Setup of DL21

Checklist for Commission and test of DL21 (DL2 and DL1)

Test Nr	Task	Test to be performed	Done
DL2			
DL2 – 1	Wire/ Check the system	Wire together the JB70 LAN and CU-M001 Graphic display • Display does not show 'NO COMMUNICATION'	
DL2 – 2		Set up the config as per instructions Wire NMEA IN, NMEA OUT • MFD shows VBW,a.a,,V,x.x,y.y,A,,A,z.z,A , MTW, VLW	
DL2 - 3		Wire Relay output J2 to common alarm • Remove power (AC and DC) and check you see alarm	
DL2 – 4	Install and connect sensor for DL2 to the JB70 unit (J3) Connect JB70 to CU-M001 display Check Sensor	Check Using the service software and the self test in Config – Diagnostic – Self test, • Serial Number of sensor (DL2) should be same as on cable	
DL2 – 5		• Firmware version should be correct (2.14 or greater)	
DL2 – 6		• Live data should show quality factor (QF) 8 or 9 Upgrade firmware to the version on the skipper websites	
DL2 – 7	Install any updates to the conning system	Check on MFD that you see inputs from DL2 • You can see input VBW, VLW, MTW, occasional VDALR, Check on MFD that you can see the Outputs to the Log	
DL2 – 8		• You can see VTG, DPT, GGA, occasional ACK	
DL2 – 9 DL2 - 10	Check input to DL2 and test alarm acknowledge	Set High speed alarm to 9kn. Set config-diagnostic- start simulation to 10kn • Check alarm sounds • Check alarm can be acknowledged	

Test Nr	Task	Test to be performed	Done
DL2 – 11	Check NMEA 1 input	Check on display – Config – Communication, that the input is showing GYRO information. • Can see HDT/THS, ROT • Can see aft speed on page D	

DL1			
Test Nr	**Task**	**Test to be performed**	**Done**
DL1 – 1 DL1 - 2	Wire/ Check the system	Wire together the JB70 CN1 and CD402CU compact display • Compact shows STW on first line Wire NMEA IN NMEA OUT • MFD shows VBW,x.x,,V,,,A,,A,,A , MTW, VLW Wire Relay output CN1 to common alarm	
DL1 – 3 DL1 – 4 DL1 – 5	Install and connect Sensor for DL1 to the JB70 unit (CN1) Connect JB70 LAN plug to CD402 LAN plug Check sensor.	• Check you see STW 0.0 on compact display • Using service softwsre, check on the sensor serial number and firmware should be 105 or greater. • Upgrade firmware if required	
DL1 – 6 DL1 – 7	Install Conning interface comments	• Check on MFD that you see inputs from DL1, You see ZDA, ocassional ACK • Check on MFD for inputs you should see VBW, VLW, MTW, occasional ALR	
DL1 – 8 DL1 – 9	Check the input to DL1 and test alarm acknowledge	Set SPEEDHI alarm to 9kn. Set Menu/set – Diag – DEMO to 1 and wait for alarm. • Check alarm sounds • Check alarm can be acknowledged	
DL1 – 10	Check the power failure (Common alarm)	Remove power from the DL1 part of JB70 • The common alarm sounds.	

Contents

Upgrading software

1 – If the vessel is already sea tested , the calibration settings should be manually recorded.

2- The 6 parts of the system are checked/updated to the current software/firmware via a PC. (requires a PC prefearably with firewall disabled, and SKIPPER Service software available on website www.skipper.no, also required are the following softwares (as of 1.7.2016):

DL1 Software.zip containing:

SW-M001-9.99/0.53 Boot loader for DL1 in CD402CU

SW-M001-1.57 Main software for CD402CU Display

SW-M002-1.05 Firmware for DL1 Sensor

SW-M003-0.53 Boot loader for DL1 in JB70D21

SW-M003-1.57 Main software for DL1 in JB70D21
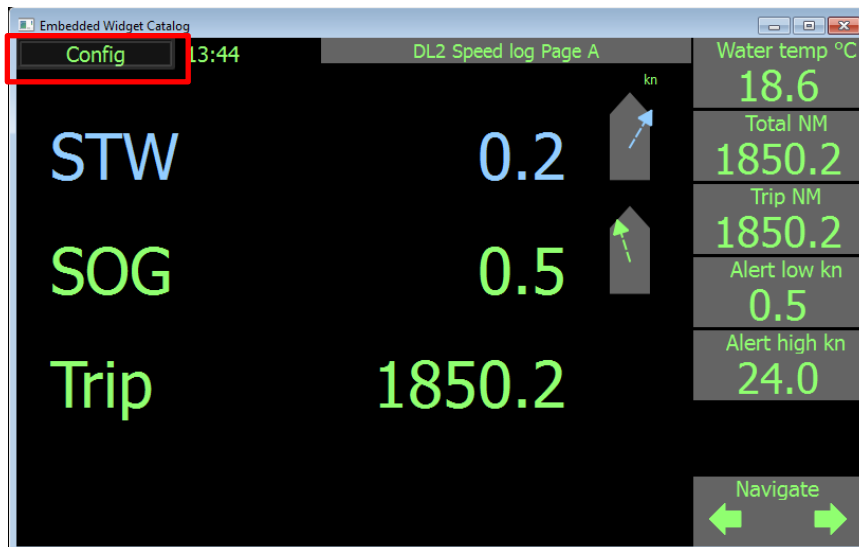
DL2 Software.zip containin:

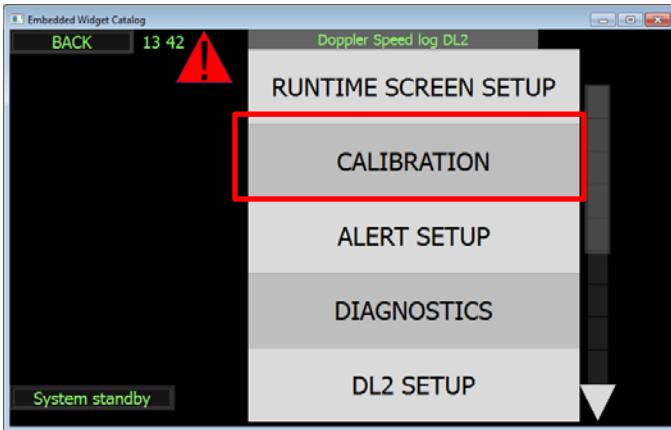*SW-M004-1.0.13 Main software for DL2 in JB70D21*

SW-M005-1.0.13 Main software for DL2 Graphic display

SW-M006-1.14/1.15 Firmware for DL2 sensor

Software versions may vary but should generally match within the system

1. Preparation for Upgrade **(If calibration is already performed)**

Note the calibration setup

Fill in the table for the values that are not 'default'

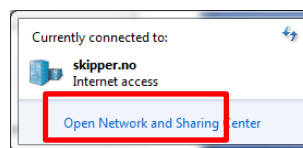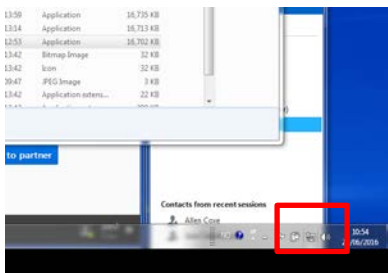| Calibration point	1	2	3	4	5
Real Speed					
Measured STW					
Measured SOG					
Point source					

Open service software

http://www.skipper-service.no/skipdoc/data////Software//SkipperServiceSoftware/SetupProjectServiceSoftware.msi
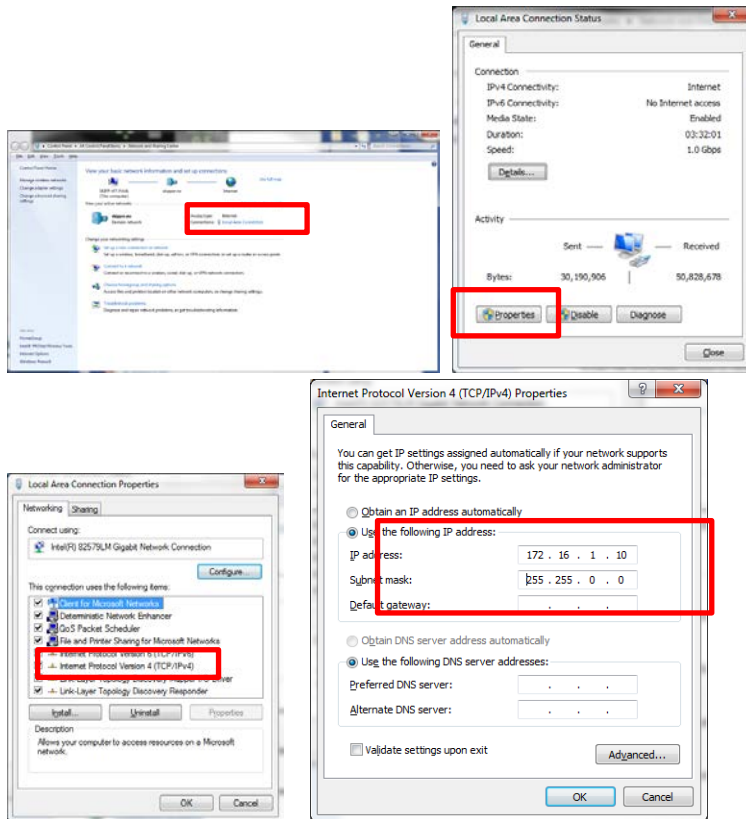
Update the service software if required

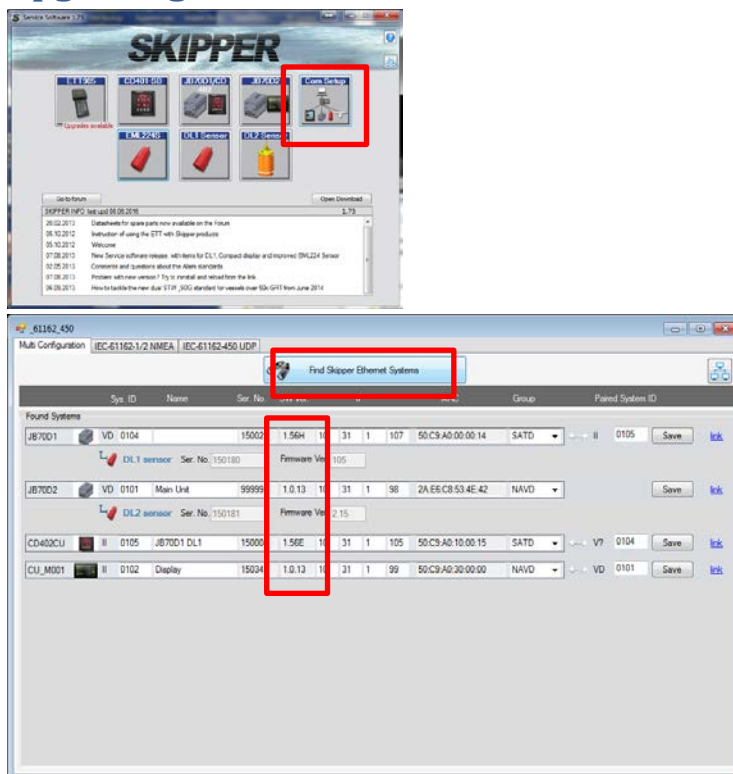Plug in the DL2 spare LAN output

Change your LAN settings to Fixed

Open Com setup

On the main page select the correct network. In some cases it may be necessary to disable other networks such as WIFI

2. Upgrading the softwares

If this doesn't work go to Appendix 1 'No Ethernet systems'

Updating the DL2 System

The DL2 has 3 parts, The Display, the JB70 unit and the Sensor , each with its own software.
When Plugging the LAN cable from your PC to the JB70D21 DL2 part, you should see both the
CU-M001 Display and The JB70D2 (But not DL1 parts unless a switch is used.
Check the software version. Check the SKIPPER website for the latest version
www.skipper.no
 If it is not the latest version (1.0.13) then close this window and go to the JB70D2 window
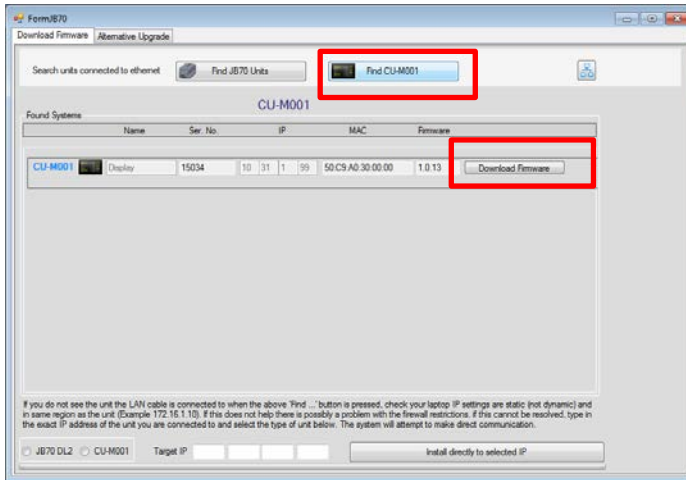
Search for a CU-M001

Press download and select the latest software from the SKIPPER website:
http://www.skipper-service.no/skipdoc/skipdoc.php?showdir=data////Software//DL2%20-%20Software%20for%20screen%20and%20JB70%20Unit

Select the software for the Display (SW-M005) the system will update and restart
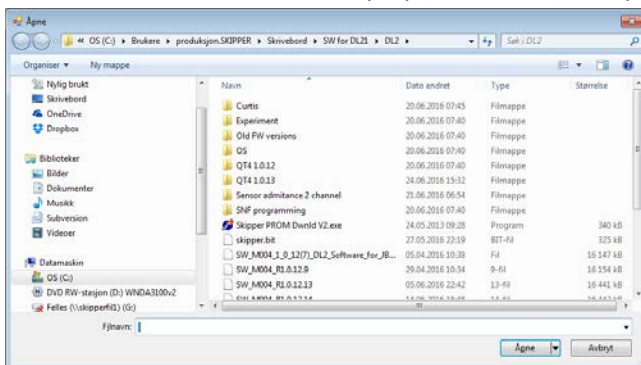
Search for the JB70 unit
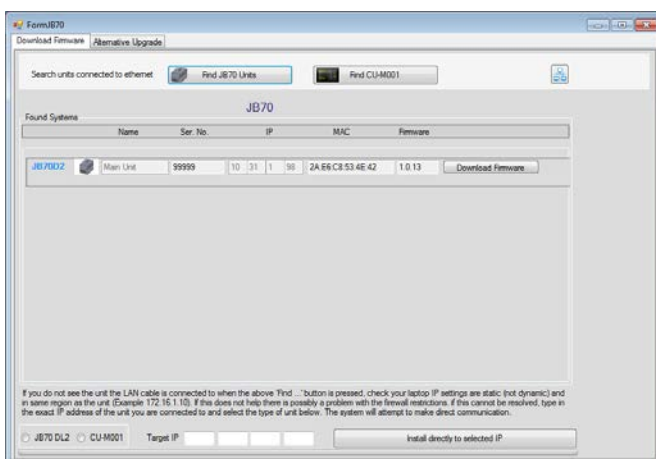
And update using the SW-M004 version.

Restart the system, and use the Com setup App to check everything is updated.
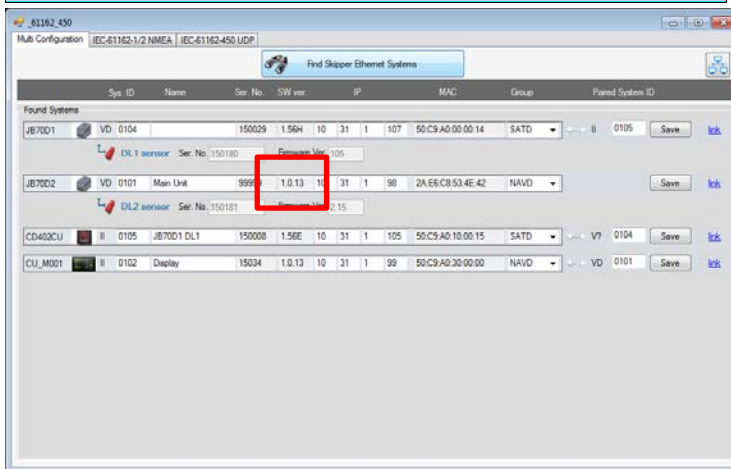
DL2 Sensor

Check the firmware of the DL2 sensor by going into the DL2 sensor app

Search for the sensor
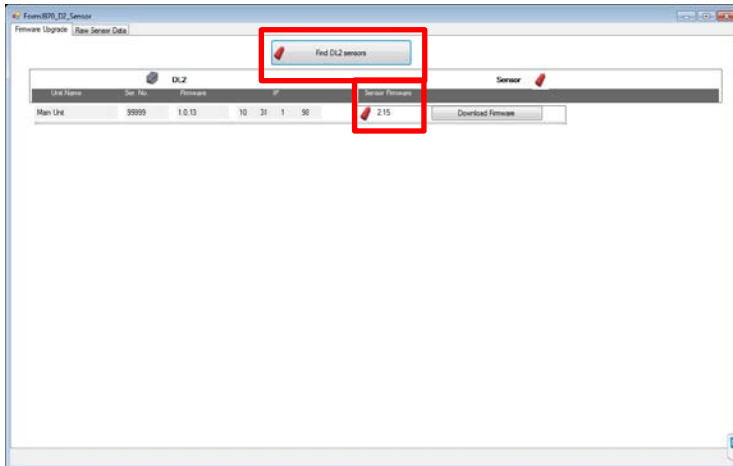
Update using the software SW-M006-1.14 … . BE PATIENT. This can take a couple of minutes the system will report progress in the top right corner.

Restart the system and check using com setup, that everything is upgraded.

Updating the DL1 system

The DL1 has 3 parts to update. But if a Bootloader is to be updated then the process requires 2 updates per unit.

Updating the JB70 unit

Plug the LAN cable into the single LAN socket on this card
Go to com setup

And search for units.

When you see the JB70D1 unit, Exit this program and go to the JB70D1 app

Search for the JB70 and then press upgrade software with the latest from the skipper website
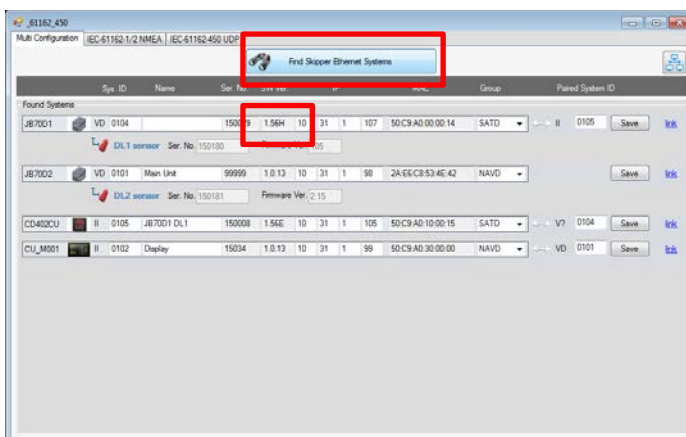
http://www.skipper-service.no/skipdoc/skipdoc.php?showdir=data////Software//DL1%20-%20Software%20for%20CD402%20Compact%20display%20and%20JB70%20Unit

If the bootloader is to be upgraded , use the SW-M003-0.52 bootloader

Once this has finished restart the system and check in Com setup that version is 0.52
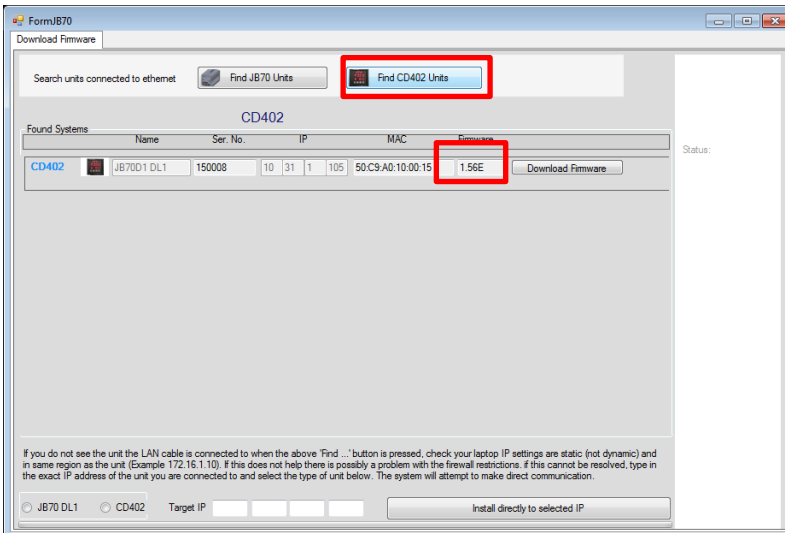
Repeat the programming with the current software (SW-M003-1.57)

restart the system and check in Com setup that the software is upgraded.
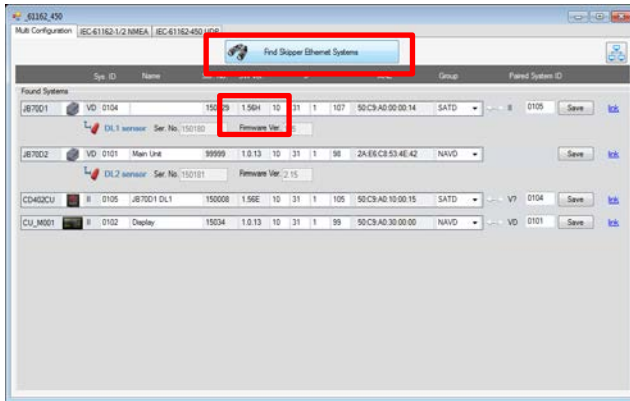
Updating the DL1 sensor

The LAN cable should be connected to the JB70D1 socket (single socket)

In Service software go to the DL1 sensor App

Select the Ethernet variant

Search for sensors
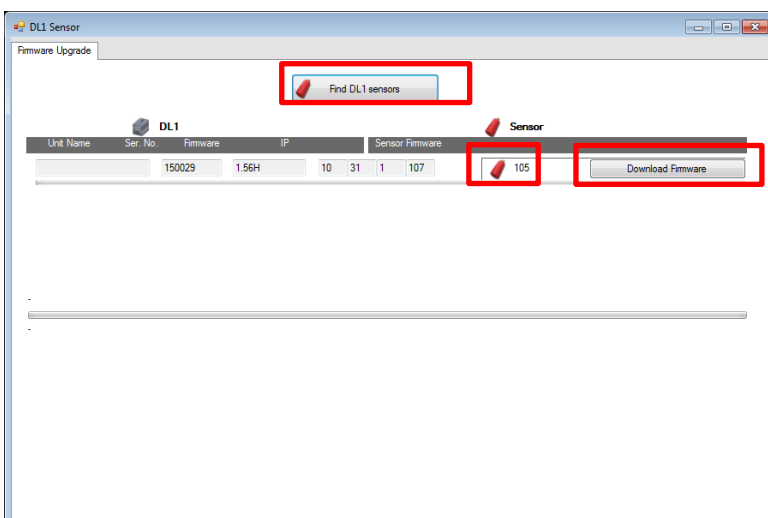
Check the sensor needs a new firmware (Current is 1.05)

If required press upgrade and select file SW-M002-105 the system will take about 3 minutes to upgrade and will finish with 'success'
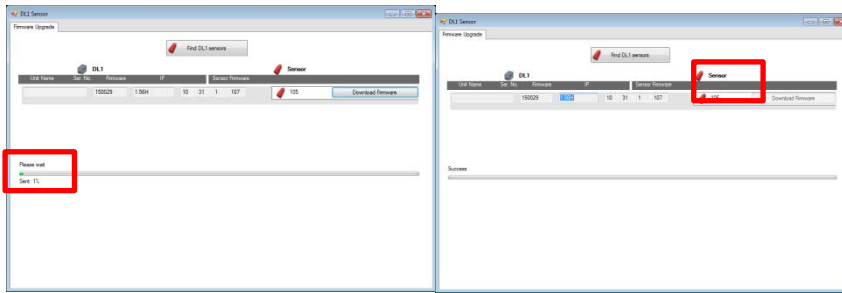
Restart the system and check using com setup that the sensor has upgraded

Updating the CD402 Display.

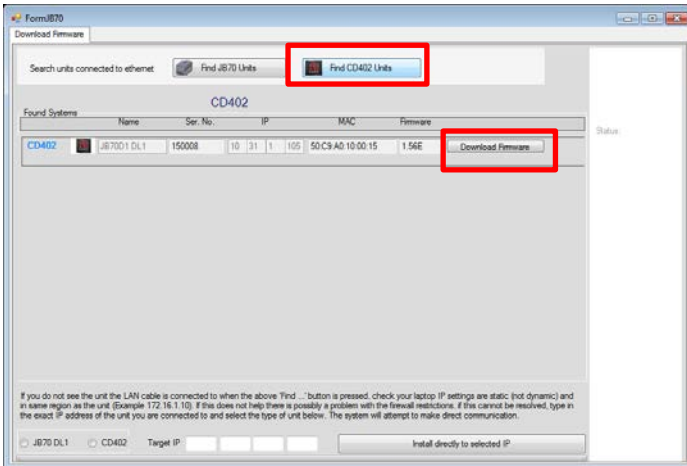Plug the LAN cable into the back of the display

Go to com setup

And search for units.

When you see the JB70D1 unit, Exit this program and go to the JB70D1 app

Search for the CD402 and then press upgrade software with the latest from the skipper website

If the bootloader is to be upgraded , use the SW-M001-0.52 bootloader

Once this has finished restart the system and check in Com setup that version is 0.52

Repeat the programming with the current software (SW-M001-1.57)

restart the system and check in Com setup that the software is upgraded.

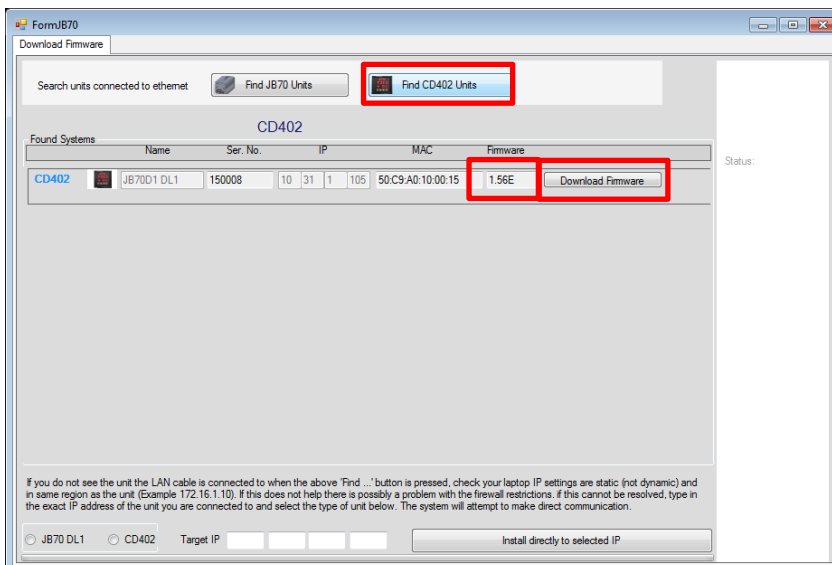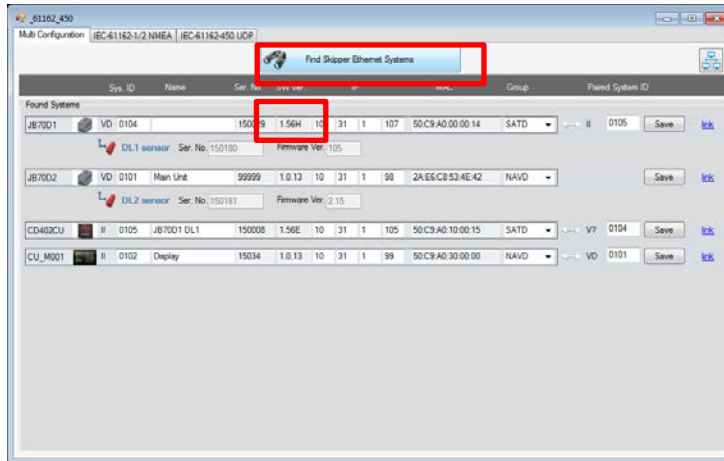# 3 Setting up the DL1 and DL2 systems

Settings can be updated manually on the screen, or from a file programmed into a USB stick.

3a Using a USB stick for the DL2

Software 1.0.13 and greater have a method of saving and updating a config. A system can be set up on screen, when a USB stick is inserted, the settings will be saved in a directory /skipper/downloaded_setups in a directory with the DL2 serial number.

To make a template setup and upload it into the DL2 system make a directory

/skipper/upload_new_setup and copy the files within the directory 'configuration' from the directory you have set up (only 1 setup)
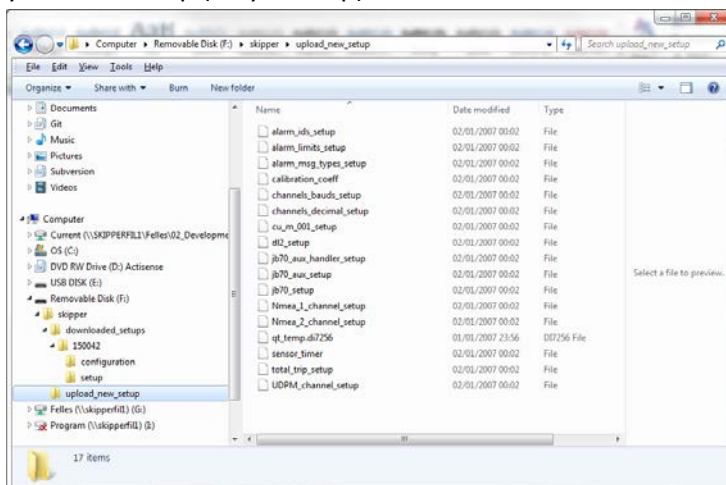
To reinstall this template simply plug in the USB, and wait for the system to reboot. The exisist (old) setup will be saved onto the stick

3b Recommended DL2 Setup for a tanker

If you do not have the file for 3a the system should be set up as follows:

The Current setup for the DL21 is that the DL2 provides SOG information and the DL1 provides STW in a single axis. To setup the menus do the following.

On DL2 display go to config.

Go to DL2 Setup
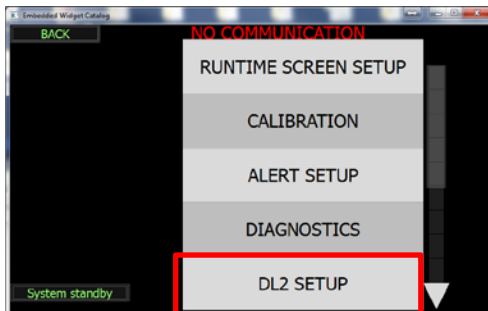
Change the following settings (Password is Service)

Parameter	New Value
Draft	0.0
Vessel max speed	16kn*
Vessel length	250m?

Sensor dist from bow	12m?
Tonnage	75000?
Current calculation	Auto
GPS on lost bottom	ON
Vessel image	3
SOG shallow ping length	2ms
SOG Deep ping length	8ms
SOG Shallow power	High
Show 2 decimals	OFF
Output parameters	SOG only
Synchronisation	ON
Sampling Distance	0.5m

* When you change the max vessel speed you will overwrite the calibration points. These will need to be re-entered using the calibration – speed –manual menu.
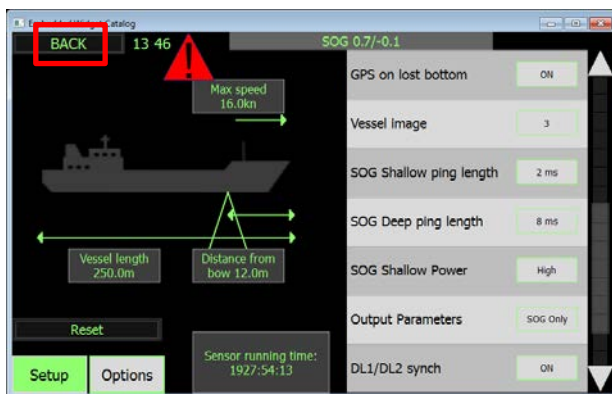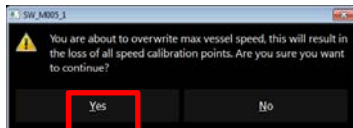
Go out of DL2 setup (back)
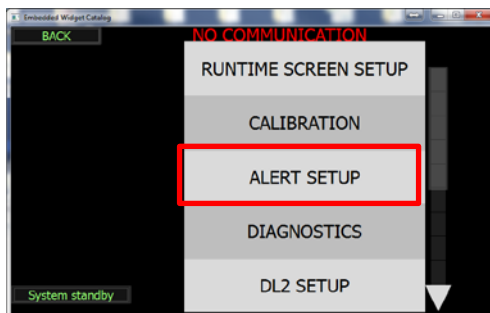
Go into Alert setup
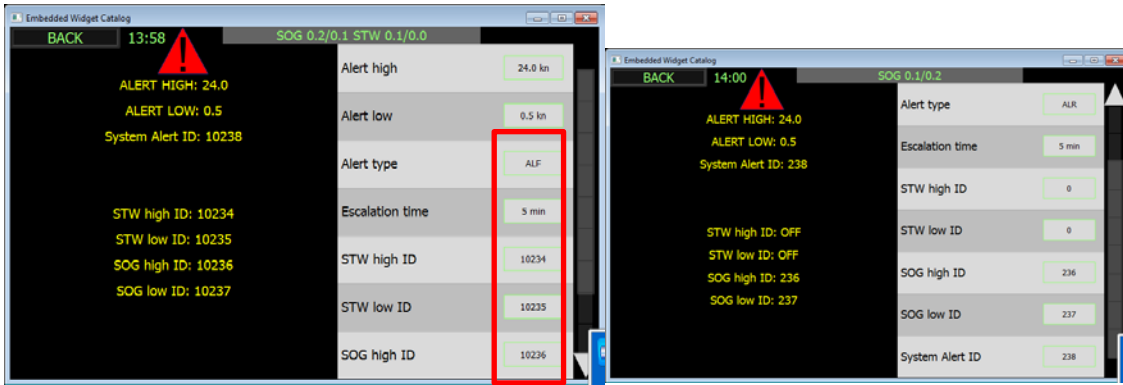
Some conning systems can only accept 3 digit ID messages in ALR sentences

Change the following

Parameter	New value
Alert type	ALR
STW High ID	0 or 234
STW Low ID	0 or 235
SOG High ID	236
SOG Low ID	237
System alert ID	238

Go back to menu and go to COMUNICATION SETUP

Setup as follows

Com port	NMEA 1 / NMEA 2
Alarm	ON
Baud	4800
VBW	ON
VLW	ON
MTW	ON
VHW	OFF
DPT	OFF
DPC	OFF
DIAG	OFF
CUR	OFF

VBWX	OFF

Press the NMEA 1 In / out to 'IN'

Check you see input from the Gyro (THS,HDT,ROT)

This input should be wired from DL2 - J3 NMEA 2 input to Conning , NMEA2 output to conning

Press the top button to NMEA 2 and set the same settings

Press to UDPM and set as follows

Com port	UDPM
Alarm	ON
VBW	ON
VLW	ON
MTW	ON
VHW	ON
DPT	ON
DPC	OFF
DIAG	ON
CUR	OFF
VBWX	OFF
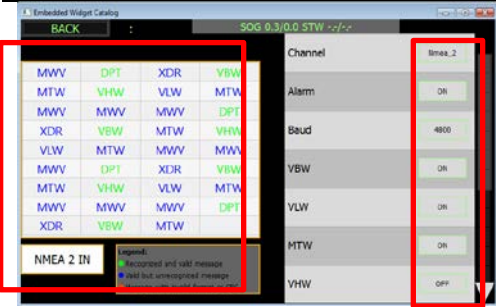
Press NMEA 2 IN / OUT to 'IN'

Check you have information from the conning 'VTG' 'ZDA' 'DPT'

Leave this menu (BACK) and go into Auxilliary menu

Auxilliary Separate power failure
DL2 J2. The relay output should be connected from J2 (middle plug) to the bridge.
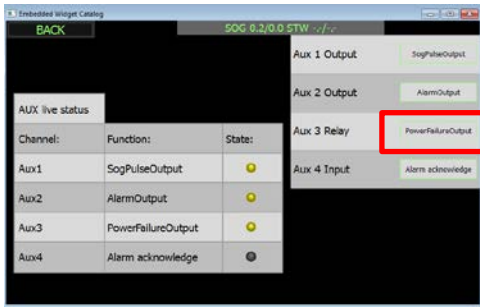
Check that Aux 3 Relay is set to 'PowerFailureOutput'

If you have recorded a calibration , re-enter it into the calibration table

Press back and go to calibration menu

From here press Speed and find the Manual calib
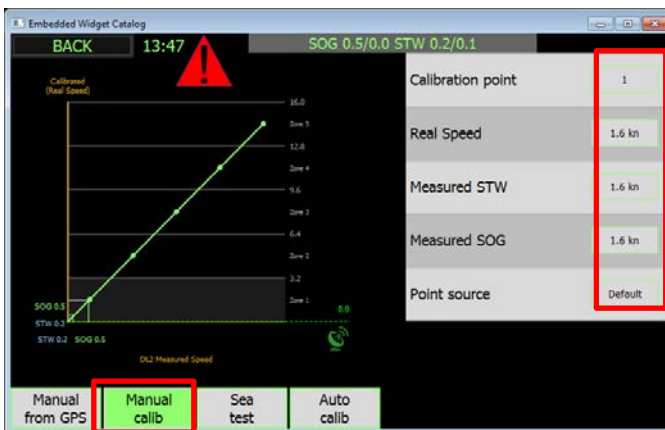
Select the calibration point and re-enter the values in the table above.
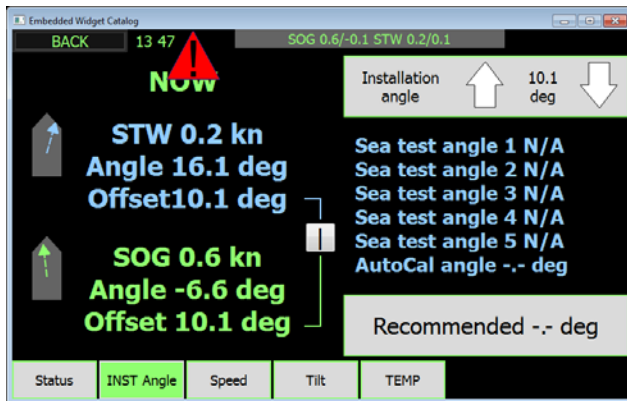
Press back and go to the INST angle reenter the Installation angle (Note if the system is in STW+SOG mode there will be 2 angles here. Press on the STW or SOG values on the left to select the set of values

Adjust the temperature calibration

Go to the TEMP button and adjust the temperature to the value you can get from the engine cooling water intake

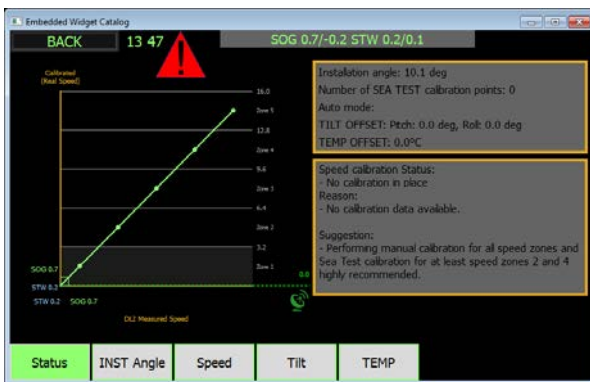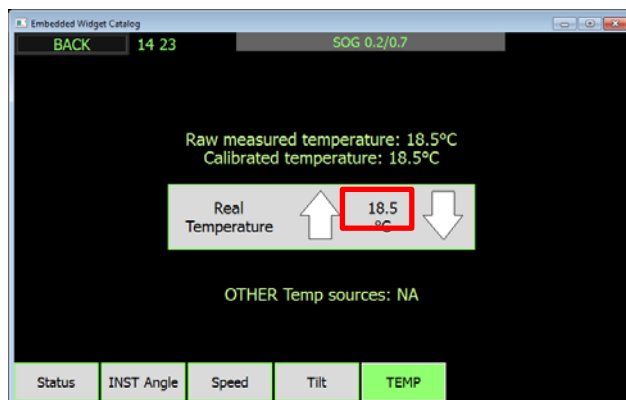

Check System status

In this section we check that the system is correctly wired and operational. We check :

- The Status of the sensor
- The Alarms are correctly connected and operational

The Sensor status

Go to config – Diagnostic
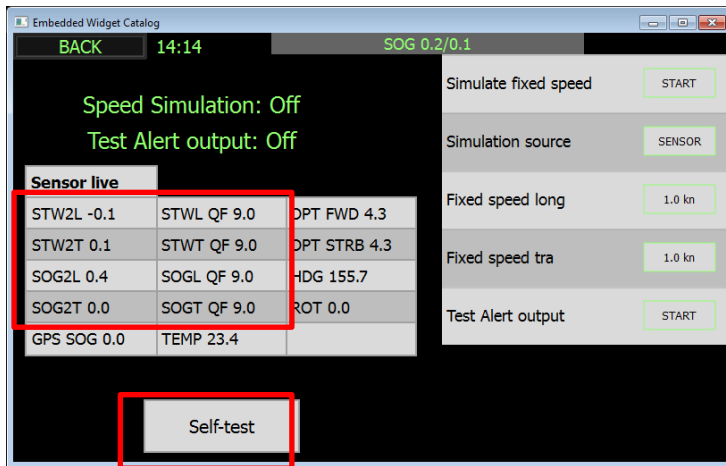
Check you have values in the sensor live table. It should be similar to the picture
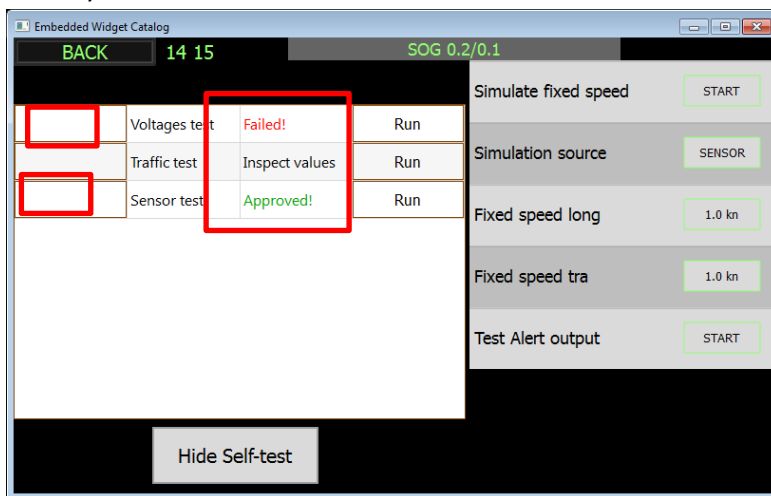
Press self test and check you have approved. On the first and last point. If you have failed press the S logo on the left and check what is wrong
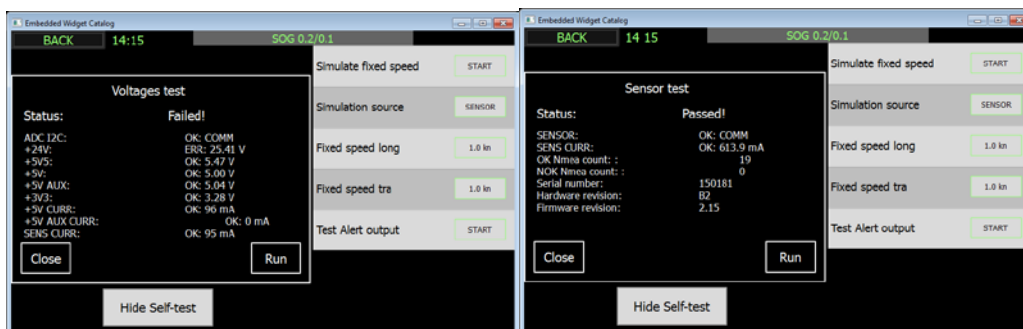
Check the sensor version is reporting correctly (2.14 / 2.15)

Check the alarm connecton on DL2 (SOG)

Press back to Alert setup
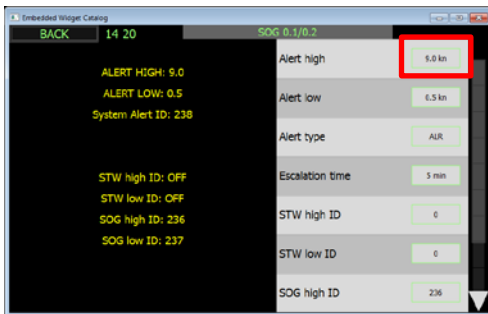
Set the 'Alert high' to 9kn

Press back and go to diagnostics.
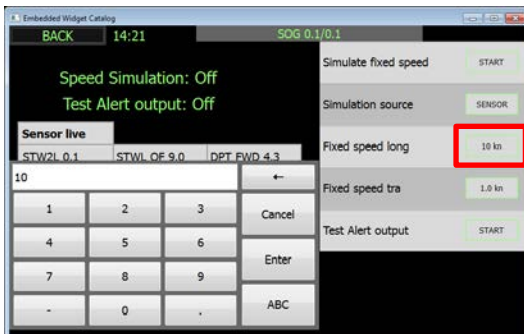
Set the Fixed speed long to 10kn (if you have no sensor installed change simulation source to JB70)

Press start and the speed will gradually change to 10kn
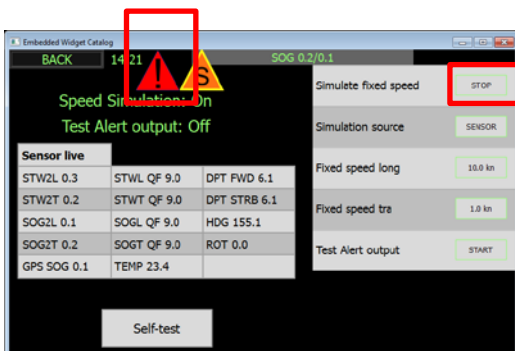
An alarm will sound on the MFD and the alarm will flash on the display.

If it does not. Check the output of DL2 J1 Pin(6+ & 8-) is connected to the conning and that the polarity is correct (J1 Pin 8(-) to conning -) See page 17 of DL21 Installation manual

Press the acknowledge and check the symbol on the screen stops flashing or disappears.

If it does not check the wiring from conning to input of JB70 (Pin 2+,4-) is correct and polarity. If not Check settings in conning output , Also check the ALERT ID number is changed to 3 digits in 'DL2-Config-Alert setup'

Check alarm connections on DL1 (STW)

DL1 is connected to conning channel 3 and should have both input and output.

The Power failure should be connected from the relay output to the bridge.

To make an alarm on this system. Press menu until you see 'ALARM SPEEDHI' and set speed to 9kn using up and down.

 ->

Turn on the Speed hi alarm set to 9kn

Go to menu/SET

DIAG – DEMO

Set to DEMO 1 and press Menu to return to main screen

 ->

The speed will slowly raise up and down, and an alarm should be generated as the speed rises past 9kn.

Check this is received and can be acknowledged from the MFD

If acknowledged, the alarm will stop flashing on the display/disappear, a little up or down symbol will remain on the screen until the alarm state is over.

If this does not work check the ALR signal is received on the MFD and that an ACK is sent with the correct ID (21-23)

An occasional ALR,, sentence is sent from the DL2 and DL1 and sill be acknowledged by conning with ACK,,

4. Set / upgrade the Repeaters (CD401)

If the repeaters are of any software version below 1.18 then they need to be updated to prevent occasional crash. MENU/SET – DIAG - INFO

Set up the repeater for DL21

In Menu/SET – CONFG

Set up the repeaters as follows

On Bridge , Speed repeaters		
TXT STWWL TXT TXT or TRIPW	TXT SOGBT SOGBL SOGBA	TXT TRIPW TXT TEMPW
SCR 1	SCR 2	SCR 3

On Bridge WINGS , Speed repeaters		
TXT SOGBT SOGBL SOGBA	TXT STWWL TXT TXT or TRIPW	TXT STWWT STWWL TXT
SCR 1	SCR 2	SCR 3 – off

DEPTH repeaters		
TXT PSKP2 TXT PSKP1		
SCR 1	SCR 2 -off	SCR 3 -off

To deactivate runtime screens go to MENU/SET – SCR, and change tick to x. Only SCR1, 2 , 3 should be active (as shown above) TRIP, and INFO should not be active. Unless remote trip reset is required, in this case the output of the repeater should be connected to the input of the DL1 or DL2 system.

Procedure for updating CD401XX-SB Multi repeaters/Control unit.

There are 3 ways to update a CD401MR unit. Depending on the access you have to the unit, and which test equipment you have:

1. If you have a JTAG programmer
2. If you have a set of chips (available from SKIPPER)
3. IF you have access to both input and output of the repeater, and a RS422-PC adapter (NOTE ETT does not work for this)

If you have a JTAG programmer

Check the CD491 software version by pressing MENU/SET together, and scrill to DIAG ress set and info and press set. If the CD401MR has version below 1.18, then a bootloader upgrade is also required.

Bootloader upgrade

A JTAG adapter is needed. These can be purchased from FARNELL or RS components for about 200 dollars, search for 'ATMEL SAM-ICE'
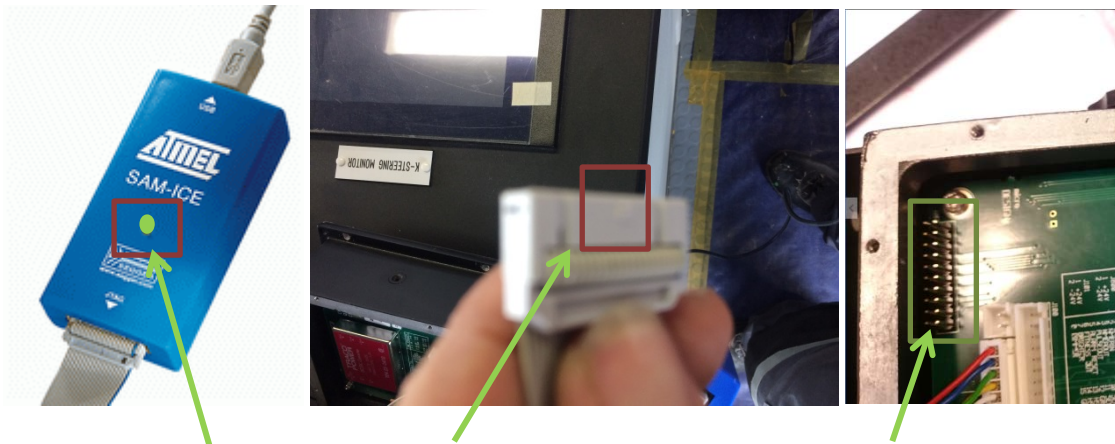
Cut the 'notch' of one end of the cable plug so that the cable can be plugged onto the Back of the CD401XX with the notch side into the metal housing. If connected correctly and power is on you should see green light on the SAM-ICE module

Search for 'SAM-BA ATMEL Download' and install the latest released version (Currently 2.16) you should get an icon like this on screen

Once the SAM-ICE is installed and connected to a CD401 with power on, start this program

You will get a window like this; Select the chip type AT91SAM7S256-EK, as shown.
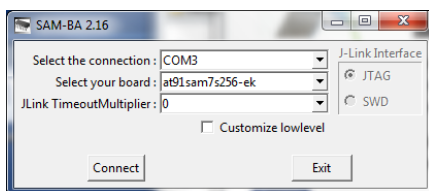
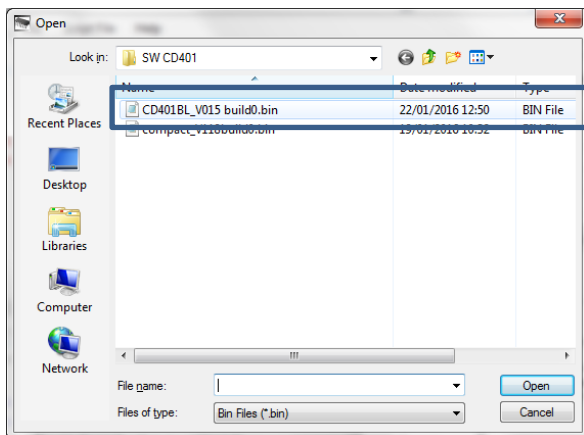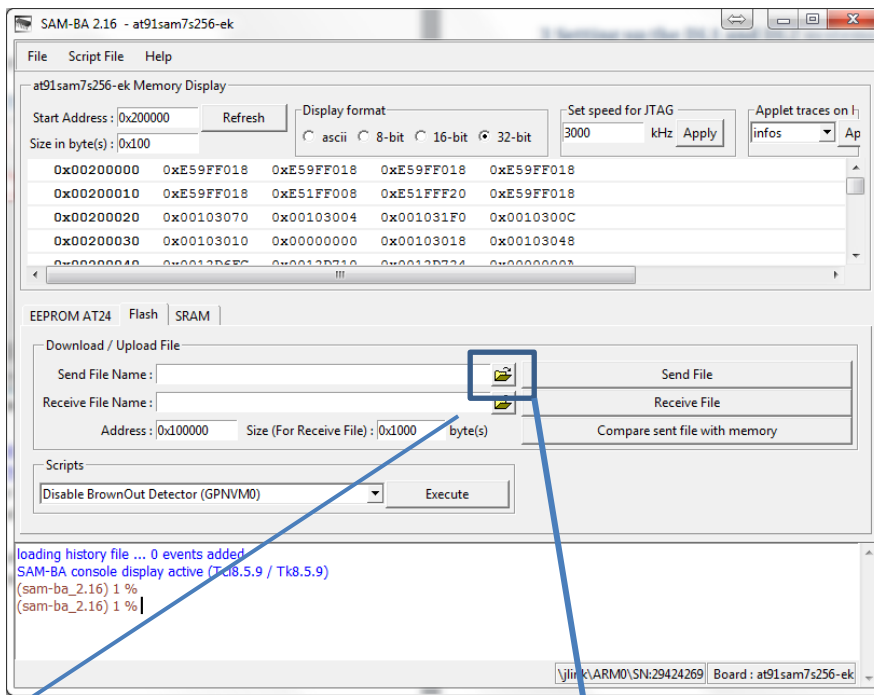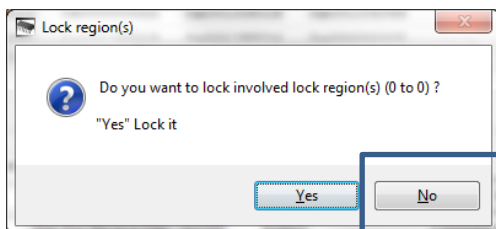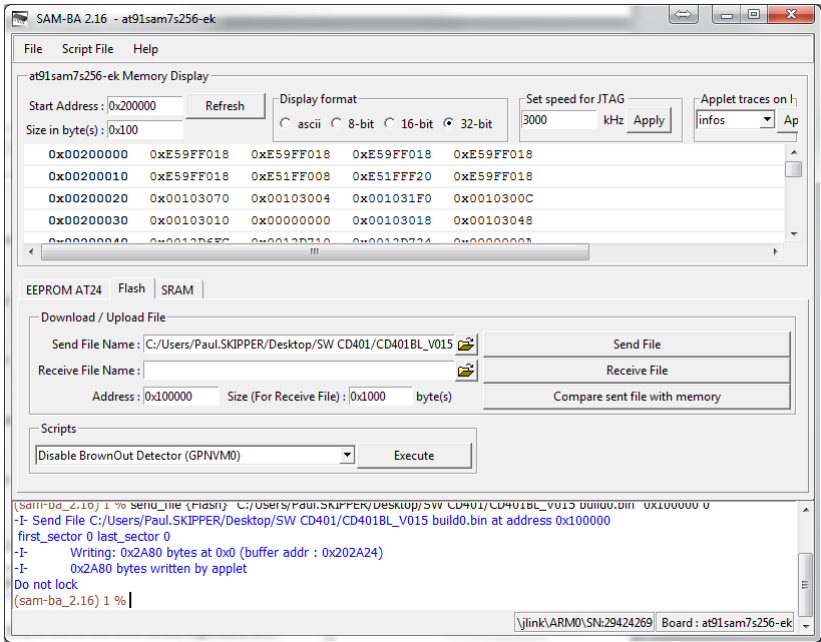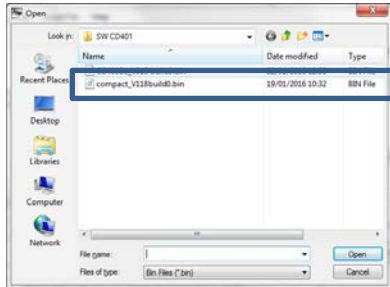Press ok and wait for the program to load.

Select bootloader file.

Select 'No' When asked to lock

When complete search for the Program file for The main software
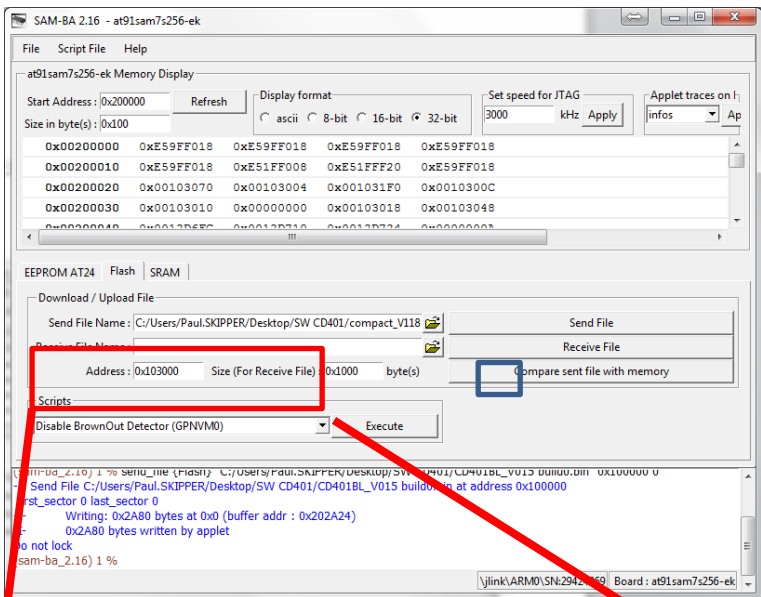
Change the Start Address to 0x103000 and press Send file
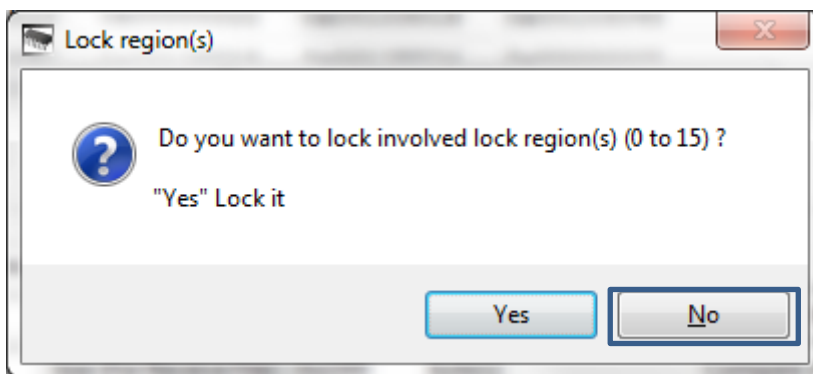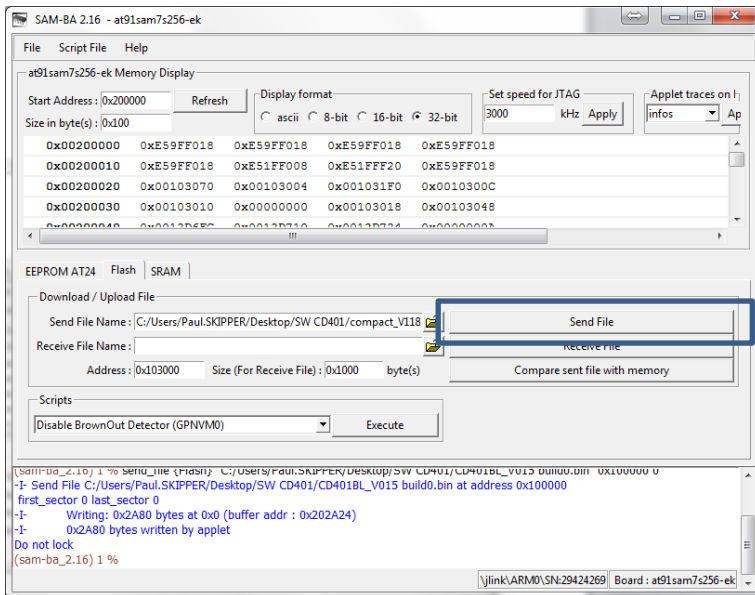
Select no for locking

Select file 'CD401BL_V015 build0.bin' and make sure the start address is set to 100000 (as shown)

When asked do you want to lock the chip answer 'NO'

Remove the cable and restart the Repeater. (take out power cable and replace) The unit should start with the new software. Check by going to SET/MODE – DIAG- INFO and read the software version

SW upgrade

To upgrade just software Select file 'compact_V118build0.bin' (or later version) and make sure start address is set to 103000 as shown. Press program

When asked do you want to lock the chip answer 'NO'

Remove the cable and restart the Repeater. (take out power cable and replace) The unit should start with the new software. Check by going to SET/MODE – DIAG- INFO and read the software version

Close the back being careful that the 'o'ring is correctly placed.

If you have a set of chips (available from SKIPPER)
Turn off any units with inputs to the Repeater (Splitter or Echosounder/Speedlog

Unscrew the backplate

Remove the power cable

If your current SW is under 1.18, or you know the bootloader needs updating, do the following.
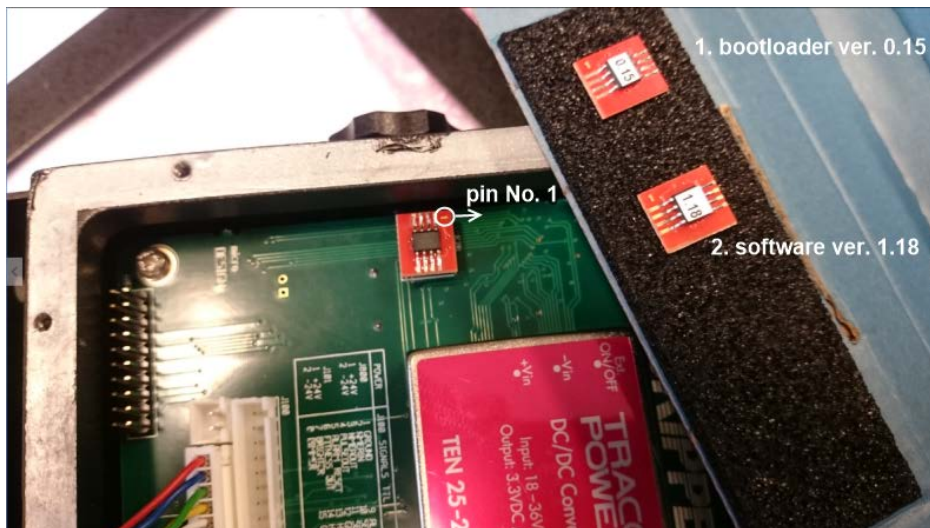
Upgrading the bootloader

Swap out the existing chip with the new chip marked '0.15' Be careful to make sure pin 1 is in the correct corner (see photo)

Replace the power plug, (*HINT try not to make the power switch on and off a lot as you push the cable in*)

The system will start within a minute with the bootloader software version (0.15) on the info page

Upgrading the software (1.18)

Swap out the existing chip with the new chip marked '1.18'

Replace the power plug, (*HINT try not to make th-e power switch on and off a lot as you push the cable in*)

The system will start within a 2 minutes with the new software version (1.18) on the info page

Check the version in MENU/SET – DIAG – INFO
Replace the original chip (it will not downgrade) and close the back being careful that the oring is correctly placed.

(If this does not happen, then the only way to fix is to use the JTAG method (1) above.
Follow the steps in section 1. And then replace the existing chip and restart,. Wait up to 5 minutes and the system will restart with the old software. You can then use the SW chip to update the software safely.)

5. Checking the GDS echosounder

The GDS Echosounders are simple to install. Check the following before sea test.

a) The Correct transducer is connected to the correct channel (on GDS102, low frequency is on channel 2, high is on Channel 1)

b) Check the position of the transducers is correctly programmed

c) (GDS102) Check the frequency DIP switches inside the cabinet are correct (Default Ch1 = 200kHz, Ch2 = 50kHz)

d) Check the bottom can be seen on the echogram. (If air is trapped under the vessel you may not see this. If you see the bottom clearly, but the digital readout shows only 0.5m then Blanking adjustments can be made (See separate instruction on SKIPPER Data bullitins www.skipper.no)

e) Check the GPS input is operational, you should see input on screen 8 and on the top line of the normal displays.

Appendix 1 'No Ethernet systems'

If you have changed your pc's static IP address to match the units and you still cannot get the software to show the connected unit(s) then there a 2 things to try.

1 The PC may be searching on the wrong network. Press on the network icon at the top right and select the network the cable is connected to. This is usually the fixed network, not wireless or virtual networks.

Retry to search.

1. If this does not work, the error is most likely a firewall issue. If possible turn off the firewall. If you do not have these permissions you may program directly vi a the TCPIP protocol. In this case you must know the IP address of the units. This is available:
    a. on the displays of the DL2
        i. config - CU-M001 Setup
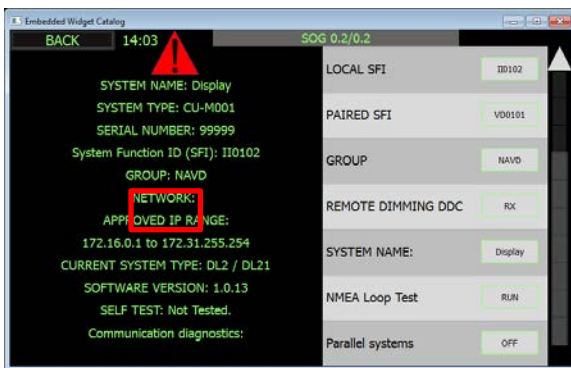
        ii. config – JB70 setup

    b. DL1 display
        i. The JB70D1 unit (Menu/SET – SETUP – IP)
        ii. The CD402CU Remove the Lan plug and wait for ERROR signal, then (Menu/SET – SETUP – IP)

The Default settings for the units is

DL1

System part	IP	SW number
DL2 JB70 unit	172.16.1.101	SW-M004
DL2 CU-M001 Graphic display	172.16.1.102	SW-M005
CD402CU DL1 Display unit	172.16.1.103	SW-M001
DL1 JB70 unit	172.16.1.104	SW-M003

To program select the system and when search does not work, select at the bottom of the screen the unit type and type in the IP number. Then press 'Install directly to selected IP'

Restart the system after upgrade.