

Aculab software for digital access cards

CallLab user guide

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1 Introduction

CallLab is GUI utility for Windows and Linux for use with the V6 drivers. It can be easily configured for bulk test call generation either back to back (system to system), loop back (single system) or external (connecting to an exchange). It also provides a simple means of obtaining line diagnostics information and protocol trace

CallLab adopts a user-friendly point & click approach to call control that allows developers to set up and run call tests. These call tests can be as simple or as complex as required. There is also the ability to 'click through' the call control process manually deciding the fate of each, or a group of, call(s).

If any difficulties are experienced when initiating a call test, the user can invoke CallLab Layer1/Layer2 diagnostics and Protocol/Application Trace dialogs. These may provide a better understanding of what is happening at a lower level. There is also a 'Messages' dialog that displays details of error messages. In some cases, suggestions of its cause and possible resolutions are also provided. The user also has the option of tracing the information seen during a session of CallLab, to a file. This may be of help in resolving call control & connection related problems.

This guide describes the functionality and usage of the various GUI dialogs invoked within CallLab. It also contains Step-by-Step worked examples which users may follow to become more familiar with the call control setup process:

Section 6 "Performing a Manual LoopBack Call Test"

Section 7 "Performing an Automatic LoopBack Call Test"

CallLab uses an Event based call control mechanism, which is designed to be generic for CAS, CCS and VoIP protocols. Due to this generic and cross platform nature, performance issues may occur when running call control tests on many network ports. Although there is no theoretical limit on the number of ports that can be used at any one time, factors such as computer speed and memory availability may physically limit the number of ports that can be used.

NOTE

To help overcome any possible performance issues, we would recommend a delay of at least 1 second when using the auto `openout` feature.

1.1 Installing CallLab

- Start the AIT and select the package that was used to install the V6 software.
- Click on the '+' symbol next to `New or Updated Components on Server`.
- Right-click on the `Applications` component and select `Install`.
- Once the AIT has finished downloading and installing CallLab, select `OK` in the confirmation dialogue and close the AIT.

1.2 Uninstalling CallLab

- Start the AIT and open the package that was used to install CallLab.
- Click on the '+' symbol next to `Installed Components`.
- Right-click on the `Applications` component and select `Uninstall`.
- Once the AIT has finished uninstalling CallLab, select `OK` in the confirmation dialogue and close the AIT.

1.3 Running CallLab

Select **Start->Programs->Aculab->V6->CallLab**, or run `CallLab.exe` from the CallLab root directory (default `C:\Program Files\Aculab\v6\CallLab\`), to open the CallLab application.

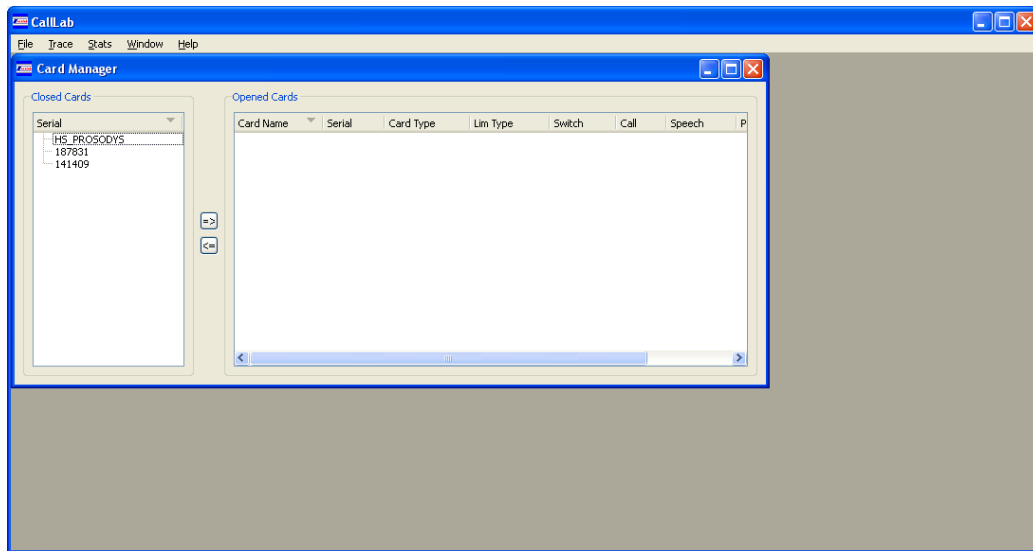
Should CallLab fail to start, or should you encounter error messages, first check that you have installed the Aculab hardware, Aculab Configuration Tool, drivers and CallLab correctly. If the problems persist, contact Aculab Technical Support for assistance.

CAUTION

In order to prevent driver conflicts, you are advised to stop any applications that are using the Aculab card drivers before you start CallLab

2 Menu options

By default, when you open CallLab, the Card Manager dialog will be displayed.



CallLab has the following menu options:

File

Card Manager **Ctrl+M.** - select Card Manager as active window

Exit **Ctrl+Q** - closes the application.

Trace

Application Trace - view API call activity of CallLab

TDM Protocol Trace - only displays ports for cards that are opened

Stats

Port Stats - view layer 1, layer 2 and other information of a port

Call Stats - view information on call events CallLab has processed

Windows

Close - close active window

Close All - close all windows

Tile - expand all active windows to fit main window

Cascade - arrange open windows one on top of other

Next **Ctrl+Tab** - select next window

Previous **Ctrl+Shift+BackTab** - select previous window

Align Ports - arrange open ports to fit main window

<open Windows> - select active window. These options behave as radio buttons and show a check box ✓ for the current active

dialog

Help

- | | |
|----------------------|--|
| Symbols | - display key to the symbols used in CallLab |
| About qt | - display information on qt |
| About CallLab | - display information on CallLab |
| Trace Level | - set trace level of Application Trace |

The above options are explained in more detail in the following sections.

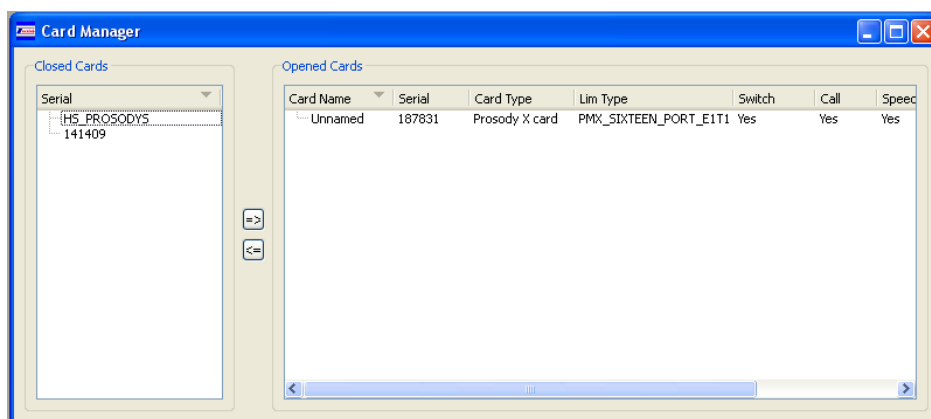
If no network ports can be found, CallLab will not allow you to invoke the **View** options. If you are sure you have Aculab Digital Access Cards installed, check that you are using the latest drivers, and by viewing **Device Manager**, that all the call and switch drivers have started successfully.

2.1 File options

2.1.1 Card Manager

Select **View – Card Manager (Ctrl+M)** to open the Card Manager dialog.

The Card Manager dialog is used to open and close the cards installed in the system.



This Card Manager dialog is described in further detail in [section 3](#) of this document.

Once a card is opened right clicking on the opened card will display ports available for that card. This can be used to view either a single port, or all the ports for a particular card, or to open all ports that have auto open in or auto openout set (**Autotest**) This replaces the functionality of the **File – Ports** menu option of previous releases

In this example, the application shows one card with a total of four ports, Selecting a single port will open a Port dialog for that selected port. Selecting port All for

a card will open all the ports of the card. Selecting **Autotest** will open ports that had been closed with either automatic opening of incoming or outgoing calls enabled.

2.1.2 Exit

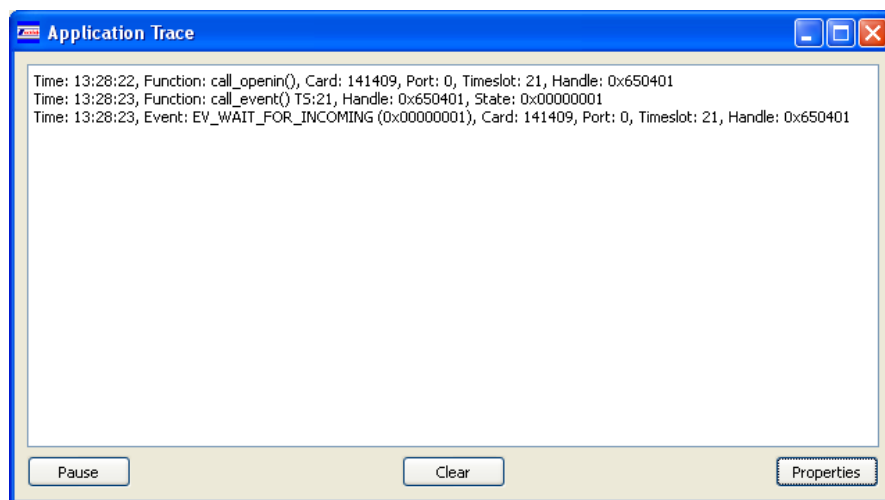
Select **File – Exit** to close this application.

2.2 Trace options

2.2.1 Application Trace

Select **Trace – Application Trace** to open the Application Trace dialog.

The Application Trace dialog is used to report messages relating to Visual CallLab, for example, `System initialisation` or `ERR_DNLD_NOCMD` (firmware not loaded, command denied).



In this example, the application trace shows an incoming call has been opened on card 141409, port 0 and timeslot 21.

Pause/Continue (toggle button) is used to freeze or un-freeze the scrolled text.

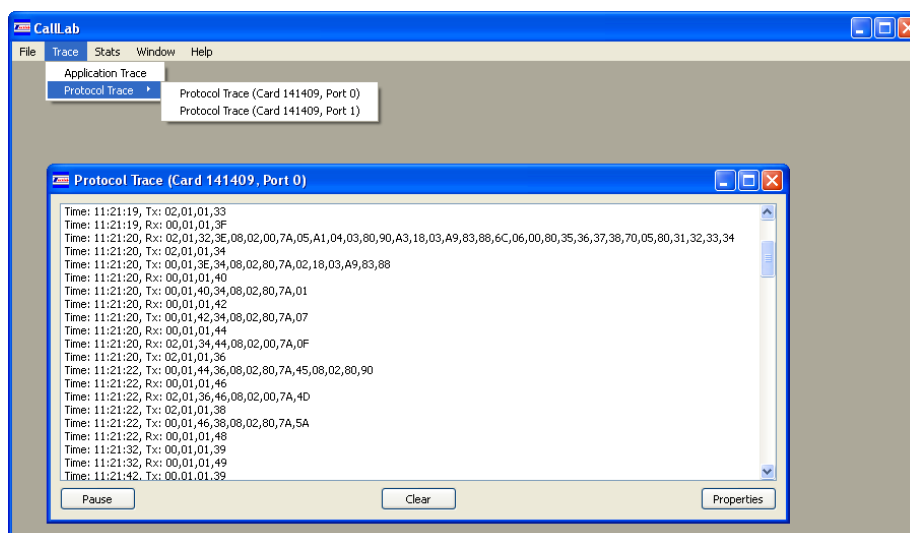
Clear is used to clear the dialog content.

Properties is used to control how application trace behaves.

2.2.2 Protocol Trace

This menu option allows a port to be selected to capture protocol trace for that port, (for PMX based cards enable via `–s99,224` firmware download switch)

Select the port you want to capture the protocol trace from. The below shows protocol trace for an incoming call on port 0 under ETS300

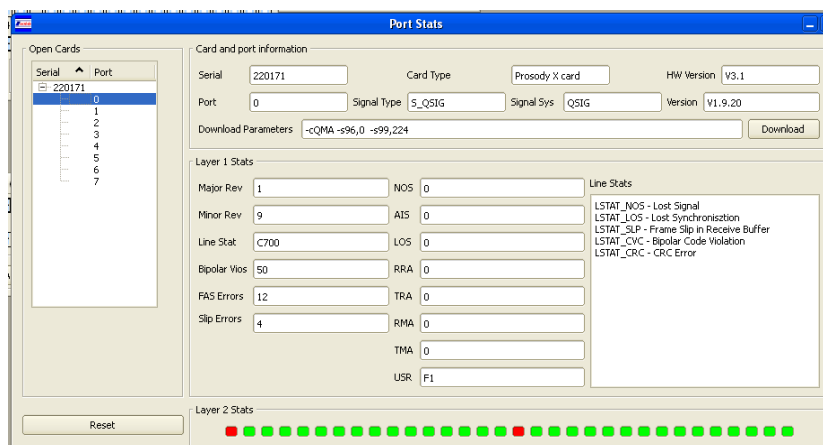


2.3 Stats options

2.3.1 Port Stats

The Port Stats Dialog displays layer 1, layer 2 and other information for a given card and port.

Select **Stats – Port Stats** to open the Port Stats dialog.



In this example, the Port Stats dialog shows information for a port configured as QSIG. You can also see the firmware download parameters used '-cQMA -s96,0 -s99,224' for the selected port

Reset is used to reset the Layer 1 Stats and Line Stats content

2.3.2 Call Stats

The Call Stats Dialog displays a count of certain call related events that have occurred since the system started or the counter was reset.

Select **Stats – Call Stats** to open the Call Stats dialog.



Counters can be individually reset or reset as a group using **Reset** or **Reset All**.

2.4 Window

2.4.1 Tile

Tile can be used to display all open dialogs in a mosaic layout:

2.4.2 Cascade

Cascade is used to display the dialog title bars in a cascaded layout:

2.4.3 Align Ports

Align Ports is used to display only the open ports in a tile like manner.

2.4.4 Optional selections

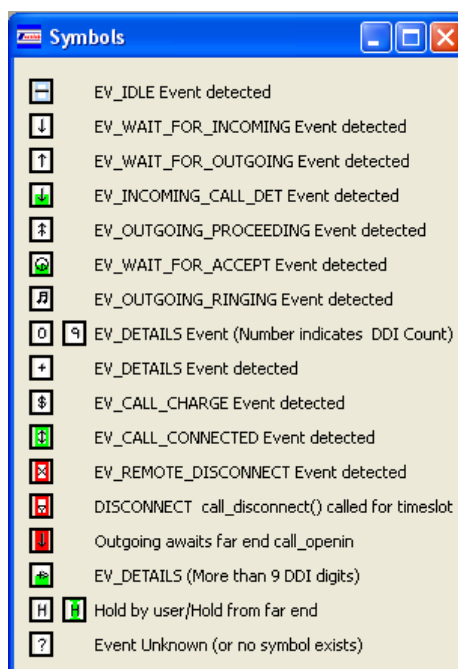
The remaining menu options reflect the dialogs that are open in the application and allows one to be chosen as the selected dialog. If no dialogs are open, this menu item is not displayed.

2.5 Help

2.5.1 Symbols

The Symbol Dialog provides a quick reference to the status symbols used to indicate the status of each port timeslot.

Select **Help – Symbols** to open the Symbols dialog.



Further clarification of each event is detailed below:

`EV_IDLE`

No call exists on this timeslot.

`EV_WAIT_FOR_INCOMING`

This timeslot is ready to receive a call.

`EV_WAIT_FOR_OUTGOING`

An Outgoing call attempt has been made on this timeslot

`EV_INCOMING_CALL_DET`

An Incoming call has been detected on this timeslot

`EV_OUTGOING_PROCEEDING`

The Outgoing call on this timeslot has received a message from the 'Far End' indicating that it has enough information (DDI or CLI digits for example) to proceed with the call.

`EV_WAIT_FOR_ACCEPT`

An Incoming call on this timeslot is waiting to be accepted.

`EV_OUTGOING_RINGING`

The Outgoing call on this timeslot has received a message indicating that the called party telephone is ringing.

`EV_DETAILS "0 to 9"`

The incoming call on this timeslot has received some new digits (The number displayed represents the number of DDI + CLI digits received).

`EV_DETAILS "+"`

New information has just been received.

`EV_CALL_CONNECTED`

The Call has been successfully accepted and connected

`EV_CALL_CHARGE`

Charge or Billing information has been received.

`EV_REMOTE_DISCONNECT`

The 'Far End' has terminated the call

Event Unknown

An event has occurred that has not been recognized by CallLab.

Outgoing awaits far end call_openin

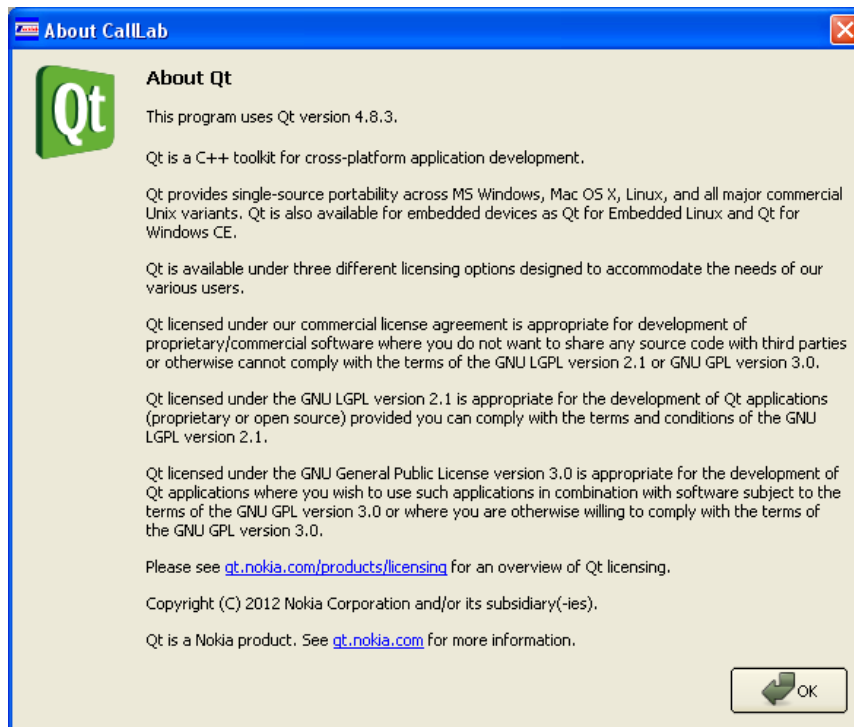
CallLab can detect if loopback on the same card has been configured. If so and an outgoing call is attempted, but the connected port is not waiting for an incoming call, this symbol is displayed

Hold by user/Hold from far end

The call on this timeslot has been place on hold

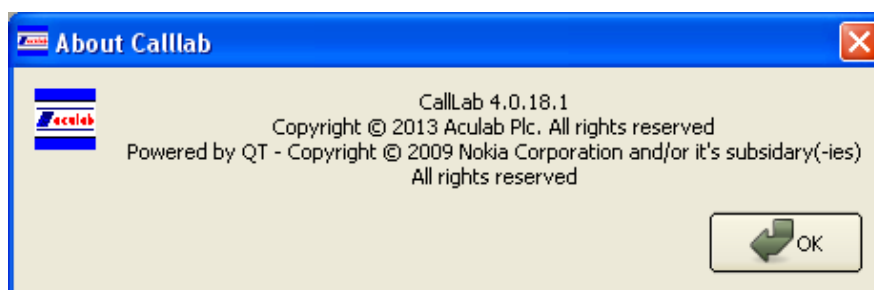
2.5.2 About Qt

Displays information about Qt, the toolkit used for the development of CallLab



2.5.3 About CallLab

Displays information about the version of CallLab



2.5.4 Auto Detect Loopback

When enabled will place a test pattern on timeslots of cards to determine if they are connected to a port of the same card. If enabled auto outgoing calls will wait for the connected side to be waiting for an incoming call before the outgoing call is made.

2.5.5 Trace Level

Sets the level of trace shown in the application trace window.

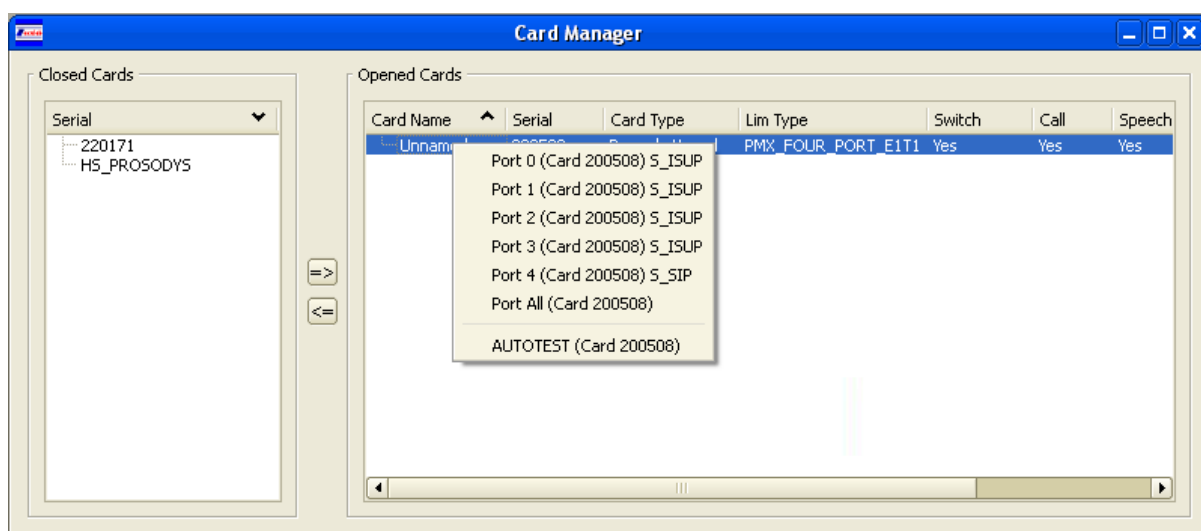
3 Card Manager dialog

It is not possible to perform call control operations, download firmware, etc on an Aculab network port until the port has been *opened*. When CallLab opens a card, it automatically opens all the ports that it detects on that card.

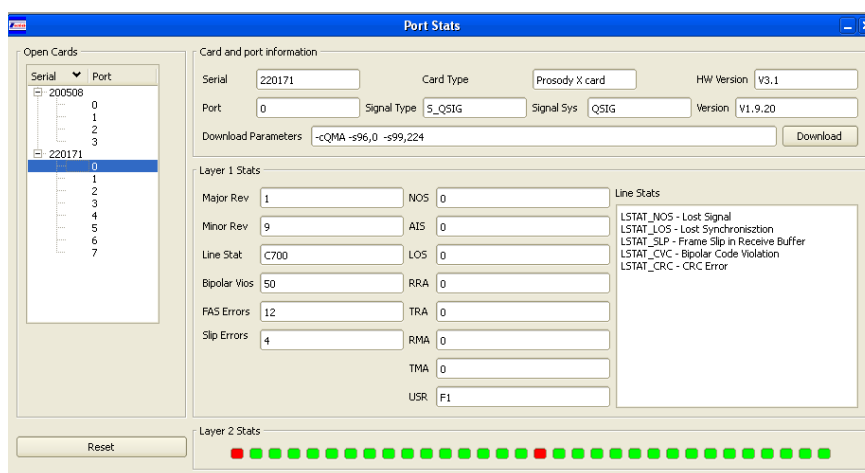
A card may be opened and closed, moved from one list to another, by highlighting the required card and selecting => or <= as appropriate. Alternatively double clicking a card's serial number will open it if the card is in the closed cards area or close it if the card is double clicked when in the opened cards area

Initial downloading of firmware is not performed within CallLab, please use the Act to configure protocols for a card/port. However CallLab can be used to re-download firmware and optionally change the firmware download parameters used. Please refer to the Port Stats section for more details

Once a card has been opened it is possible to then open port dialogs for that card from within the card manager as below :



3.1 Port Stats



Download Parameters – shows the parameters used when the port was last downloaded. This can be edited and used to download firmware to the port from within CallLab by then pressing the **Download** button .Changes are not reflected in the cards configuration

file, so on the next system restart or use of 'config.exe' the values set in the ACT will be used again.

Reset – resets the statistics for the port being viewed.

After invoking the dialog, it is advisable to press **Reset**. This will reset the Layer 1 statistics for all the ports in your system enabling you to see if Layer 1 errors accumulate thereafter. **Reset Port** will reset the Layer 1 statistics for the Port being viewed.

3.1.1 Card Information

Details all the relevant information about the card for the selected port, which includes:

Serial:

The unique serial number of the Aculab card as read from the card. The unique serial number is hard coded into the Aculab card firmware during manufacture.

HW Version:

The build version of the Aculab PCI card as read from the card. The build version is hard coded into the Aculab card firmware during manufacture.

Card Type:

These are some examples of possible types of Aculab card:

```
Prosody PCI card
E1/T1 PCI card
PROSODY CPCI card
E1/T1 CPCI card
PROSODY S card
E1/T1 CPCI PMX CARRIER card
```

Port :

This field indicates the selected ports number. For a four port card this will be either 0, 1, 2 or 3.

Signal Type :

This field indicates the signalling type in use for the port

Signal Sys :

This field indicates the signalling system in use for the port

3.1.2 Layer 1 Stats

Layer 1 statistics give an indication of the physical signal quality of a line, for example, layer 1 errors are usually reported when:

- You are connecting an Aculab Port to another device with a faulty cable.
- You do not have the Aculab ports connected to anything.
- The Aculab port is of different impedance to the connection provided by an exchange
- You Connect an E1 Port to a T1 Port.
- Your Aculab card is using CRC4 (Cyclic Redundancy Checking) and your exchange is not.
- There is a clocking issue where the Aculab card and an exchange are both trying to source a clock from each other.

When a good physical connection exists on a port, the *LineStats* field should be blank and the following fields should read '0':

| | |
|-----------------|--|
| bipvios | (Bit Interleaved parity violations) |
| faserrs | (frame alignment signal errors) |
| sliperrs | (Serial Line Internet protocol errors) |
| NOS | (No Signal) |
| AIS | (Alarm Indication Signal) |
| LOS | (Loss of Signal) |
| TRA | (Transmitted Alarm) |
| RMA | (Receive Multiframe Alarm) |
| TMA | (Transmit Multiframe Alarm) |
| RRA | (Receive Remote Alarm) |

Definitions for the fields follow:

Major rev: & Minor rev:

Major and Minor revision detail the firmware major and minor revision numbers currently running on the card.

Line Stat:

A bit mask value representing the sum of the events listed in the Line Stats field.

Bipvios:

Counts the occurrences of bipolar violations on the receive line from the network. Frequent occurrences of bipolar violations are usually an indication of poor line quality, and will often indicate a degree of corruption of B-channel data. This location may be reset at any time to restart the count.

Faserrs:

Provides a count of the number frames which include at least 1 bit in error in the Frame Alignment Signal (FAS). This location may be reset at any time to restart the count.

Sliperrs:

Provides a count of the number of received frame slips in the incoming G703 signal.

If frame slips are detected, it usually indicates that there are problems with the configuration.

If a network connected port is correctly deriving it's clocking from the network, frame slips should not occur. Frame slips can occur when the clock control setup is incorrect or inappropriate.

For example, if clocking is set to be derived from another card on the MVIP, SC Bus or H100 bus, and that card is disconnected, out of service, or not correctly initialised, then frame slips are likely to occur.

Line Stats:

This information field displays line event definitions, for example:

| | |
|-----------|-----------------------------|
| LSTAT_NOS | Lost Signal Flag |
| LSTAT_LOS | Lost Synchronisation Flag |
| LSTAT_AIS | Alarm in Service |
| LSTAT_FEC | Error Rate > 1 in 1000 Flag |

| | |
|-----------|-----------------------------------|
| LSTAT_RRA | Alarm from Remote End |
| LSTAT_SLP | Frame Slip in Receive Buffer Flag |
| LSTAT_CVC | Bipolar Code Violation Flag |
| LSTAT_CRC | CRC error |
| LSTAT_FFA | False Frame Alignment |
| LSTAT_CML | CAS Multiframe Lost |

NOS:

No signal indication (Loss of signal); loss of received signal at the local end.

AIS:

Alarm indication signal; sent by the remote end to indicate an alarm, such as NOS, at the remote end.

LOS:

Loss of Synchronisation (frame errors); usually as a result of receive signal timing/clock errors.

RRA:

Receive remote alarm; Bit 3 set to one by the remote end to indicate back to the local end that LOS (frame errors) have been received at the remote end.

TRA:

Transmit Remote Alarm; used to indicate that a message has been sent to the distant end to indicate an error on a receive timeslot, or as a result of the `call_send_alarm()` function being used.

RMA:

Receive Multi-Frame alarm (multiple frame errors); this is currently only supported for CAS protocols using timeslot 16.

TMA:

Transmit Multi-Frame alarm; used to indicate that a message has been sent to the distant end to indicate multiple frame errors on receive timeslots, or as a result of the `call_send_alarm()` function being used. This is currently only supported for CAS protocols using timeslot 16.

USR:

The behaviour of this flag directly reflects the behaviour of NOS, 0xf1 will indicate an active port, and any other value such as 0xf3 indicates a port that has some errors on it that need resolving before calls are possible.

3.1.3 Layer 2 Stats

Layer 2 statistics give an indication of whether the Aculab card is able to send & receive messages to and from the far end.

When the Layer 2 is active;

- an E1 ISDN port will show **30 green blocks** (Representing 30 Valid B-Channels).
- a T1 ISDN port will show **23/24 green blocks** (Representing 23/24 Valid B-Channels).

Red blocks are displayed for unavailable timeslots, all timeslots red indicate bad Layer 2.

If you have good Layer 1 but Layer 2 is not active. Check that you are not connecting a user side port to another user side port (or alternatively, a network side port to a

network side port), and that you are running the same signalling protocol at both ends of the link.

Occasionally, with some protocols, the Layer 2 can take up to a minute before it becomes active. If you have been waiting for more than a minute, and you are certain everything is configured correctly, attempt to make a call. This can sometimes force Layer 2 to become active.

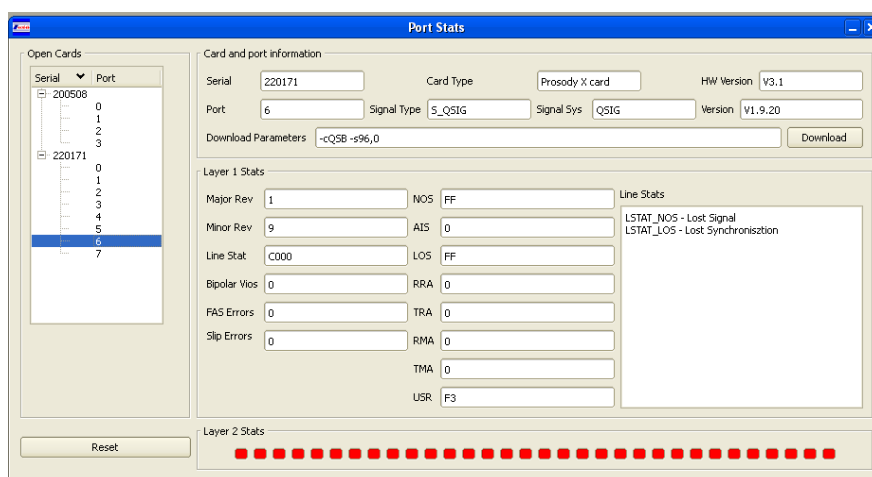
NOTE

Layer 2 Statistics are not applicable to CAS Protocols.

NOTE

Layer 2 will not become active if Layer 1 errors are detected.

The following screenshot is an example of a bad layer 1 and 2:



The screenshot shows the 'Port Stats' window with the following data:

| Open Cards | |
|------------|------|
| Serial | Port |
| 200508 | 0 |
| 200508 | 1 |
| 200508 | 2 |
| 200508 | 3 |
| 220171 | 0 |
| 220171 | 1 |
| 220171 | 2 |
| 220171 | 3 |
| 220171 | 4 |
| 220171 | 5 |
| 220171 | 6 |
| 220171 | 7 |

Card and port information

| | | | | | |
|---------------------|--------------|-------------|----------------|------------|------|
| Serial | 220171 | Card Type | Prosody X card | HW Version | V3.1 |
| Port | 6 | Signal Type | S_QSIG | Signal Sys | QSIG |
| Version | V1.9.20 | | | | |
| Download Parameters | -cQSB -s96,0 | | | | |

Layer 1 Stats

| | | | |
|--------------|------|-----|----|
| Major Rev | 1 | NOS | FF |
| Minor Rev | 9 | ALS | 0 |
| Line Stat | C000 | LOS | FF |
| Bipolar Vios | 0 | RRA | 0 |
| FAS Errors | 0 | TRA | 0 |
| Slip Errors | 0 | RMA | 0 |
| | | TMA | 0 |
| | | USR | F3 |

Line Stats

| | |
|----------------------------------|--|
| LSTAT_NOS - Lost Signal | |
| LSTAT_LOS - Lost Synchronisation | |

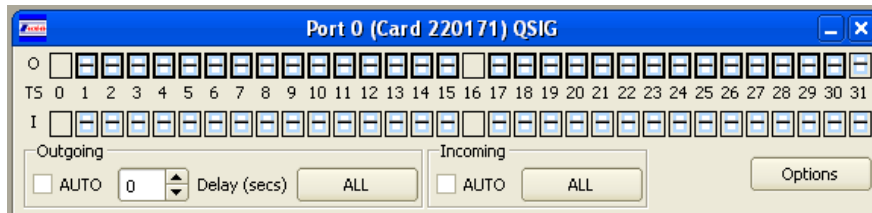
Layer 2 Stats

Reset

Layer 2 Stats: A row of 16 red squares indicating errors.

4 Port dialog

The Port Dialogs display the the card and port index and the state of each timeslot for the port. Symbols are displayed that represent the state of each timeslot; see [section 2.5.1](#) for a list of symbol descriptions. In the following E1 port example timeslots 0 and 16 are greyed out, these represent the D Channels. The remaining 30 B channels display the IDLE symbol, indicating that all these Channels are in the IDLE state.



The top row of timeslots (labelled with 'O') represents the timeslots outgoing call state. The bottom row (labelled with 'I') represents the timeslots incoming call state.

Port Dialogs are used to setup back-to-back (System to System) or loop-back (Single system) call control tests. The various elements are described below.

Auto Openout

If this Check Box is ticked, then every time an outgoing call gets released, CallLab will attempt make another outgoing call on that timeslot after a timeout as specified in the adjacent *Delay (secs)* selection.

Auto Openin

If this Check Box is ticked, then every time an incoming call gets released, CallLab will automatically find out the timeslot of the released call and re-open it ready to receive another call.

Selecting Timeslots

Before you can issue instructions to one or more timeslots, you first need to select the timeslots.

Selecting the timeslots follows standard dialogs selection conventions. Selecting a single item removes any previously selected items and leaves just your current selection, holding the shift key when you make a selection selects everything in a list prior to your selection, or should you have made a previous selection, everything between the current and prior selections. Holding down the control key when making a selection adds or removes your selection from any selections already made.

To assist you, two shortcut selection options have been provided:

Select all incoming timeslots by using the Select All option of the Incoming section

Select all outgoing timeslots by using the Select All option of the Outgoing section

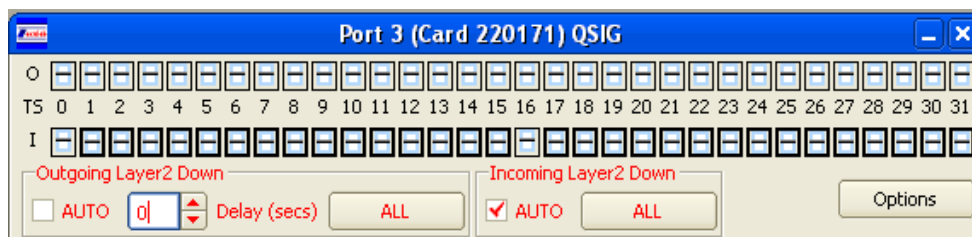
Select these options as required.

Once you have made your required selections, you are now ready to issue manual or automatic commands to the selected timeslots.

Layer 2 indication

The port window will show if layer 2 is not established, as below.

For some protocols you will still be able to attempt a call.



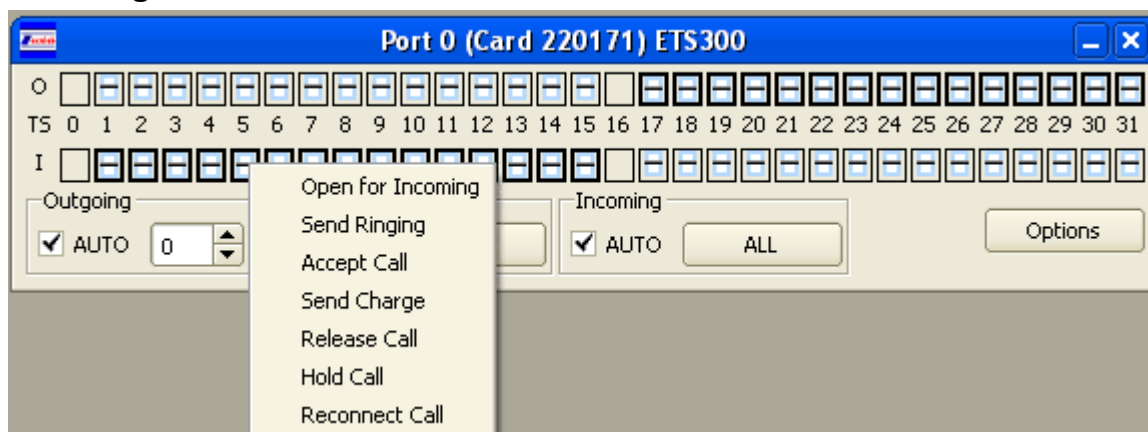
Port Properties

See section 4.2

4.1 Commands

This section provides an overview of the command options available, examples of use are described in later sections of this manual. Right click on one of the selected timeslots to view the command options available on that type of timeslot.

Incoming menu



Incoming timeslots have the following command options:

Open for Incoming – Open selected incoming timeslots ready to receive calls.

Send Ringing – Send a Ringing message for selected incoming timeslots (An exchange, on receipt of this message should play a Ringing tone to the calling party).

Accept Call – Attempt to accept (or Connect) calls on selected incoming timeslots.

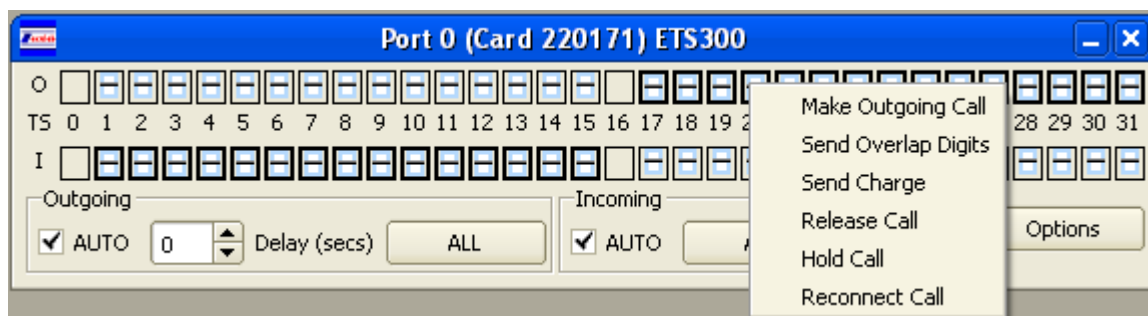
Send Charge – Send call charging information on selected incoming timeslots.

Release Call – Release calls that exist on selected incoming timeslots.

Hold Call – Places call on hold (When supported by protocol)

Reconnect Call – Reconnect a call that has been placed on hold

Outgoing menu



Outgoing timeslots have the following command options:

Make Outgoing Call – Make outgoing calls on selected timeslots.

Send Overlap Digits – Send an overlap digit on selected timeslots.

Send Charge – Send call charging information on selected timeslots.

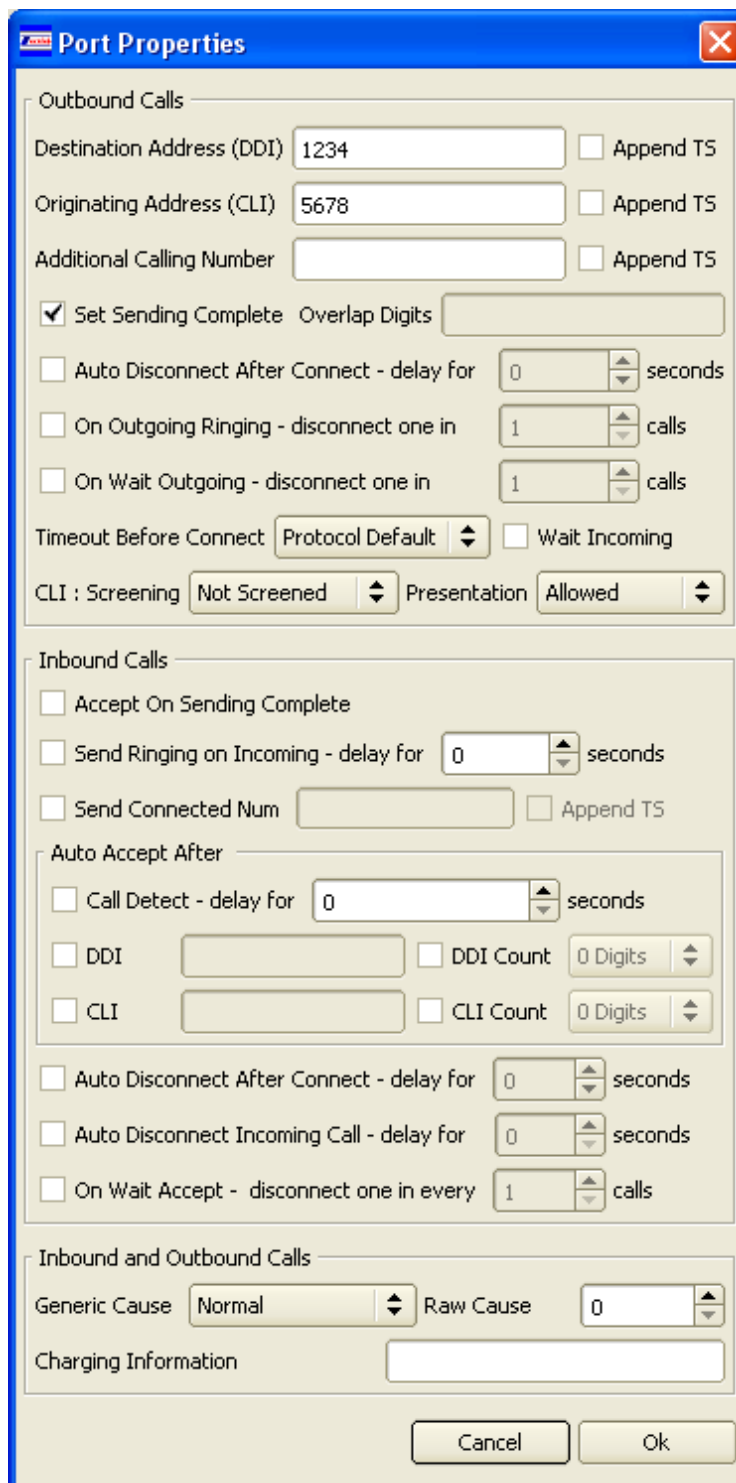
Release Call – Release calls that exist on selected timeslots.

Hold Call – Places a call on hold (when supported by the protocol).

Reconnect Call – Reconnects a call previously put on hold.

4.2 Port properties

Each port dialog contains a **Port Properties** button. Selecting this button will open a Port Properties dialog. The options available in this dialog govern the behaviour of the port.



The screenshot shows the 'Port Properties' dialog box with the following sections and options:

- Outbound Calls**
 - Destination Address (DDI): 1234 ☐ Append TS
 - Originating Address (CLI): 5678 ☐ Append TS
 - Additional Calling Number: ☐ Append TS
 - ☒ Set Sending Complete Overlap Digits:
 - ☐ Auto Disconnect After Connect - delay for: 0 seconds
 - ☐ On Outgoing Ringing - disconnect one in: 1 calls
 - ☐ On Wait Outgoing - disconnect one in: 1 calls
 - Timeout Before Connect: Protocol Default ☐ Wait Incoming
 - CLI : Screening: Not Screened Presentation: Allowed
- Inbound Calls**
 - ☐ Accept On Sending Complete
 - ☐ Send Ringing on Incoming - delay for: 0 seconds
 - ☐ Send Connected Num: ☐ Append TS
 - Auto Accept After**
 - ☐ Call Detect - delay for: 0 seconds
 - ☐ DDI: ☐ DDI Count: 0 Digits
 - ☐ CLI: ☐ CLI Count: 0 Digits
 - ☐ Auto Disconnect After Connect - delay for: 0 seconds
 - ☐ Auto Disconnect Incoming Call - delay for: 0 seconds
 - ☐ On Wait Accept - disconnect one in every: 1 calls
- Inbound and Outbound Calls**
 - Generic Cause: Normal Raw Cause: 0
 - Charging Information:

Buttons: Cancel, Ok

The options available are as follows:

4.2.1 For All Calls

☐ Append TS

If ticked, the timeslot number will be appended to the end of the string when a call is made

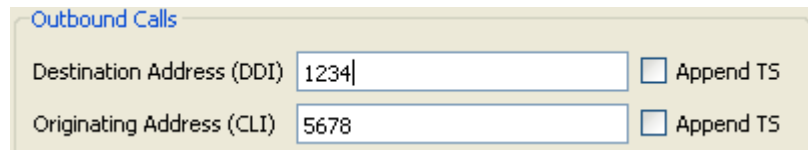
4.2.2 For Outgoing Calls

Destination Address (DDI)

Determines the DDI number (Destination Address) used when an outgoing call is made

Originating Address (CLI)

Determines the CLI number (Calling Party Address) used when an outgoing call is made



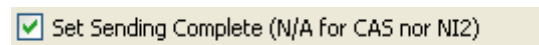
Additional Calling Number

Determines the additional calling number to send on protocols that support it



Set Sending Complete (N/A for CAS nor NI2)

If ticked, outgoing calls will have their sending complete flag set after all the digits (i.e. DDI, CLI and Overlap) have been sent. If un-ticked, outgoing calls will not have their sending complete flag set.



Overlap Digits



Determines the overlap digits to be sent when using the context menu **Send Overlap Digits** for an outgoing call timeslot. Only possible if 'Sending Complete' is not set.

Wait Incoming

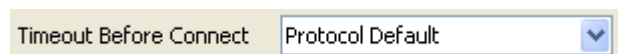
In loopback configurations, wait for other end to call_openin() before making outgoing call



Timeout Before Connect

If the outgoing call has not been answered within this time, CallLab will disconnect the call.

Values possible are Protocol Default, 1 Second, 15 Seconds, 20 Seconds, 30 Seconds, 45 Seconds, 60 Seconds, 120 Seconds, 180 Seconds, 240 Seconds and 300 Seconds



CLI: Screening

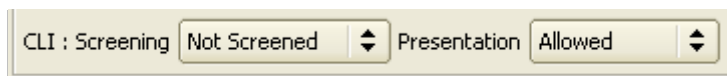
Sets value for CLI screening for relevant protocols. Values possible are :

Not Screened, Verify Pass, Verify Fail and Network Provided

Presentation

Sets value for presentation for relevant protocols. Values possible are :

Allowed, Restricted, Not Available, Reserved

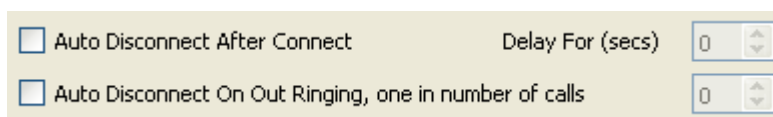


Auto Disconnect After Connect

If ticked, CallLab will attempt to disconnect the outgoing call after it has been connected for a certain time, specified in the 'Delay For (secs)' spin box

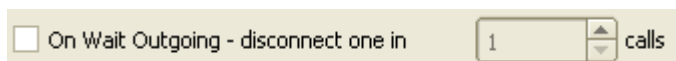
Auto Disconnect On Out Ringing

If ticked, CallLab will attempt to disconnect the outgoing call before it reaches the outgoing ringing state. It will randomly disconnect one in the number of calls specified by the following spin box



On Wait Outgoing – disconnect one in

If ticked, CallLab will attempt to disconnect the outgoing call after it has reached wait outgoing state. It will randomly disconnect one in the number of calls specified by the following spin box



4.2.3 For Incoming Calls

Auto Disconnect After Connect

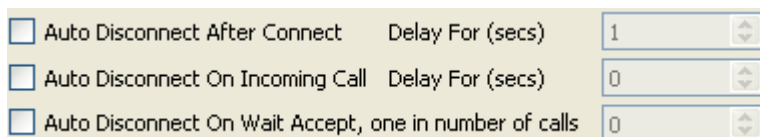
If ticked, CallLab will attempt to automatically disconnect the call after it has been in a connected state for 'Delay' number of seconds

Auto Disconnect On Incoming Call Connect

If ticked, CallLab will attempt to automatically disconnect the call after it has been in a incoming call detected state for 'Delay' number of seconds

Auto Disconnect On Wait Accept, one in number of calls

If ticked, CallLab will attempt to disconnect the call after it has reached the wait accept state. It will randomly disconnect one in the number of calls specified by the next setting



Accept on Sending Complete

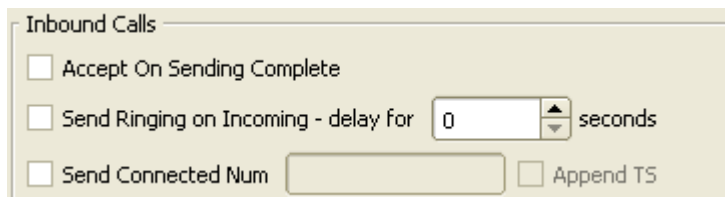
If activated, and for protocols that support it, if the DDI is flagged with 'sending complete' (i.e. no more DDI digits are going to be sent) the call will be automatically accepted

Send Ringing on Incoming

If activated, call_send_ringing() will be called when an incoming call is detected after the delay specified by the following spinbox has elapsed

Send Connected Num

Will send a 'connected Number' to the originating caller if enabled and for protocols that support it, when the call is connected



Auto Accept After Call Detect – delay for

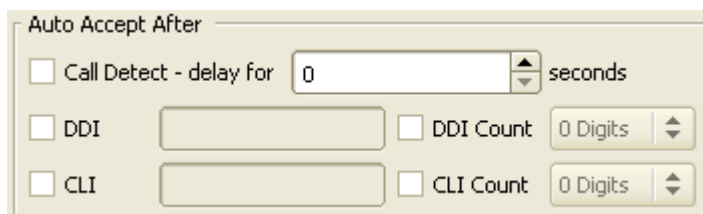
If activated an incoming call will be accepted after the specified delay, even if no digits (I.e. DDI, CLI or Overlap), are received for a certain time. Note. "Auto Accept After Time" is only intended for a low load test (I.e. less than 15 calls) and can affect performance when running CAS Protocols.

Auto Accept After DDI/CLI

If activated, the contents of this text box will be compared to the DDI/CLI of all incoming calls. If the text box content matches, the call will be automatically accepted.

Auto Accept After DDI/CLI count

If activated specifies the number of DDI/CLI digits that need to have been received before the call is accepted



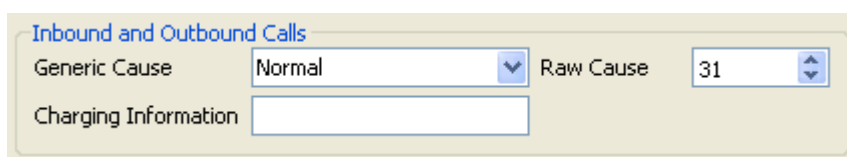
4.2.4 For Incoming and Outgoing Calls

Generic Cause

The reason for rejecting the call, either using a Generic cause or a protocol specific 'Raw' cause value that follows. These follow the rules in the call control API guide

Charging Information

This text box can be used to specify the charging information conveyed when you command CallLab to send charging information. Note. This option is not applicable to all protocols.



5 Hot Swap Support

When CallLab detects an opened card being ejected, it will attempt to clear down any ongoing calls that use port resources on that card. After all calls have gone idle, CallLab will automatically close the card. Once the card is closed, it can be physically removed from the system.

6 Performing a Manual LoopBack Call Test

This is a step-by-step instruction on how to manually navigate through a call made from Aculab network Port 0 to Aculab network Port 1.

NOTE

It will not be possible to perform this test if you only have 1 Aculab network Port in your system.

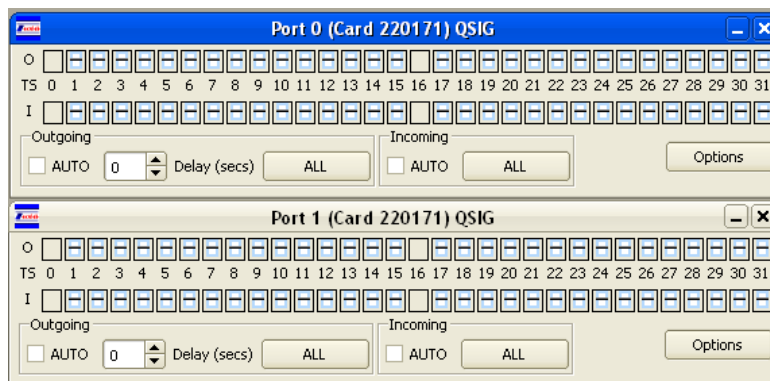
Before performing the test check that:

- Aculab network Port 0 is connected to Aculab network Port 1 using an RJ45 cross over cable (If your Aculab Ports have SMP/BNC type connectors, connect Port 0 RX to Port 1 TX and Port 0 TX to Port 1 RX).
- Check that Layer 1 Statistics (View the Port Statistics Dialog) report no errors
- Check that Layer 2 is active (Not applicable to CAS).

6.1 Open Network Port Dialog 0 and 1

Using right click over an opened card, invoke a Port Dialog for Port 0 and Port 1.

The two network Port Dialogs should now be displayed on your screen. Arrange them so that you can see both of them clearly.



Ensure that the *Auto Openin* and *Auto Openout* Check Boxes are un-checked for both ports 0 and 1.

CAUTION

Check and then uncheck each Auto check box in turn. This ensures that any default settings from previous sessions are re-set.

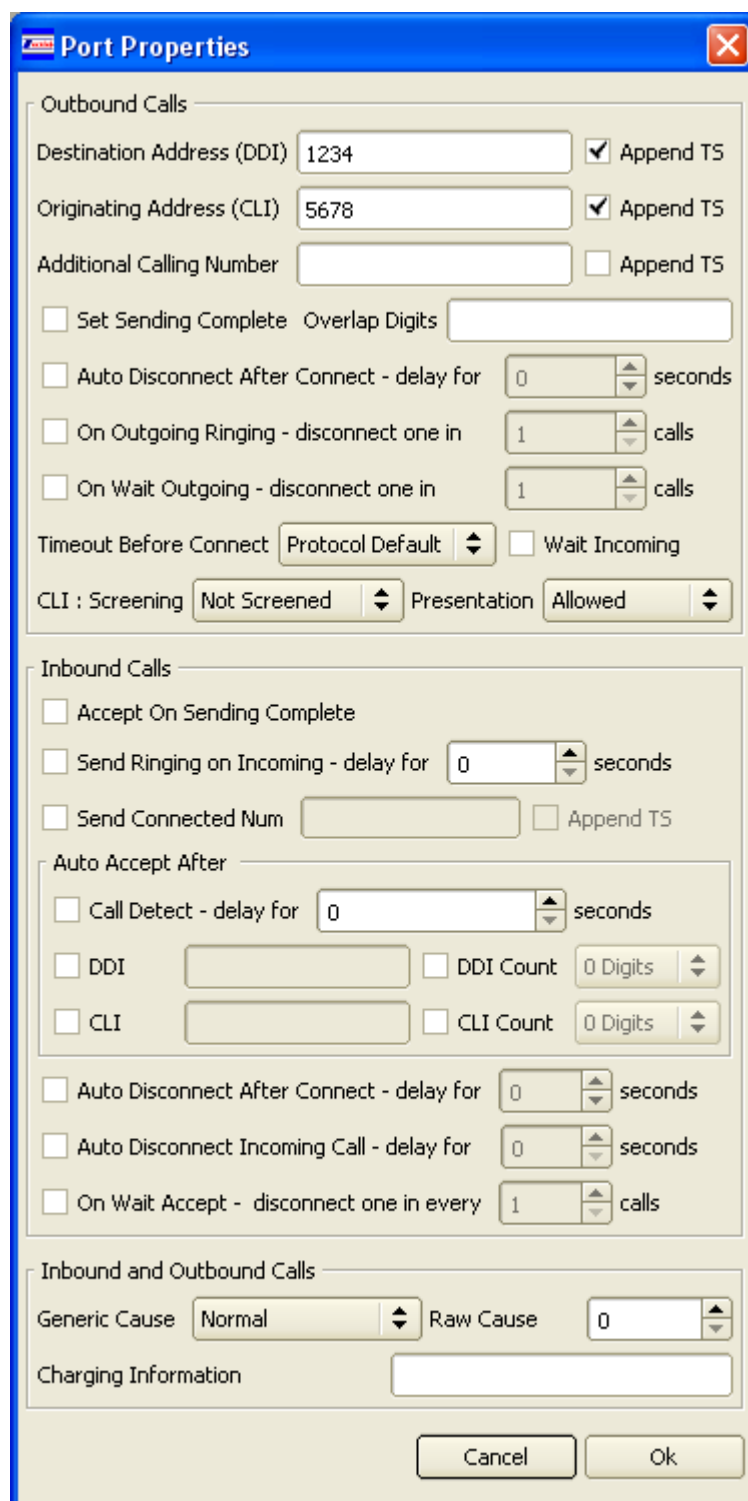
6.2 Check Port Property Settings

Select **Port Properties** for Port 0. Ensure the port properties match the properties shown below.

NOTE

We are performing a manual call test, so must ensure that none of the *Auto Accept*

settings are activated.



Port Properties

Outbound Calls

Destination Address (DDI) ☒ Append TS

Originating Address (CLI) ☒ Append TS

Additional Calling Number ☐ Append TS

☐ Set Sending Complete Overlap Digits

☐ Auto Disconnect After Connect - delay for seconds

☐ On Outgoing Ringing - disconnect one in calls

☐ On Wait Outgoing - disconnect one in calls

Timeout Before Connect ☐ Wait Incoming

CLI : Screening Presentation

Inbound Calls

☐ Accept On Sending Complete

☐ Send Ringing on Incoming - delay for seconds

☐ Send Connected Num ☐ Append TS

Auto Accept After

☐ Call Detect - delay for seconds

☐ DDI ☐ DDI Count Digits

☐ CLI ☐ CLI Count Digits

☐ Auto Disconnect After Connect - delay for seconds

☐ Auto Disconnect Incoming Call - delay for seconds

☐ On Wait Accept - disconnect one in every calls

Inbound and Outbound Calls

Generic Cause Raw Cause

Charging Information

Select **OK** to apply these settings to Port 0.

Apply the same settings to Port 1.

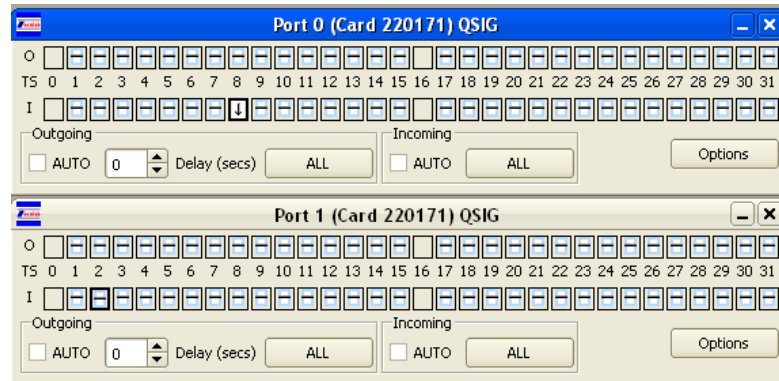
6.3 Configure a Timeslot Ready to Receive a Call

The two Network Port Dialogs should now be in view again. You are ready to make a call. In this example, we are going to use timeslot 8.

Select Port 0 *Incoming* timeslot 8.

Right Click on Port 0 *Incoming* timeslot 8 then select *Open for Incoming* from the pop up menu.

The `EV_WAIT_FOR_INCOMING` symbol (a down arrow) should then appear in timeslot 8 indicating that this timeslot is ready to receive a call.



6.4 Making an Outgoing Call

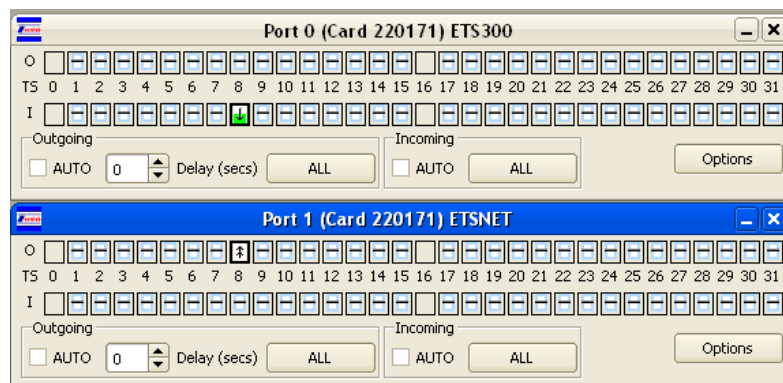
Select Port 1 *Outgoing* timeslot 8.

Right Click on Port 1 *Outgoing* timeslot 8 then select *Make Outgoing Call* from the pop up menu.

The below example is with port 0 configured as ETS300 USR and port 1 as ETS300 NET. Other protocols may behave differently and depend on firmware download switches used

The `EV_WAIT_FOR_OUTGOING` symbol (an up arrow) will briefly be displayed, followed by an `EV_OUTGOING_PROCEEDING` symbol (a double up arrow) in Port 1 *Outgoing* timeslot 8.

The `EV_INCOMING_CALL_DET` symbol (the down arrow with a green block in the lower half) should now appear in Port 0 *Incoming* timeslot 8 indicating the call has been detected.



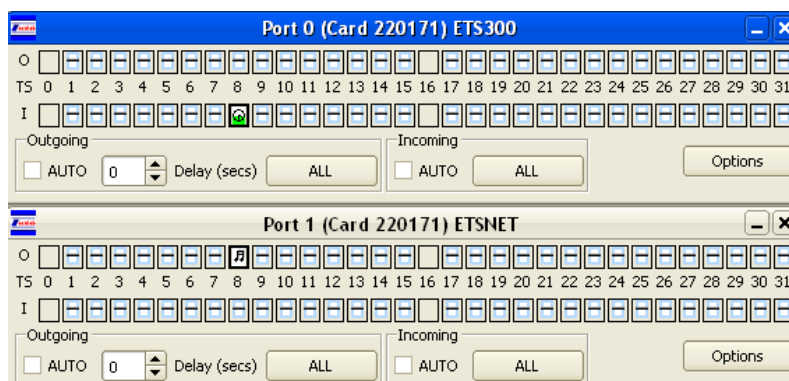
6.5 Sending Ringing

Right click on Port 0 timeslot 8 (down arrow with a green block) then select *Send Ringing* from the pop up menu.

The `EV_WAIT_FOR_ACCEPT` symbol (a clock with a green block in the lower half) should appear in Port 0 Incoming timeslot 8.

The `EV_OUTGOING_RINGING` symbol (a musical note) should then appear in Port 1

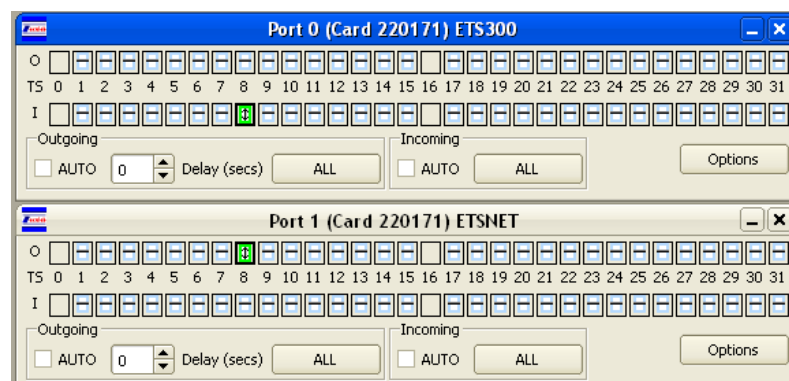
Outgoing timeslot 8 indicating the ringing message has been received.



6.6 Accepting the call

To accept/connect the call, Right click on Port 0 *Incoming* timeslot 8 then select *Accept Call* from the pop up menu.

Both the incoming and outgoing sides of the call should now display the green `EV_CALL_CONNECTED` symbols.

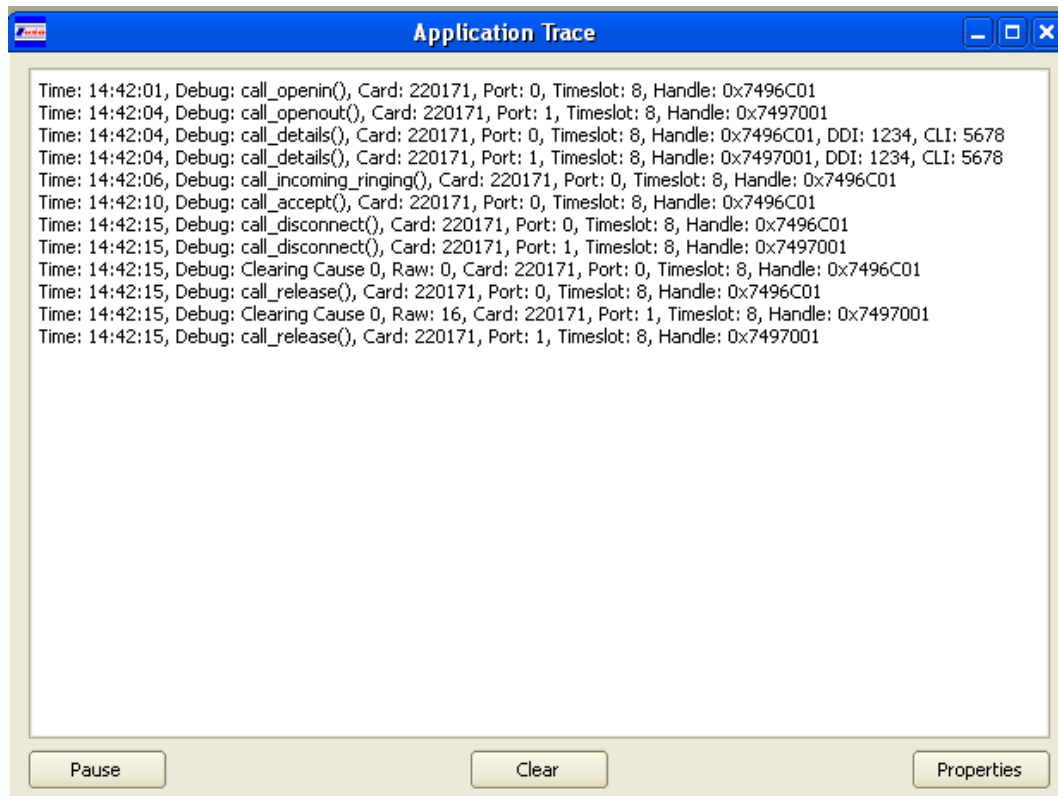


6.7 Showing Application Trace

You can examine the call events and API calls used by CallLab by viewing the Application Trace window (Menu- Trace – Application Trace).

Set the level of trace to 'Debug' by going to **Menu – Help – Trace Level - Debug**

Open the Application Trace window and repeat the call on timeslot 8, you will see trace similar to the below which shows a call that has been connected then released



6.8 Releasing the Call

You can release a call on either the incoming or outgoing side. In this example, we will release the incoming side.

Right click on Port 0 *Incoming* timeslot 8 then select *Release Call* from the pop up menu. The incoming and outgoing call should now clear down and return to the `EV_IDLE` state.

7 Performing an Automatic LoopBack Call Test

This is a step-by-step instruction for how to set up an automatic LoopBack call test using Aculab network Port 0 to Aculab network Port 1.

NOTE

It will not be possible to perform this test if you only have 1 Aculab network Port in your system.

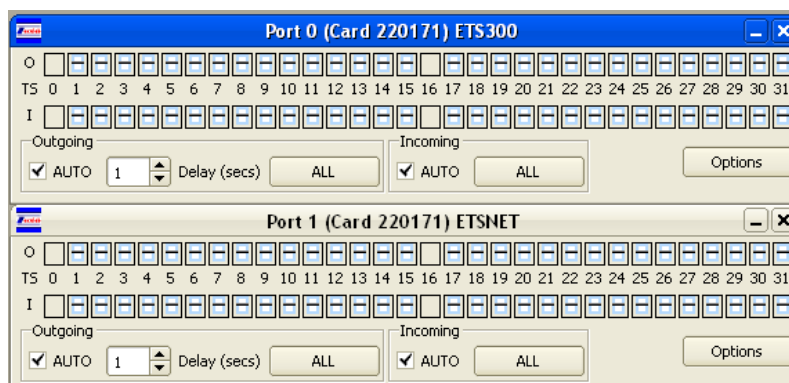
Before performing the test check that:

- Aculab Network Port 0 is connected to Aculab Network Port 1 using an RJ45 cross over cable (If your Aculab Ports have SMP/BNC type connectors, connect Port 0 RX to Port 1 TX and Port 0 TX to Port 1 RX).
- Check that Layer 1 Statistics (View the Port Statistics Dialog) report no errors
- Check that Layer 2 is active (Not applicable to CAS).

7.1 Open network ports

Invoke network Port Dialogs for Port 0 and 1. Arrange them on your screen so that you can see them both clearly.

On both ports, Check the *Auto Openin* and *Auto Openout* check boxes, and set the delay to 1 second.



7.2 Configure the port properties

Select **Port Properties** for Port 0. Ensure the port properties are as shown below:

Port Properties

Outbound Calls

Destination Address (DDI) 1234 ☒ Append TS

Originating Address (CLI) 5678 ☒ Append TS

Additional Calling Number ☐ Append TS

☐ Set Sending Complete Overlap Digits

☐ Auto Disconnect After Connect - delay for 0 seconds

☐ On Outgoing Ringing - disconnect one in 1 calls

☐ On Wait Outgoing - disconnect one in 1 calls

Timeout Before Connect Protocol Default ☐ Wait Incoming

CLI : Screening Not Screened Presentation Allowed

Inbound Calls

☐ Accept On Sending Complete

☒ Send Ringing on Incoming - delay for 2 seconds

☐ Send Connected Num ☐ Append TS

Auto Accept After

☒ Call Detect - delay for 4 seconds

☐ DDI ☐ DDI Count 0 Digits

☐ CLI ☐ CLI Count 0 Digits

☒ Auto Disconnect After Connect - delay for 1 seconds

☐ Auto Disconnect Incoming Call - delay for 0 seconds

☐ On Wait Accept - disconnect one in every 1 calls

Inbound and Outbound Calls

Generic Cause Normal Raw Cause 0

Charging Information

Cancel Ok

Select **OK** to apply these settings to Port 0.

Apply the same settings to Port 1.

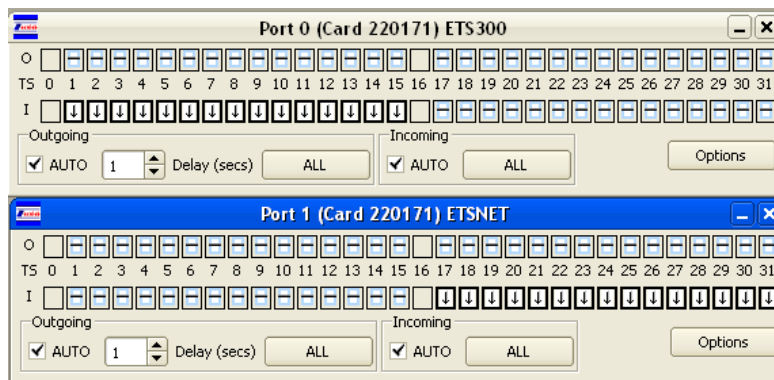
7.3 Open timeslots ready to receive calls

Select port 0 incoming timeslots 1 – 15, Right click on timeslot 1 of the selected Port 0 Incoming timeslots, press the shift key then select Port 0 incoming timeslot 15 to select the range, then select *Open For Incoming* from the pop up menu.

Select port 1 incoming timeslots 17-31, Right click on one of the selected Port 1

Incoming timeslot then select *Open For Incoming* from the pop up menu.

You should see that *Incoming* timeslots 1 to 15 for port 0 and 17 to 31 for port 1 show the `EV_WAIT_FOR_INCOMING` symbol (a down arrow).

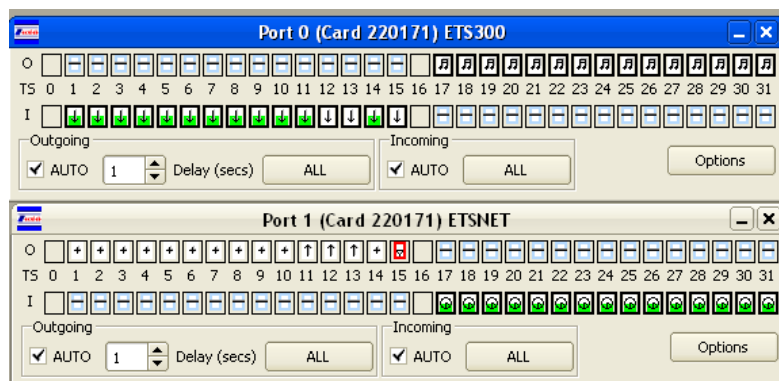


7.4 Make outgoing calls on selected outgoing timeslots

Select port 0 outgoing timeslots 17 to 30, Right click on one of the selected Port 0 Outgoing timeslot then select *Make Outgoing Call* from the pop up menu.

Select port 1 outgoing timeslots 1 to 15, Right click on one of the selected Port 1 Outgoing timeslot then select *Make Outgoing Call* from the pop up menu.

You should now see the selected timeslot start to perform call control automatically as indicated by the timeslots continuously changing state, similar to as shown below:



7.5 Stopping the automatic loopback test

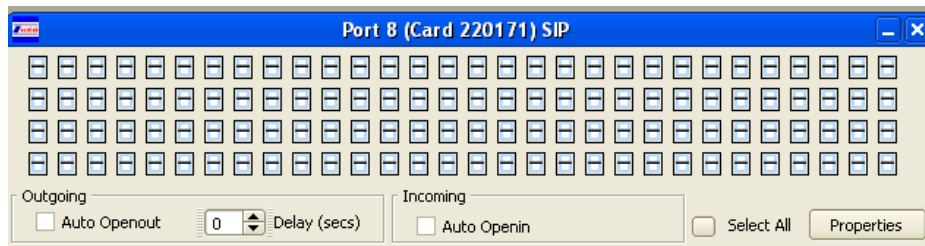
To stop the Automatic call test, simply un-tick the *Auto Openin* and *Auto Openout* Check Boxes on both Ports.

To clear any remaining calls, right click on a timeslot then select *Release Call* from the pop up menu.

8 Making SIP VOIP calls

Ports that are configured for voip protocols can be used to make and receive calls.

Voip calls are limited to 120 calls in CallLab, using a different port dialog to the 32 timeslot TDM port dialogs:



It also functions slightly differently: each timeslot has both 'Open For Incoming' and 'Make Outgoing Call' as options when the timeslot is selected

While 'timeslots' are used within CallLab to control the voip calls, these are used to keep the interface similar to when making TDM calls. Timeslots have no real meaning in the context of SIP calls.

For a prosodyX card ensure the IP settings are set in the ACT to enable the protocol you wish to use. In the following example for SIP this means SIP on host must be enabled and the appropriate TiNG firmware is downloaded (the simplest way to achieve this for voip is to use a TRM file)

If using ProsodyS you will need the appropriate number of channel licenses to use all 'timeslots' at once. To use all 120 'timeslots' for bi-directional calls you will need 240 licenses. If using auto in/out functionality you will need 242 licenses to use all 120 'timeslots'.

Open the port that is configured for SIP, in this case ProsodyS and open the port properties dialog.

Set the destination address (DDI) to the SIP address you wish to call

8.1.1 IPv4 examples

`sip:55555@10.202.205.152`

or, where `sip:` will be pre-pended for you

`10.202.205.152`

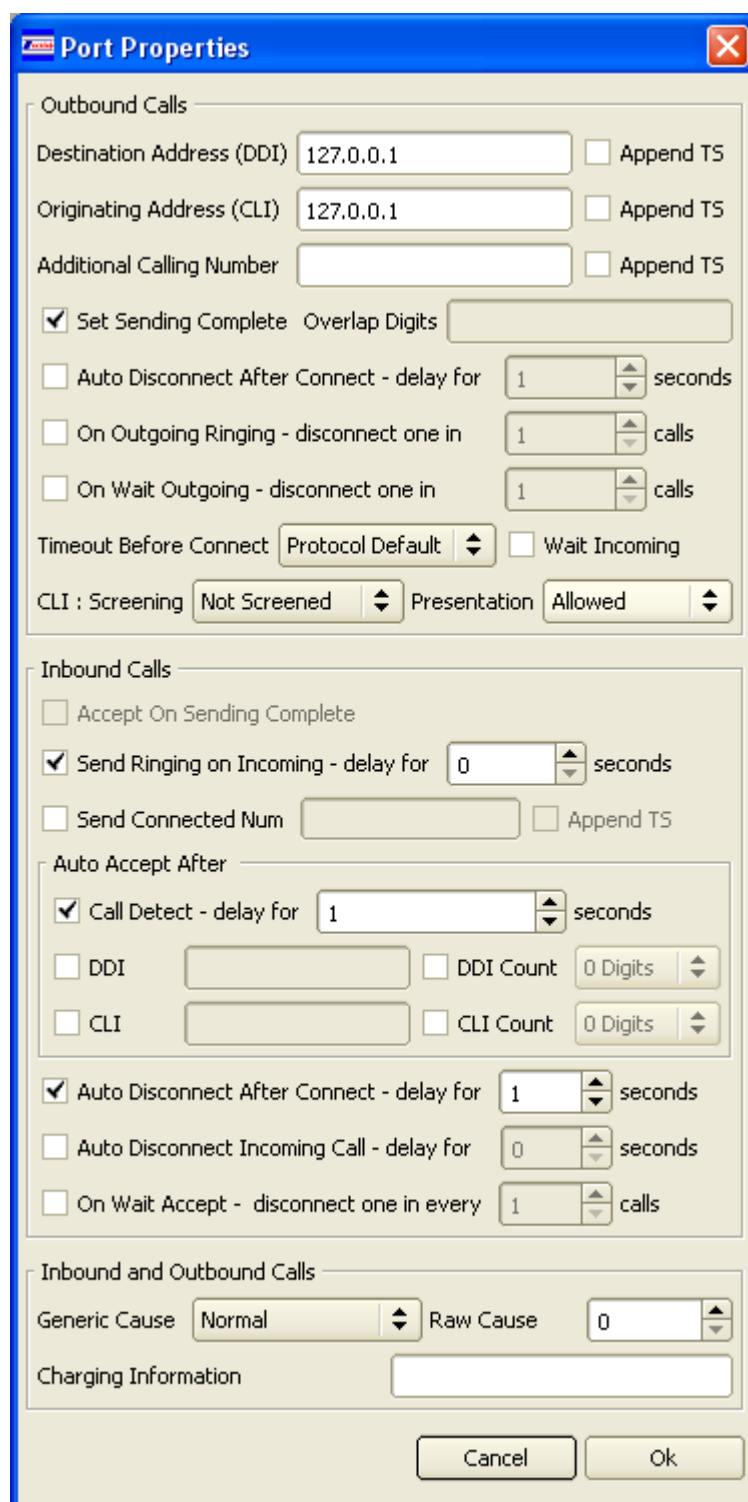
8.1.2 IPv6 examples

`sip:55555@[1:2:3:4:5:6:7:8]`

and likewise

`1:2:3:4:5:6:7:8`

or as in our example below, using ProsodyS in local loopback mode, just the ip address of `127.0.0.1` for IPv4 (which would be `::1` for IPv6)



Port Properties

Outbound Calls

Destination Address (DDI) ☐ Append TS

Originating Address (CLI) ☐ Append TS

Additional Calling Number ☐ Append TS

☒ Set Sending Complete Overlap Digits

☐ Auto Disconnect After Connect - delay for seconds

☐ On Outgoing Ringing - disconnect one in calls

☐ On Wait Outgoing - disconnect one in calls

Timeout Before Connect ☐ Wait Incoming

CLI : Screening Presentation

Inbound Calls

☐ Accept On Sending Complete

☒ Send Ringing on Incoming - delay for seconds

☐ Send Connected Num ☐ Append TS

Auto Accept After

☒ Call Detect - delay for seconds

☐ DDI ☐ DDI Count Digits

☐ CLI ☐ CLI Count Digits

☒ Auto Disconnect After Connect - delay for seconds

☐ Auto Disconnect Incoming Call - delay for seconds

☐ On Wait Accept - disconnect one in every calls

Inbound and Outbound Calls

Generic Cause Raw Cause

Charging Information

To make outgoing calls, close the properties dialog and then select the number of timeslots equal to the number of calls to be made. Right click on a selected outgoing timeslot and choose 'Make Outgoing Call'.

Incoming calls work the same as for TDM ports. Select the incoming timeslots you want to use for incoming voip calls. Right click and choose 'Open for Incoming'