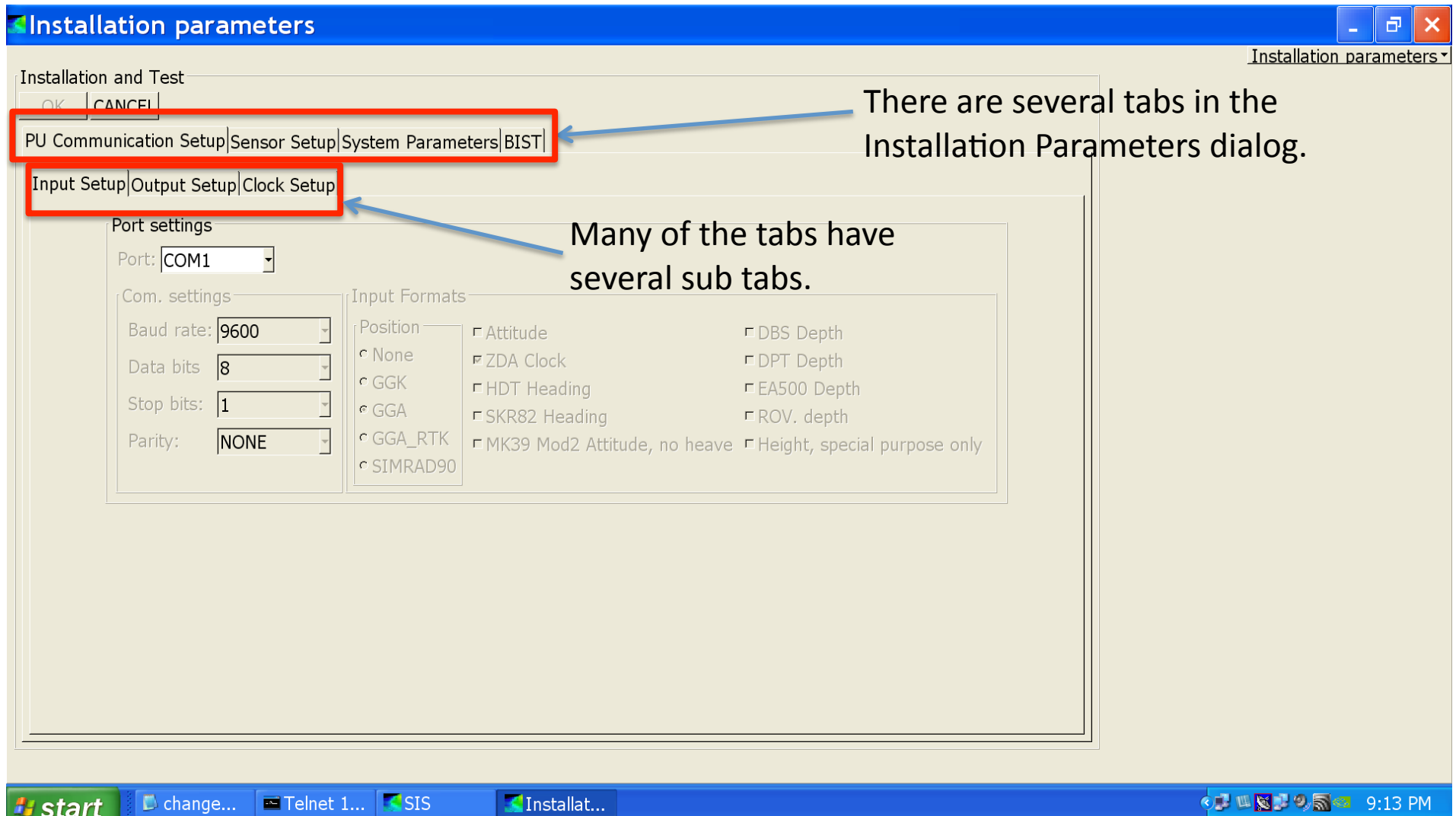
The background interface shows a map with a depth scale of 1:170000 (24.63N, -154.58E) and various data plots including 'Beam intensity', 'Cross track', 'Seabed image', and 'Water Column'. The status bar at the bottom indicates 'Mode: DEEP', 'Depth: 4861.31', 'Across: 10042.59', and 'Soundspeed: 1529.00'.

Choose all of the options to export and click Accept.

2. Screen Grabs

- Screen grabs allow for a safer, if more labor intensive, reconstruction of the last known good operating state of the system and can help deal with
 - SIS database corruption: it may be inadvisable to re-import configuration files that might be causing the corruption.
 - SIS upgrades: the migration of these types of settings is not always successful
- Do
 - Tag screen grabs with date/time and organize in a meaningful manner
 - Store some metadata along with the screen grabs that clearly indicate the multibeam hardware/firmware/software versions that they pertain to
 - Collect screen grabs from software of other sensors that are associated with the multibeam (e.g. motion sensor), this will allow for reconstruction of the mapping system as a whole

Installation Parameters



Open an “Installation Parameters” tear-off window and complete screen grabs for all tabs (View menu, the select “Tear off”).

Installation Parameters

Installation parameters

Installation and Test

OK CANCEL

PU Communication Setup | Sensor Setup | System Parameters | BIST

Input Setup | Output Setup | Clock Setup

Port settings

Port: COM1

Com. settings

Baud rate: 9600

Data bits: 8

Stop bits: 1

Parity: NONE

Input Formats

Position

- Attitude
- ZDA Clock
- HDT Heading
- SKR82 Heading
- MK39 Mod2 Attitude, no heave
- DBS Depth
- DPT Depth
- EA500 Depth
- ROV. depth
- Height, special purpose only

There are multiple entries in this selection menu, make sure you get a screenshot for each one (COM1, COM2, COM3, COM4, UDP2, UDP5).

start | change... | Telnet 1... | SIS | Installat... | 9:13 PM

Runtime Parameters

Runtime parameters

Runtime parameters

Sounder Main | Sound Speed | Filter and Gains | Data Cleaning | GPS and Delayed Heave | Simulator | Survey Information

Sector Coverage

	Port	Starboard
Max. angle (deg.):	75	75
Max. Coverage (m):	20000	20000
Angular Coverage mode:	AUTO	
Beam Spacing:	HIDENS EQDIST	

Depth Settings

Force Depth (m): 5300

Min. Depth (m): 100

Max. Depth (m): 7500

Dual swath mode: DYNAMIC

Ping Mode: AUTO

FM disable

Transmit Control

Pitch stabilization

Along Direction (deg.): 0

Auto tilt: OFF

Yaw Stabilization

Mode: REL. MEAN HEADING

Heading: 0.0

Heading filter: MEDIUM

External Trigger

There are many tabs in the “Runtime Parameters” dialog menu. Most of the important parameters that affect sounding coverage and density are on the first tab. It is a good idea to document each of these tabs to help get the system back to a safe default mode prior to the beginning of each cruise.

start | change... | Telnet 1... | SIS | Input S... | Snagit | Runtime... | 9:25 PM

External Sensors

Input Setup

Sound Velocity Probe

Port: COM1

Probe available:

Probe type: AML SV&T (C+T)

SVP Logger

Port:

SVP Logger avail:

Barometer

Port:

Barometer avail:

Geodimeter

Port:

Geodimeter avail:

Echosounder

Port:

Echosounder avail:

Real time Tide

Port:

Realtime Tide avail:

Output Setup

Auto Pilot

AP Port:

Auto Pilot avail:

Dyn Pos

Dyn Pos Port:

Dyn Pos avail:

Depth below keel

Port:

Depth below keel avail:

Heading

Sensor name:

Serial Port:

Ethernet IP addr.:

Port addr.:

Add

Compass deviation file:

Position

Sensor name:

Serial Port:

Ethernet IP addr.:

Port addr.:

Position delay (sec.): 0.00

Forward (X) Starboard (Y) Downward (Z)

Add

Location offset (m) 0.00 0.00 0.00

Waterline for NMEA single beam(m). Downward (Z) 0.00

Port: COM1

Baud rate: 9600

Data bits: 8

Stop bits: 1

Parity: NONE

A single screen grab will document the sensor configuration. If you have multiple sensors and multiple COM ports defined, then you will need to get a screen grab for each COM port.

Under the “Tools” menu, select “External Sensors”.

Datagram Distribution

Request datagrams from EM

Echosounder: EM122_109
 Datagram: Position (P)
 Options: All
 IP:Port: []

Subscribe Unsubscribe

Please restart SIS for changes to take effect

Datagram	IP:Port	Interval
Information	localhost9004	All
Information	localhost4002	All
Motion sensor	localhost4002	All
Clock	localhost4002	All
Depth	localhost4002	All
Installation	localhost9004	All
Position	localhost16108	All
Position	localhost9004	All
Position	localhost9009	All
Position	localhost4002	All
Position	HDPG:5052	All
Runtime	localhost4002	All
XYZ88	localhost4002	All
Height	localhost4002	All
Watercolumn	localhost16102	All
Position	192.168.1.67:3500	All
Information	192.168.1.67:3500	All
Motion sensor	192.168.1.67:3500	All
Clock	192.168.1.67:3500	All
Single beam depth	192.168.1.67:3500	All
Sound speed at transducer	192.168.1.67:3500	All
Compass	192.168.1.67:3500	All
Sound speed profile	192.168.1.67:3500	All
Sound speed profile	192.168.1.67:3500	Every 30. second
Sound speed profile	192.168.1.67:3500	All
Height	192.168.1.67:3500	All
Watercolumn	192.168.1.67:3500	All
Raw range and angle 78	192.168.1.67:3500	All
XYZ88	192.168.1.67:3500	All
SeabedImageData89	192.168.1.67:3500	All
Installation	192.168.1.67:3500	Every 30. second
Runtime	192.168.1.67:3500	Every 30. second
Sound speed profile	192.168.1.67:3500	Every 30. second
Stop	192.168.1.67:3500	Every 30. second

Exit Help

Note the scrolling bar on the right, you may need to get several screen shots to capture all the datagrams.

Ready. Mode: DEEP Depth: 5399.05 Across: 13124.30 Soundspeed: 1526.20

Under the “Tools” menu, select “Custom” then select “Datagram Distribution”.