Desktop Application for simulation of Host functionality for Platform for communication Adapter (PCA)

USER GUIDE

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1 . Introduction

Simulation application can able to generate all messages that host/remote system can generate to communicate to PCA device. This communication shall be over TCP socket. Design and implementation of the software can easily portable to other operating systems.

2 . Over view

Once the user started the application, he/she allowed to connecting with the other PCA devices as his/her wish. Before the connection he/she should make sure that the configuration file must be provided with server address and port number and log file path (log file path can be empty also as you wish). Configuration file (***conf.xml***) located in the directory level where application installed.

Conf.xml
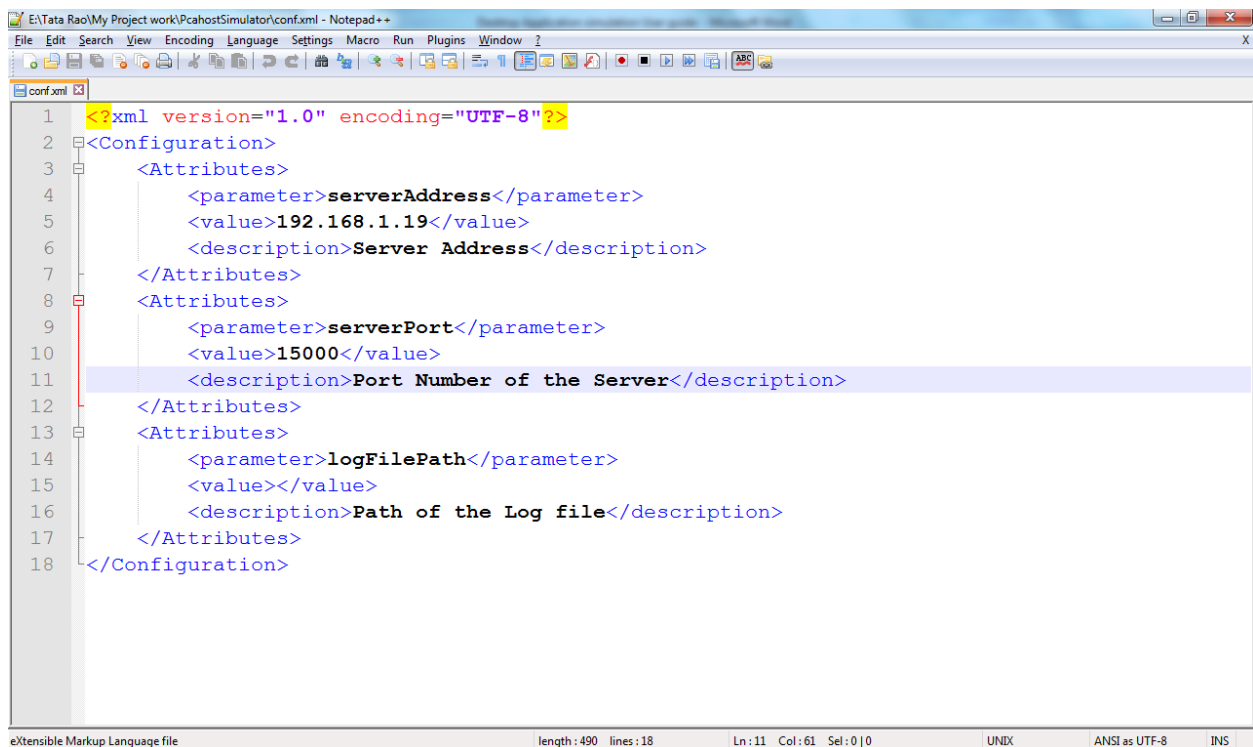
Note: Do not modify the file structure, just give serverAddress and serverPort values and logFilePath value (left as empty and path not contained in computer takes default path as logs path where application installed).

As your requirement all messages shall be stored in a text file and populated to the combo-box when application starts. User shall edit the text file to add/remove/modify the messages.

Message.txt file also located at the level where conf.xml is exists. The same represented in below figure.
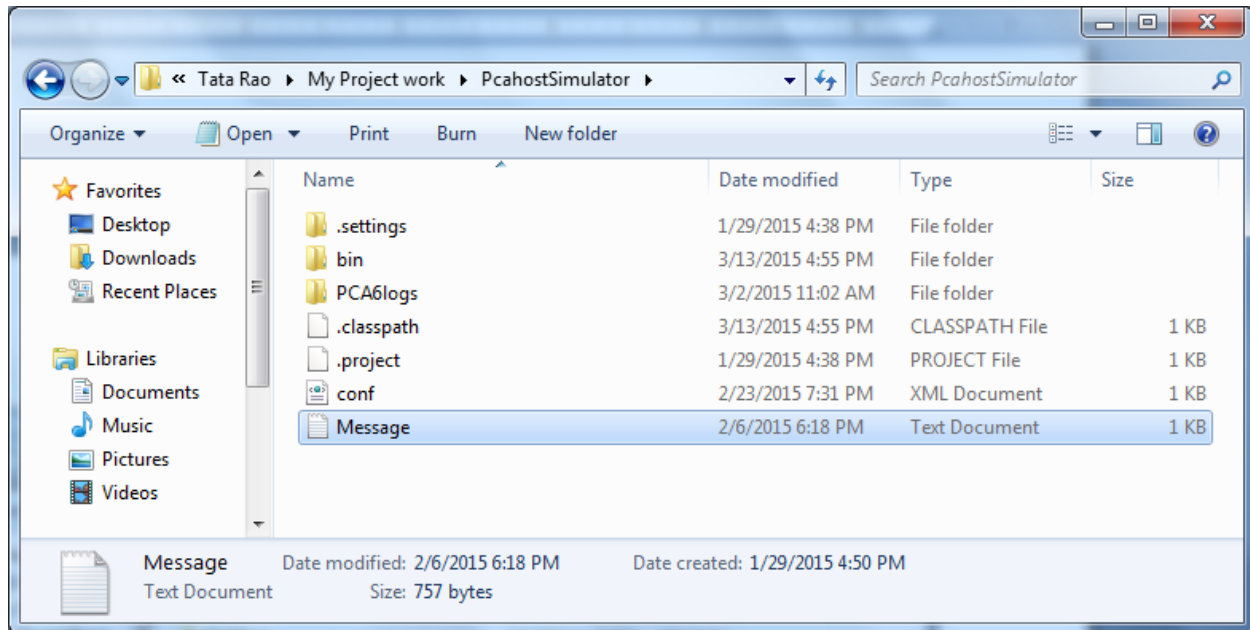
Message.txt
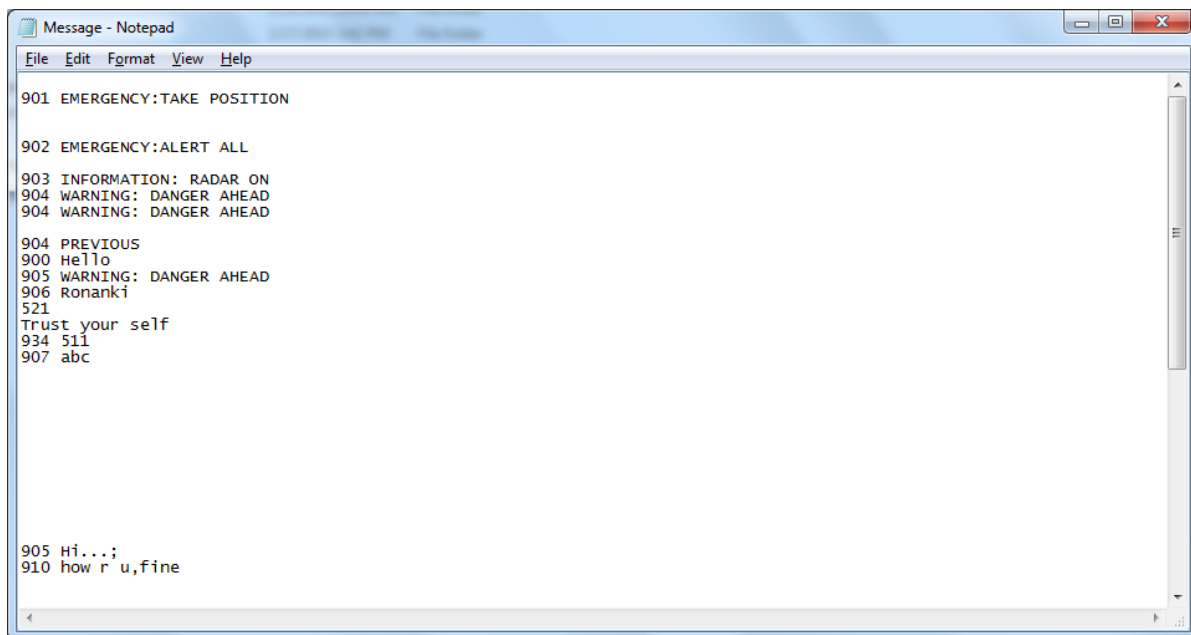
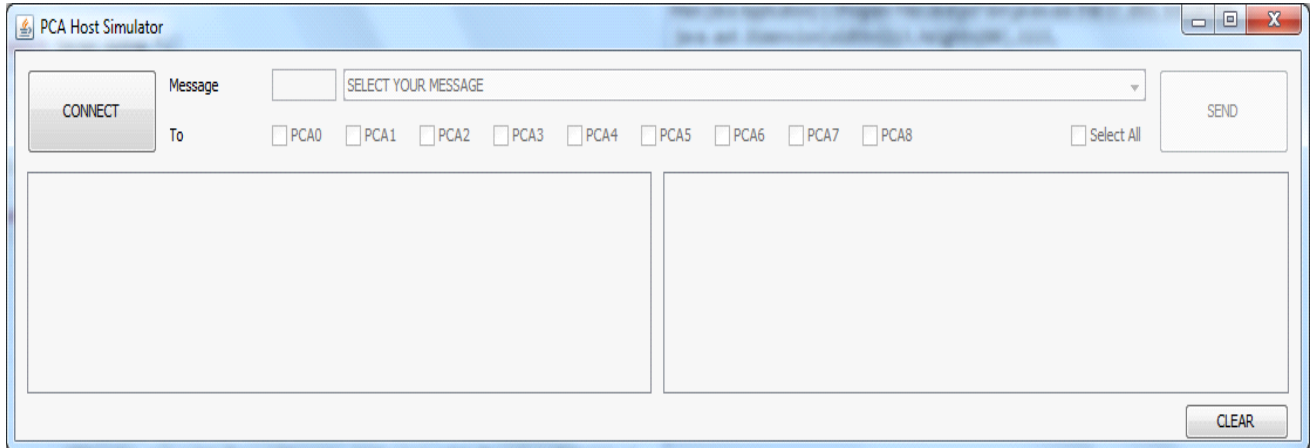**Message text file format**

<msgid><space><message as ASCII>

Note: Messages which follows the above format can only accepted.
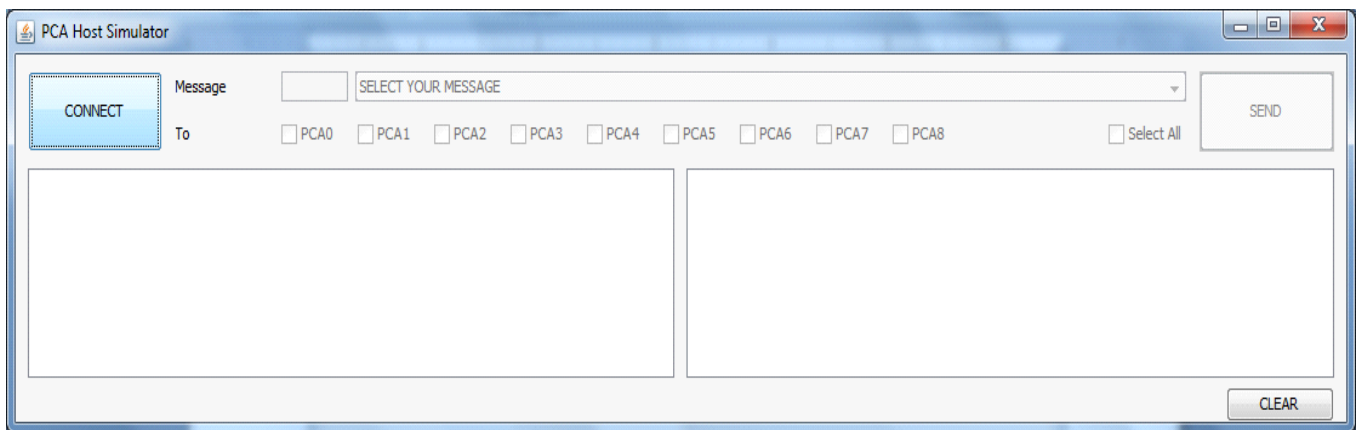
Example:

901 EMERGENCY:TAKE POSITION
902 EMERGENCY:ALERT ALL

When user starts the application, the default User Interface will be look as below:

3 .Getting started

At initial stage, only CONNECT button was enabled, so that user can come to know he/she has to connect his device with server.


3.1 Connecting PCA

When user clicked on CONNECT button, he/she able to Select PCA device from a PCA list displayed by a InputDialogBox as shown in bellow.
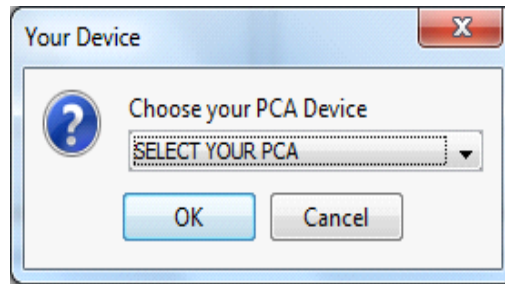
Here, InputDialogBox provides two optional buttons (OK and Cancel). Click on Cancel closes the GUI window and click on OK allows the user to connect with server, if the user has been selected one of the PCA device from list. Suppose user clicks the OK button without selecting PCA, nothing can be happen and same dialog box shown again and again until either he/she select a PCA or clicks on Cancel.
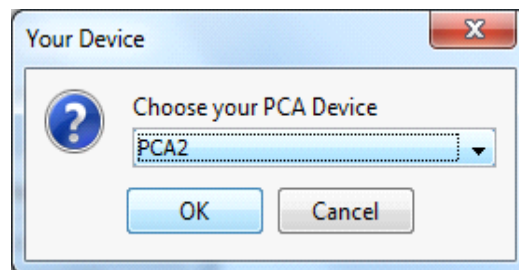
Once PCA selected, and then clicked on Ok, user could be connected as selected PCA, the same status can be shown at left-bottom label and CONNECT button state change to DISCONNECT. Connection status is visible to user, until clicked on DISCONNECT state of button. See bellow image.
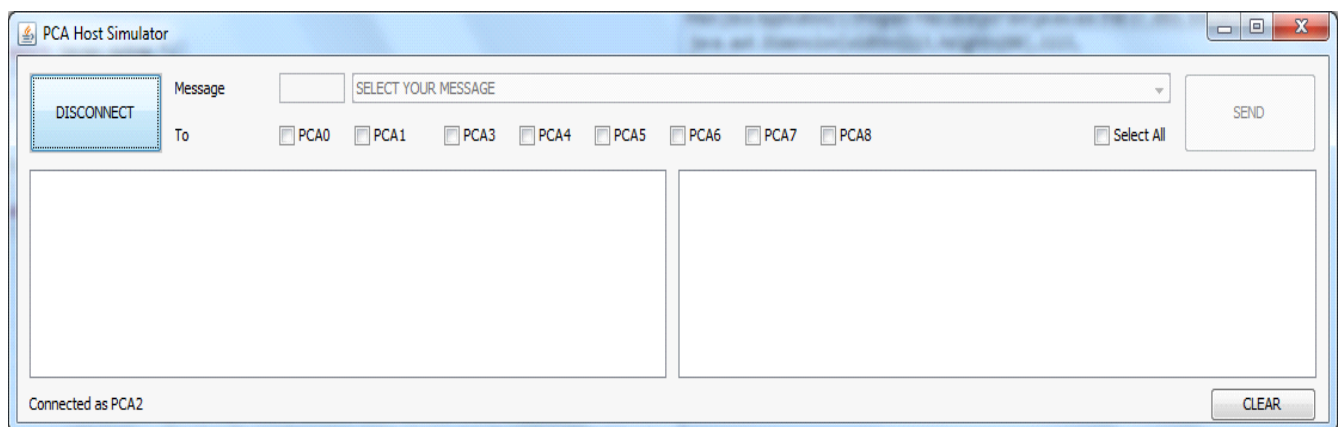
When user connected as one of the PCA, then checkboxes getting enabled as shown as above. Thereby user comes to know, he/she has to select the destination PCAs.

3.2 Destination PCAs selection

User should select at least one PCA checkbox as destination. "Select All" checkbox toggled for select all PCAs and deselect all PCAs.

Note: Until user select at least one PCA checkbox, Message components such as Message Id textfield, and Message combobox will be in disable state.

After selecting PCA(s), Message Id textfield and Message combobox get enabled and allows the user to select Message Id and Message as shown bellow.
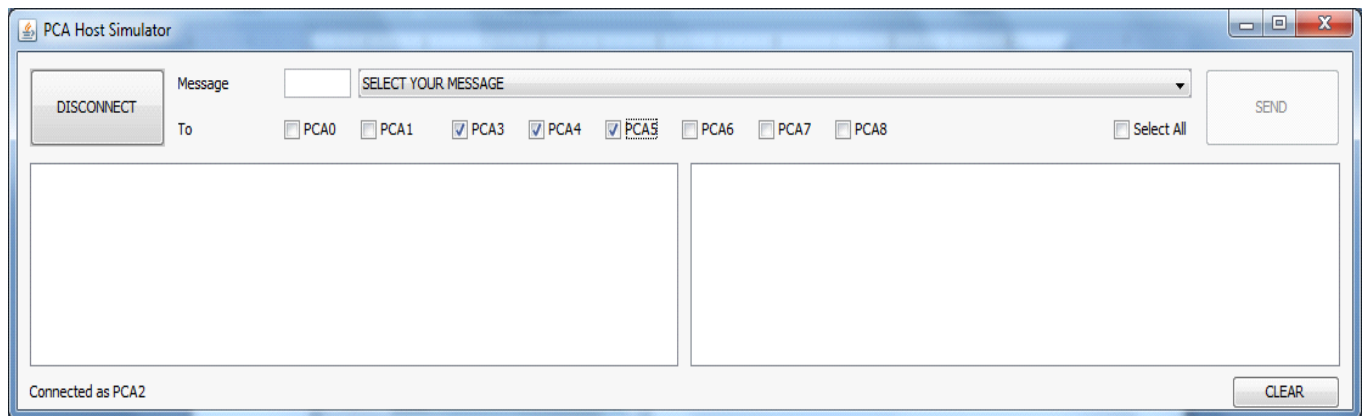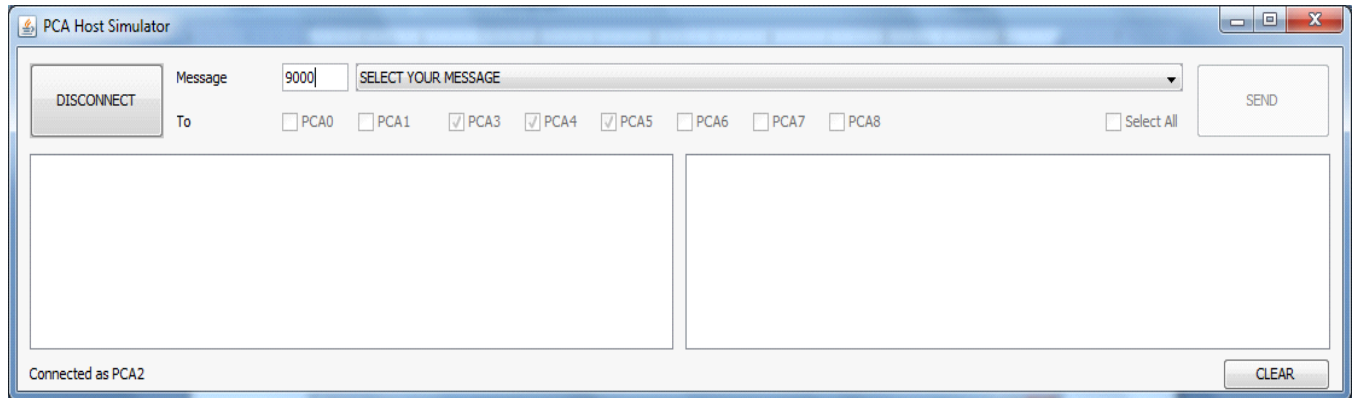

3.3 Selecting a Message

User can select message either by entering message id in text filed or by selecting a message from combobox. (Combo box populates the messages which are given in text file named Message.txt)

Selecting a message by entering message id:

User can able to enter message id in text field as shown below.


If the message id entered by the user is not exists in the text file, then an alert box will be displayed to alert the user as shown below. If the user clicks on OK, then the text field cleared and the focus of curser remains in text field to suggest the user for reentering of message id.


If the entered message id existed, then the corresponding message populated in combo box and SEND button will enable to allow sending of message.

Selecting a message from combo box:

User can able to select a message from combo box as shown below.
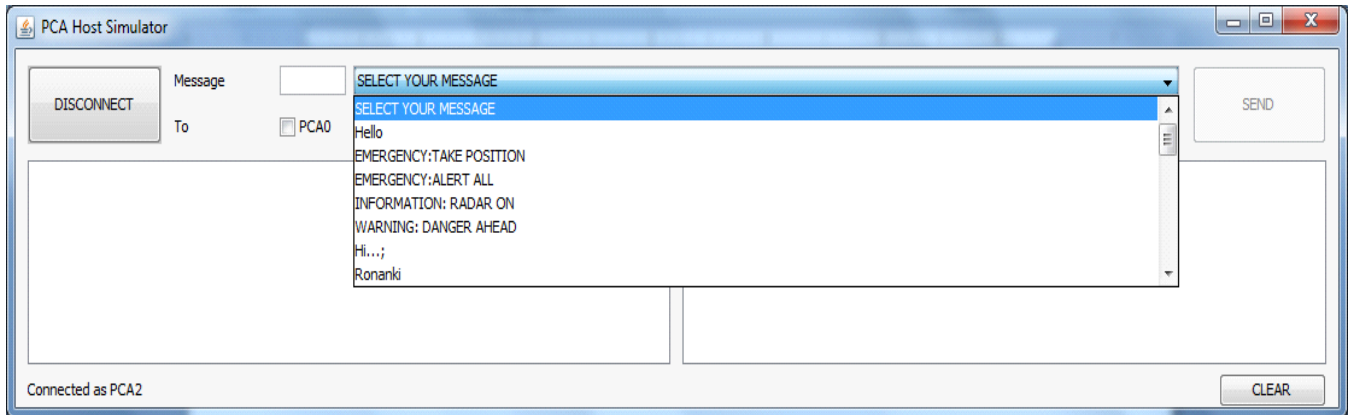
After selecting message from combo box, the corresponding message id placed in text field and SEND button will enable to allow sending of message as shown below.
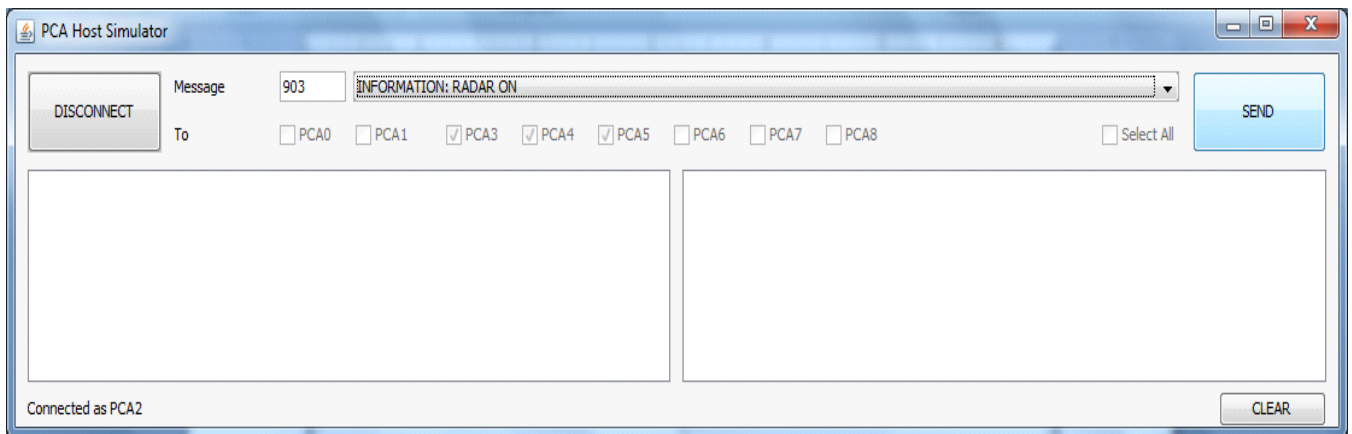
Note: The SEND button disabled until you selected a message.

3.4 Sending a Message

After user selected a message SEND button enabled and able to send message to selected PCAs. Once clicked on SEND button message has been sent to all destination PCAs and SEND button get disabled until all acknowledgments received (this disable of SEND button controls the resending of message multiple times by mistakenly).
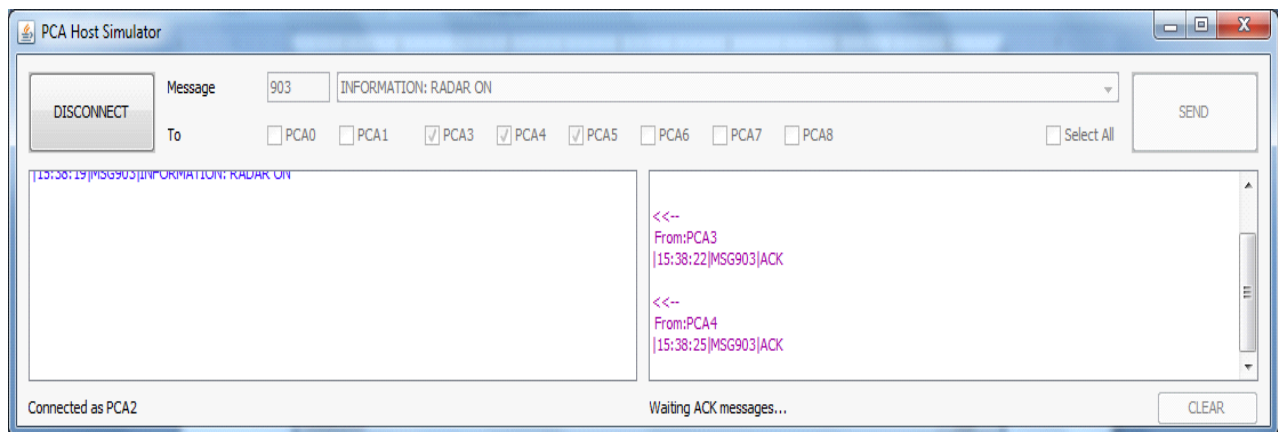
Note:
1. Check boxes and message components already disabled, which prevents alteration of destination PCAs selection and message content while sending.
2. Because of short span of time taken to send a message, changing of SEND button state to CANCEL and CANCEL to SEND state is not observed by us.

3.5 Displaying all outgoing messages and incoming messages

After message sent, **Message Panel-1** displays all messages outgoing from the connected PCA. These messages include direction indicator, destination, timestamp, msg id and initial part of message. See bellow snap.
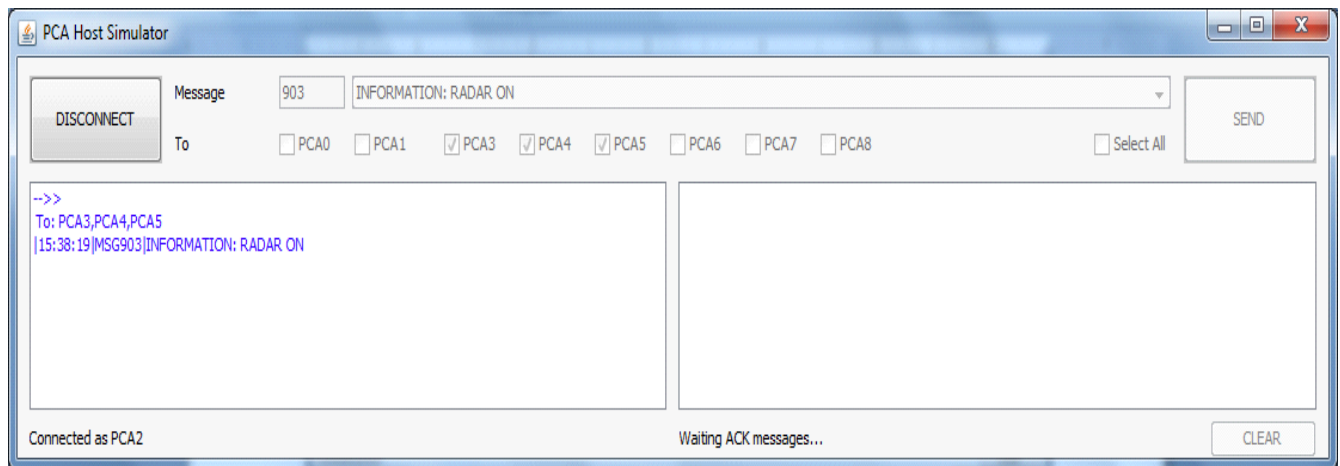

Message Panel 2 displays all incoming ACK messages to the connected PCA. Displayed messages include direction indicator, source, timestamp, msg id and initial part of message. See below snap.

Note: Label right-bottom displays waiting status for ACK messages until it gets all ACK messages from all selected PCA destinations, to which Source PCA sent message.
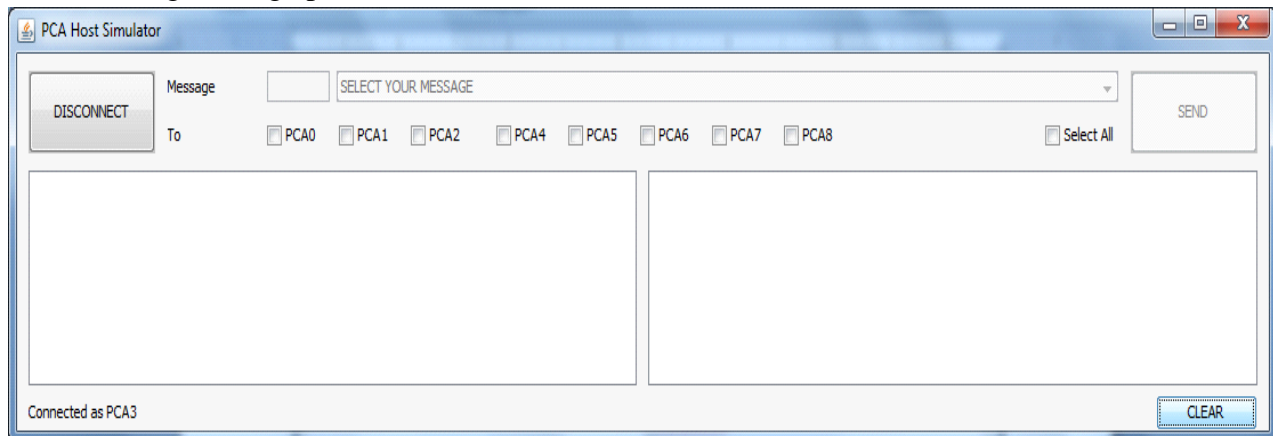
Once receiving all ACK messages get displayed, checkboxes automatically enabled. So that, again you can able to send messages.
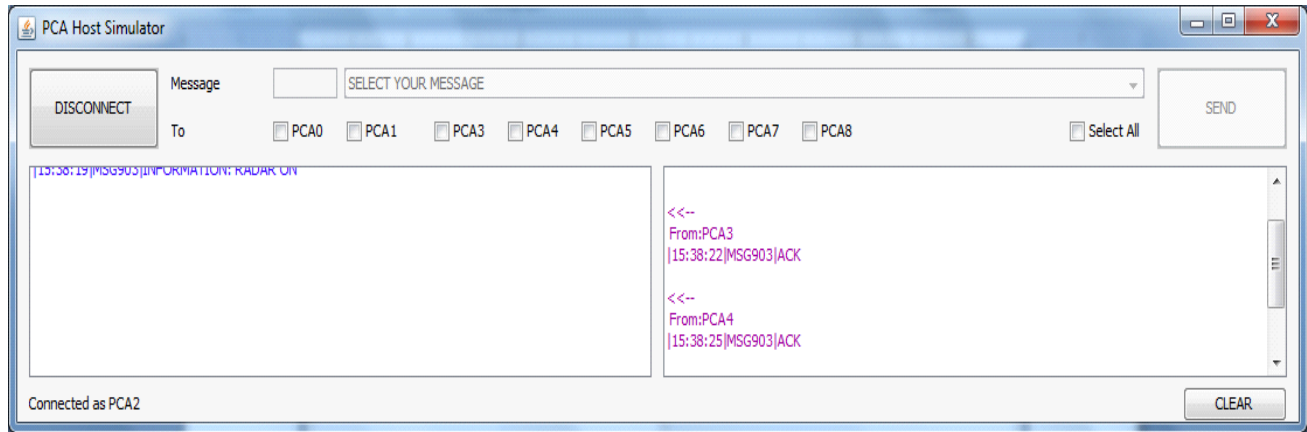
3.6 Clearing message panels

Clear button disabled until outgoing and incoming messages displayed into message panels. Using clear button user can able to clear the message panels.

After clearing message panels, GUI looks as below:

3.7 Disconnecting PCA

When user pressed DISCONNECT button, if there is no pending messages to send or receive, then TCP socket connection terminated and DISCONNECT changes to CONNECT state and clears both message panes.

When user pressed DISCONNECT button, if there is pending messages to send or receive, then an alert box will appear and informs about pending messages to receive and waits to disconnect until all pending messages has been received.
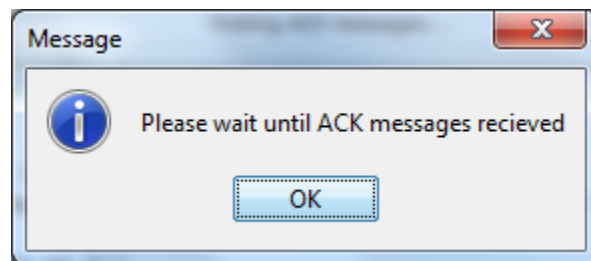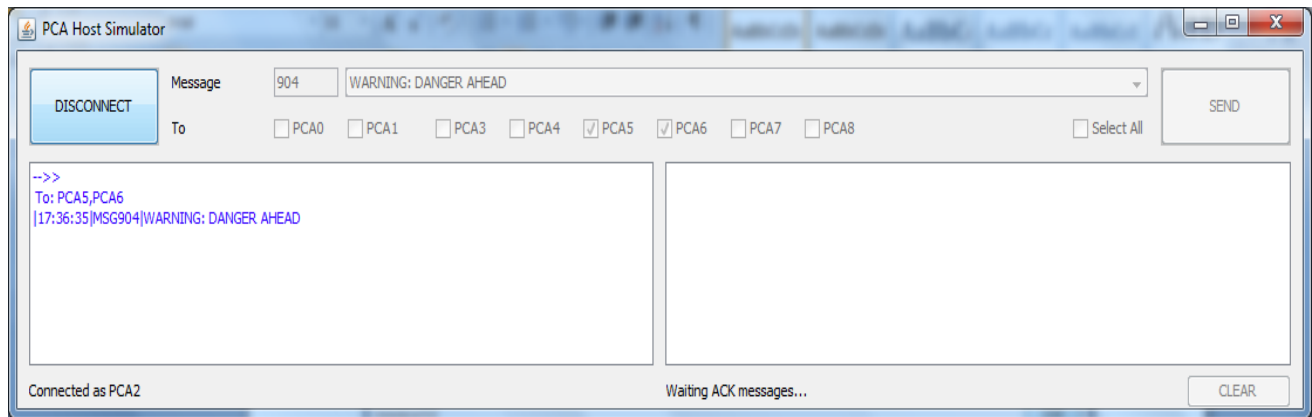
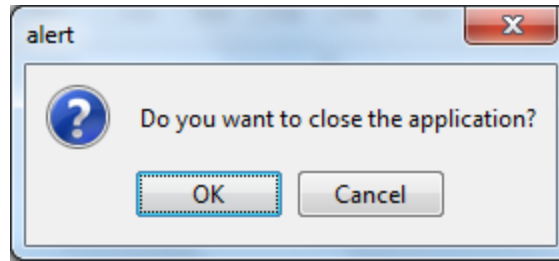
After all pending messages receive has been done, PCA disconnected automatically.

3.8 Closing GUI window

When user clicks on close button of window, an alert box displayed which takes conformity of user on closing window. See the below snap.
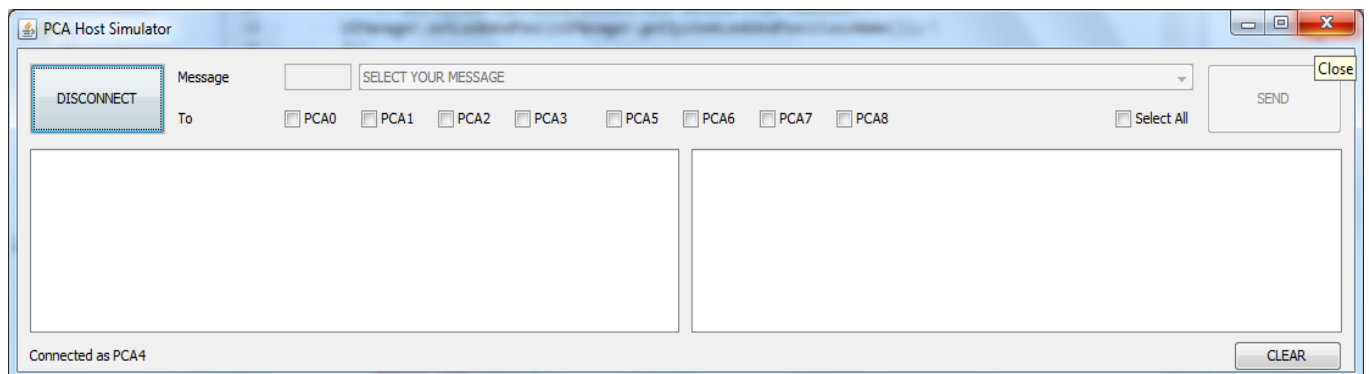
Note:

1. Closing window by user will disconnects PCA, if there is still a connection.

2. When the user tries to close the window, while acknowledgements are at pending then GUI will stay until all incoming messages (ACK) received then disconnected itself and GUI closed automatically.

3.9 Message Logging

All incoming and outgoing messages can be logged to text file. Each file should have connection timestamp as part of filename. A separate file is created every time a connect is performed. This log file is created in the path, which   was   provided   into   the conf.xml file.

Message log file format shown below:

```
-->>
 To: PCA7
|18:06:11|MSG315|EMERGENCY: TAKE POSITION
<<--
 From: PCA7
|18:07:03|MSG315|ACK
-->>
 To: PCA5, PCA3
|18:12:31|MSG335|EMERGENCY: ALERT ALL
<<--
From: PCA5
|18:12:55|MSG335|ACK
<<--
From: PCA3
|18:13:12|MSG335|ACK
```

Note:

1. Logs folder name itself represents user selected PCA logs.
2. If logs path not provided or not available in desktop terminal, PCA logs folder will be created in default path where application installed.