

WinFrog Device Group:	CABLE MACHINERY
Device Name/Model:	TYCOM System
Device Manufacturer:	Makai Ocean Engineering, Inc. P.O. Box 1206, Kailua, Hawaii 96734 USA Phone: 808-259-8871 Fax: 808-259-8238 Email: makai@makai.co
Device Data String(s) Output to WinFrog:	Cable management 0x32 Cable Configuration 0x38 Cable Events 0x39 Initial cable count and scale 0x3A (ignored) Controlled/emergency stop 0x31
WinFrog Data String(s) Output to Device:	Ship Position 0x33 Plough Position 0x36 Telephone cable data 0x30 Tow cable data 0x35 Plow record 0x34
WinFrog Data Item(s) and their RAW record:	CABLE MANINFO 0x32 482 DATA OUTPUT 450 CABLE CONFIG 0x38 488
Other stored data	CRITICAL STOP 0x31 WORKING *.LOG file REPEATER DETECTION in 0x30 and 0x34 WORKING *.LOG file ROUTE POSITION LIST WORKING *.PTS file CABLE EVENTS 0x39 WORKING *.LOG file

DEVICE DESCRIPTION:

This device is for telephone cable laying. Specifically for the Tycom ships C/S Reliance, C/S Responder, etc., used along with MakaiLay. It is a network device enabling communication between the MakaiLay and WinFrog. This device facilitates the transmission of data from the Plantscape cable machinery system to the MakiLay cable modeling system. It outputs position data to MakaiLay for cable modeling and slack control. It accepts cable configuration, cable management, and event data from MakaiLay.

To display the various messages in the I/O device window, select the TYCOM System in the main window then right-click in the Decoded Data tab area and select the desired message.

DEVICE CONFIGURATION INSTRUCTIONS

WINFROG I/O DEVICES > EDIT I/O:

Network device

The screenshot shows a 'Configure IP Settings' dialog box. It has a title bar with a close button. The dialog is divided into two main sections. The first section, 'IP Settings', contains four fields: 'Host IP Address' (a dropdown menu showing '142.177.112.1'), 'Subnet Mask' (a text box with '255.255.255.0'), 'Port' (a text box with '2050'), and 'DeviceName' (a text box with 'TYCOM System'). The second section, 'Device Priority on the Network', contains two radio buttons. The first radio button is selected and labeled 'Primary (Transmits Messages)'. The second radio button is unselected and labeled 'Secondary (No Message Transmission)'. Below the second radio button is the text 'Only one computer may transmit cable machinery messages.' To the right of the dialog are 'OK' and 'Cancel' buttons.

The Host IP Address option is available for situations where there is more than one network card (and therefore more than one IP address) installed in the WinFrog computer. If this situation exists, select the IP address for the network card that is on the same network as the other computers that are to be interfaced with the WinFrog computer. If there is only one network card installed on the WinFrog computer, then this option is not used. In the Port section, enter the port number required by the TYCOM System.

The 'Device Priority on the Network' option should be set to Primary on the computer that is being used as the Primary WinFrog system. Designating a system as Secondary will simply allow monitoring and data collection.

It is important to note that only one computer should be set to Primary as only one WinFrog system at a time can transmit cable machinery messages.

WINFROG I/O DEVICES > CONFIGURE DEVICE:

This device must be configured at the I/O Device window level. In the I/O Devices window, click the device name to select it, then right-click and select Configure Device. The Configure Tycom System dialog box appears as seen below.

Configure Tycom System

Route Information from MakaiLay

Accept Route Information

Line Name

OK

Cancel

Automatic Logging Control

Controls logging to the *.LOG file with cable bodys and stop messages.

Minimum time between events for logging (sec).

Log Cable Bodies at Winch

Log Controlled and Emergency Stop

Note: When logged each event is also stored in memory. During winch testing events can be sent from the winch every second for long periods of time. Avoid using up memory by starting a new *.LOG file every few days.

Select channel to output additional cable engine data

No channel data output Channel 4

Channel 2 Channel 5

Channel 3

MakaiLay can output route information under operator control. To load the data into WinFrog, select the **Accept Route Information** checkbox. A unique line name must also be entered. WinFrog will not add these points (A/Cs) to an existing line nor will it overwrite an existing line. WinFrog will enter this as a new line in the current working line file. If there is no current line file the data will be ignored.

WinFrog can automatically log several events:

- Cable bodies at the winch or plow and
- Controlled and emergency stop messages.

When a cable body enters the winch, WinFrog reads this from the Plantscape server and then sets a value in the mode integer of the 0x30 message. This setting remains until the Plantscape server cable body indication is turned off. However, it may remain there for several seconds before Plantscape says that there is no cable body detected. In order to reduce the number of occurrences of records for the same

cable body in the *.log file, a minimum time between events may be entered. Entering a value here blocks another event being placed into the *.log file until the entered amount of time has elapsed.

The section, **Select channel to output additional cable engine data**, allows the operator to output additional cable information (count, speed, and tension) of the selected channel. This data is output in the CDE location of the 0x30 message.

Note: The repeater present may remain set for long periods (days). Each occurrence of a cable body uses up 14+k bytes of RAM. After a few days the computer may run out of virtual memory. Therefore the checkboxes should remain unselected unless actually laying cable.

Note: It is possible to have two cable bodies close together, e.g. a splice box near a repeater, so in these cases the time interval needs to be set less than the expected difference in times of arrival of the bodies at the sensor.

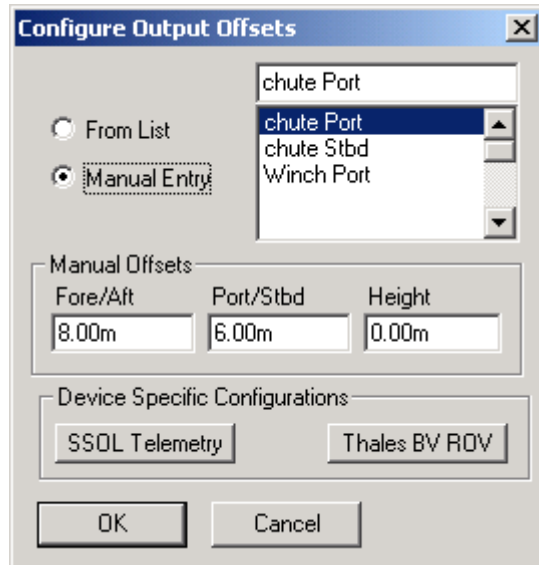
WINFROG VEHICLE > CONFIGURE VEHICLE DEVICES > DEVICE DATA ITEM > EDIT:

Adding the TYCOM System device creates five data items: CABLE MAININFO 0x32, PLOWDATAOUT 0x34, PLOW POS 0x36, CABLE CONFIG 0x38 and DATA OUTPUT. Once the data items have been added to the vehicle, they must be edited to suit the application.

Data Item: CABLE MACHINERY, TYCOM System, DATA OUTPUT

This data item causes the Ship Position 0x33, Cable Info 0x30, and the Plough Tow Info 0x35 messages to be broadcast over the network. The 450 record will be recorded if raw record storage is enabled.

Attach this data item to the cable ship. The dialog below appears when this data item is edited.



You can select a point on the vessel whose coordinates will be output. To indicate this point to recipients of the message, a mode number and three characters are used. These are placed in the message to be transmitted. If all three offsets are zero, the coordinates of the point output in the Ship Info 0x33 telegram will be for the CRP regardless whether Manual Entry or From List is selected. A mode number of 2 will be set. The three characters will be CRP.

Manual Entry:

If any of the offsets have an entry other than zero, the coordinates that are output will be for the offsets entered. The mode number will be 4 in the 0x33 telegram and the three characters will contain the description UNK for unknown.

From List:

The coordinates that are output will be for the point selected. If the name of the point selected contains the word “chute”, in upper or lower case, the mode number in the 0x33 telegram will be 1 and the three characters will be the first three characters in the name. If the name of the point selected does not contain the word “chute” the mode number will be 4 and the first three letters of the name will be placed in telegram 0x33.

Data Item: CABLE MACHINERY, TYCOM System, PLOWDATA OUT

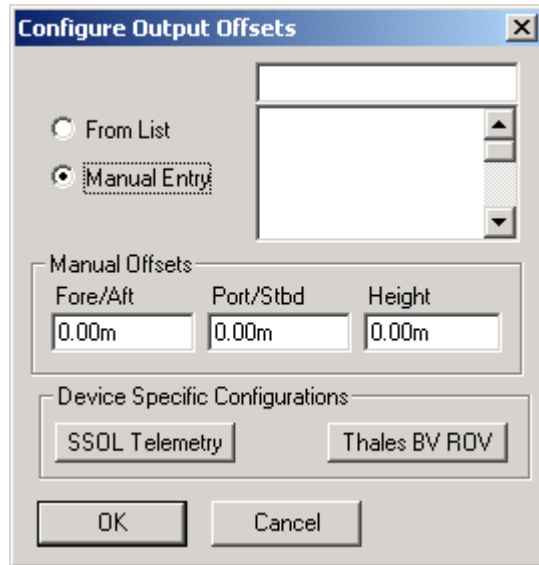
This data item causes the Plow Data 0x34 message to be broadcast over the network. The 450 record will be recorded if raw record storage is enabled.

Attach this data item to the plough vehicle.

Data Item: CABLE MACHINERY, TYCOM System, PLOW POS 0x36

This data item causes the Plow Position 0x36 message to be broadcast over the network. The 486 record will be recorded if raw record storage is enabled.

Attach this data item to the plow vehicle. The dialog below appears when this data item is edited.



The coordinates of the point selected will be placed in the 0x36 message and transmitted. There are no characters transmitted describing the location as in the DATA OUTPUT data item described above.

Decoded Data (I/O Devices window)

If the data from this message is displayed in the I/O device, the mode integer will be displayed. The mode integer is labelled Bit Codes with LCE as a prefix. The mode integer uses 18 bits, each of which is represented by a character. If the character is “-“ then the bit is zero. If the bit is one it is represented by a character described below. On the same line and after the winch mode is described is the CABLE MANINFO 0x32 mode description. The letters MKI separates these descriptions.

Message CABLE INFO 0x30 mode bit description

Bit 0 E	Emergency Stop	Bit 16 L	Speed exceeded
Bit 1 u	Unused	Bit 17 I	Tension exceeded
Bit 2 u	Unused		
Bit 3 F	Force bridge control		
Bit 4 C	Control available		
Bit 5 S	Setpoint OK		
Bit 6 R	Racal in control		
Bit 7 X	Stop cable machinery		
Bit 8 r	Ready cable machinery		
Bit 9 X	Stop in progress		
Bit 10 c	CMSM mode activated		
Bit 11 S	TSM mode activated		
Bit 12 T	TTM mode activated		
Bit 13 t	BTM mode activated		
Bit 14 s	BSM mode activated		
Bit 15 E	Error in cable machinery		

Message CABLE MANINFO 0x32 mode bit description

Bit 0 c	CMSM mode requested
Bit 1 S	TSM mode requested
Bit 2 T	TTM mode requested
Bit 3 t	BTM mode requested
Bit 4 s	BSM mode requested
Bit 5 E	Error in MakaiLay
Bit 6 R	MakaiLay Ready
Bit 7 U	Unused
Bit 8 Q	Request control CDE
Bit 9 C	Transfer control to bridge CDE
Bit 10 q	Request control LCE
Bit 11 c	Transfer control to bridge LCE
Bit 12 U	Unused
Bit 13 B	Cable body acknowledge

Data Item: CABLE MACHINERY, TYCOM System, CABLE MANINFO 0x32

This record comes from MakaiLay. It contains data for the winch system. Additionally WinFrog logs this record in the 482 record. It is also used to pass control between MakaiLay and the winch system. This data item is for logging these values.

Attach this data item to the cable ship. There is no dialog to edit this device.

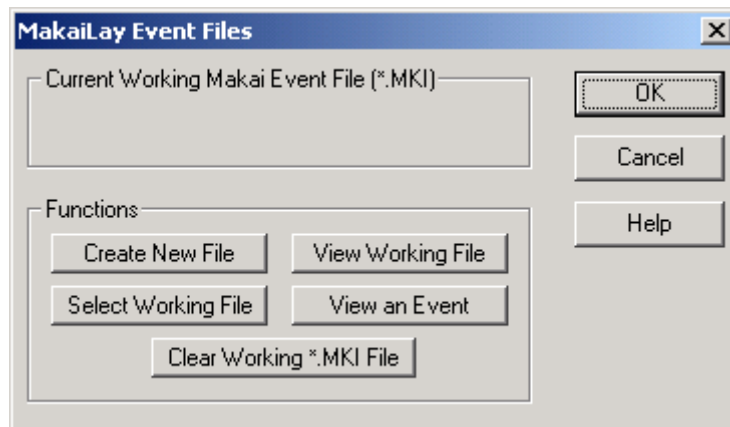
Data Item: CABLE MACHINERY, TYCOM System, CABLE CONFIG 0x38

This record comes from MakaiLay. It contains data about the telephone cable configuration. Additionally, WinFrog logs this record in the 488 record. This data item is for logging these values.

Attach this data item to the cable ship. There is no dialog to edit this device.

Accepting and storing MakaiLay events

The MakaiLay operator may download a selection of events as recorded during the cable laying. This may be done periodically, say every six or twelve hours. These events are not automatically recorded – the WinFrog operator must set up a working *.MKI file. This is done by selecting the menu item File>Edit Working Files>Makai Cable Event which provides the following dialog.



Use this dialog to first create a MKI file, then to select it as the working MKI file. View Working File provides a drop down list of the events in the file, one of which may be selected to view. View an Event allows you to select any MKI file and then view an event in that file.

If a file is not set up, events from MakaiLay will not be stored. Ribbit can read these MKI files.