Designer - UniOP Communication via Modem

1. Introduction

The Designer programming package supports communication with a UniOP panel via a modem. This allows you to transfer programs to a UniOP panel even if the UniOP panel is on the other side of the country, or of the world. To communicate with a remote UniOP panel both the host computer running Designer and the remote UniOP panel must be attached to a modem. Designer can then make a call to the modem attached to the remote UniOP panel. When the UniOPs modem answers the call Designer can communicate with the remote panel just as if it was attached directly to the host computer.

2. Enabling modem support in DESIGNER.INI

The first thing you need to do to make use of the modem support in Designer is to make a small change to the DESIGNER.INI initialization file. This file is installed by the Designer installation program in your Windows directory. By default the modem support is disabled in Designer. If you want to make use of the modem support you must change one of the entries in this initialization file. Look for the entry named "Enable" in the section called "ModemInfo". This entry will be as shown below:

```
[ModemInfo]
Enable=0
```

A value of 0 for the "Enable" entry means that the modem support is disabled. To enable the modem support change the value of this entry to 1 as shown below:

```
[ModemInfo]
Enable=1
```

You don't have to worry about the meaning of any of the other entries in this section.

3. Configuring your modem

After you have enabled the modem support and restarted Designer you should see a new "Modem" menu item in the Options menu as shown in Figure 1.

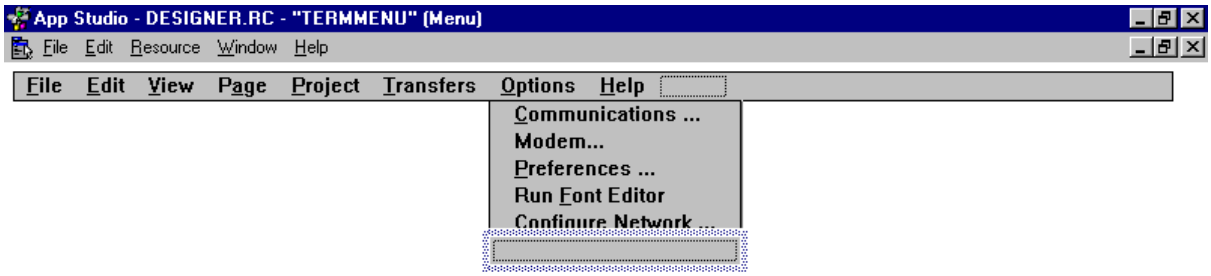

Figure 1 - Options Menu

Now if you select the "Modem" item you will see that the Modem Configuration dialog box is displayed as shown in Figure 2.

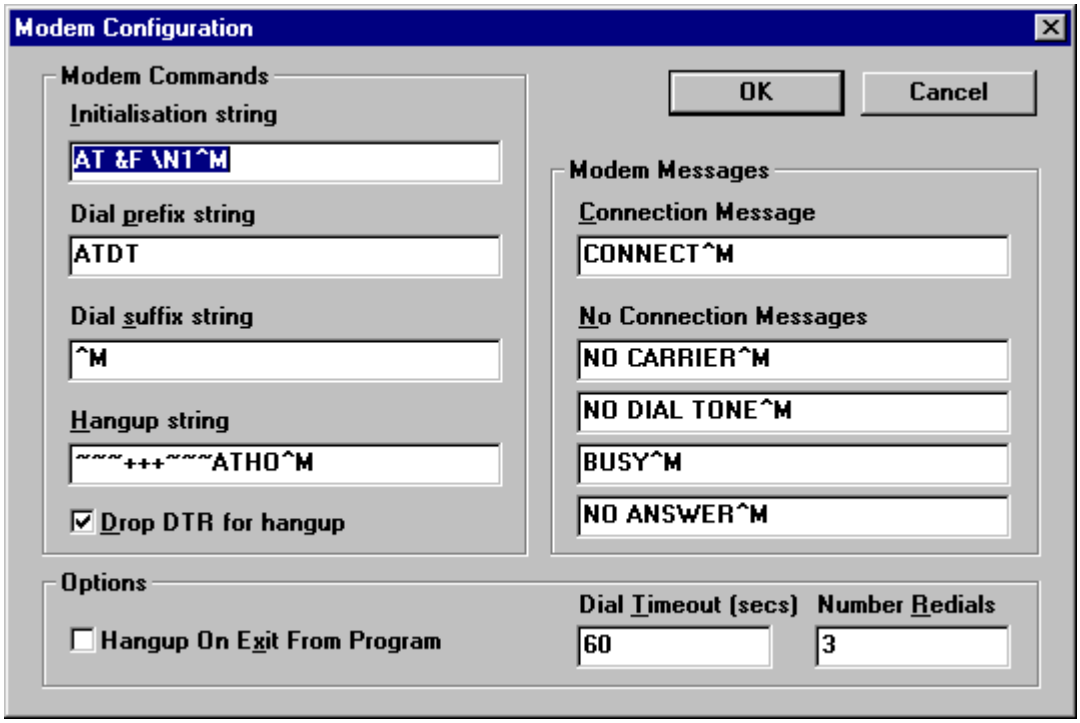

Figure 2 - The Modem Configuration dialog box

The Modem Configuration dialog box enables you to configure Designer for the particular modem that you have attached to your host computer. Different modems can use different AT sequences for the initialization, dialing and hanging up commands. The default data displayed in the dialog box should be sufficient in most cases. However, if you have a modem that uses AT strings that are different to those displayed in the dialog box you will have to edit the strings displayed to suit your modem.

The Modem Configuration dialog box uses some special characters. The character ^ is used to specify that the next character following it should be interpreted as the character that would result by pressing the SHIFT key on your keyboard followed by the character after the ^ character. For example the two character sequence ^M would be interpreted as the Carriage Return character (i.e. SHIFT M on your keyboard). Another special character sequence is the sequence "~~~". The Modem Configuration dialog box interprets this as wait for two seconds. Therefore the AT sequence "~~~,,,~~~ATH0^M" would be interpreted as wait for two seconds, send the string ",,,", wait for another two seconds, send the string ATH0, send the single character SHIFT M (Carriage Return).

The dialog box is divided into three sections, Modem Commands, Modem Messages and Options. Let's look at these sections separately.

Modem Commands

This section lets you specify the AT strings that should be used by Designer for the Initialization of the modem (this string is sent to the modem just before every dial operation); for the dialing of a phone number (this is divided into a dial prefix string and a dial suffix string as a complete dial command is composed of the dial prefix string followed by the phone number followed by the dial prefix string) and for the hanging up of a connection (as

well as the string to be sent to the modem to tell it to hang-up the connection, you can also specify whether the DTR control line should be set low following a connection hang-up)

Modem Messages

This section lets you specify the messages that are sent by your modem to signify the state of a connection attempt by Designer. You can specify only one message to signify a successful connection with a remote modem and up to four messages to signify an unsuccessful connection. You must be careful that you make these strings exactly the same as the strings actually sent by your modem as Designer checks the string sent by the modem with the strings you specify here to determine if the connection is successful or not. Modems can be configured to use a basic set of messages or an extended set of messages. When configured to use the extended set of messages the successful connection message will also specify the baud rate i.e. "CONNECT 9600^M", "CONNECT 19200^M". Again, make sure that the connection message you specify in this dialog box matches character by character the message actually sent by the modem.

Options

This section lets you configure some options. You can specify whether the modem should be disconnected when the Designer program is exited, the amount of time that Designer should wait for a connection after a dial before trying again and finally the number of times that Designer should re-dial before giving up.

4. Connecting to the remote modem

If the modem support is enabled in the DESIGNER.INI file then you should also see two new menu items in the "Transfers" menu, "Dial..." and "Hangup", as shown in Figure 3.

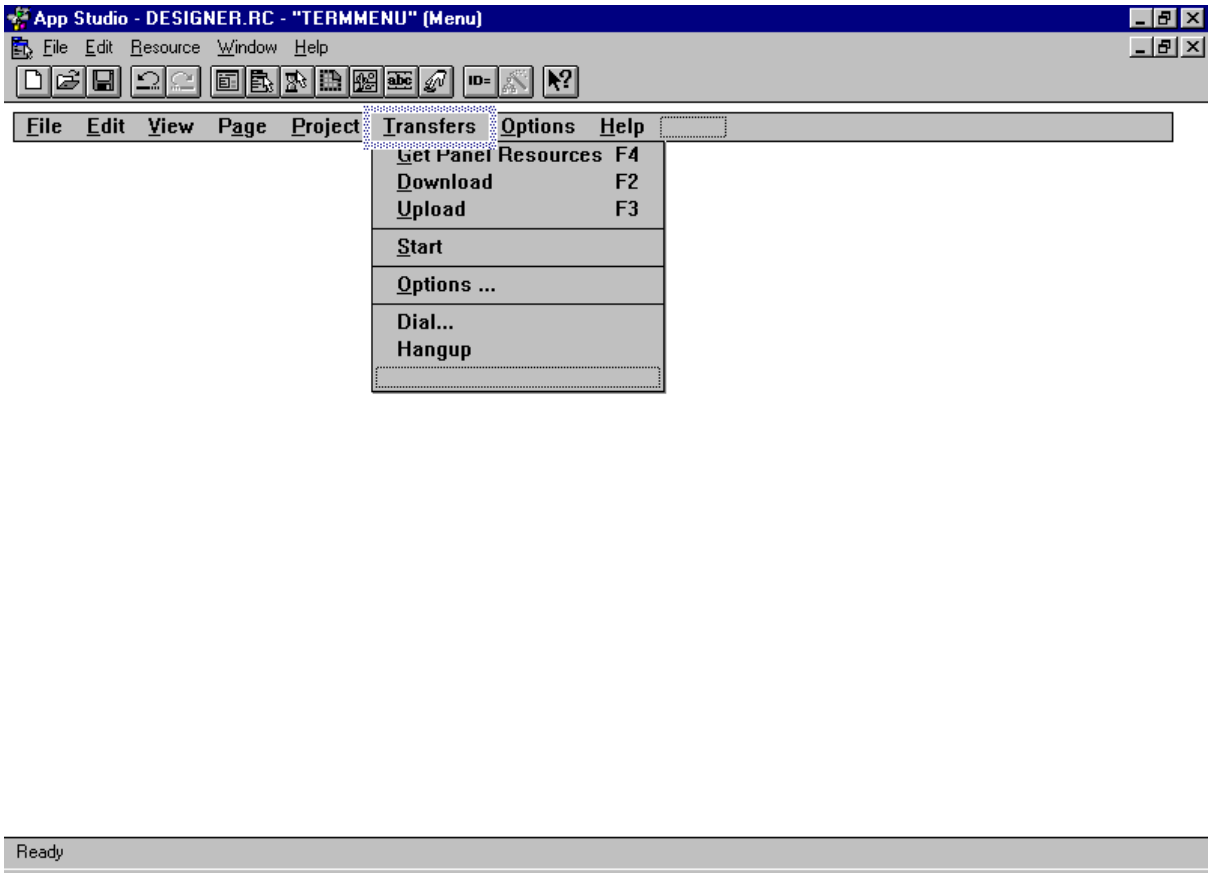

Figure 3 - Transfers Menu

Now if you select the "Dial..." item you will see that the Modem Dial Selection dialog box is displayed as shown in Figure 4.

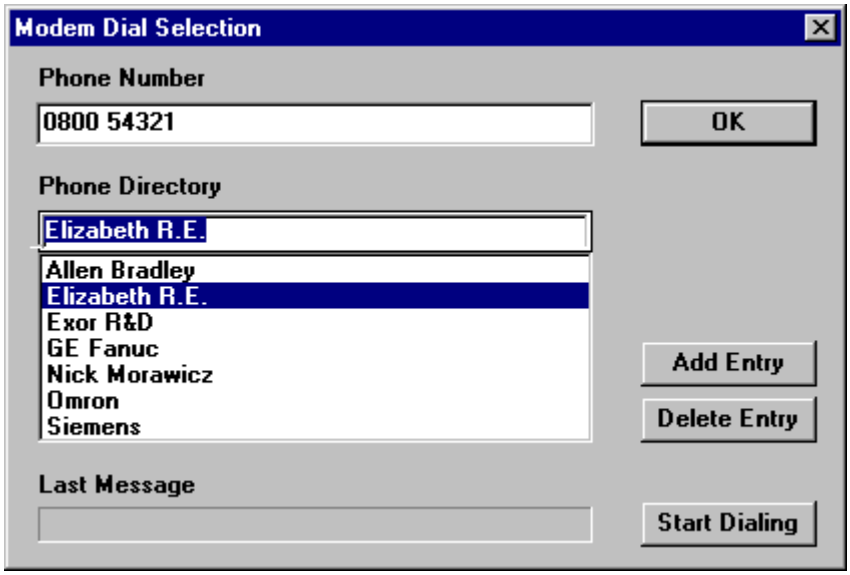

Figure 4 - Modem Dial Selection dialog box

You can do two things with this dialog box you can select a phone number and start dialing or you can add / delete entries in your quick dial phone directory. Lets first look at how you use the phone directory.

If you want to add an entry to your phone directory then you simply need to enter the phone number in the "Phone Number" edit box and enter the name you want to use for this phone number in the "Phone Directory" edit box. When you have done that simply press the "Add Entry" button and you should see your new entry added to the list. If you want to remove an entry from your phone directory then simply select the entry you want to remove in the list box and press the "Delete Entry" button.

When you want to make your call you can do it in two ways, you can either select the number from your rapid dial phone directory list or you can directly enter the number in the "Phone Number" edit box. When you have done one of these you can then simply press the "Start Dialing" button to make your call. Messages showing the progress of the call will be displayed in the "Last Message" message box. When you see the string you specified in the "Connection Message" edit box in the Modem Configuration dialog box you will be successfully connected to the remote modem.

If you want to hang up an existing connection then all you need to do is select the "Hangup" item in the "Transfers" menu. You should keep your phone bill in mind after you have connected to a remote modem. The phone bill will be getting bigger and bigger the longer you are connected. The connection will remain until you either select the "Hangup" menu item or until you exit from Designer (only if you have selected "Hangup On Exit From Program" in the Modem Configuration dialog box). To be safe, check that the modem has really been disconnected when you hang-up or exit Designer.

5. Modem Configuration

The key to making Designer communicate with your remote UniOP panel is getting the modem configurations right for both the modem attached to your host computer and the remote modem attached to your UniOP panel. The rest of this section contains some important points that you must bear in mind when configuring your modems.

The UniOP panels communicate with the programming device at a fixed baud rate of 9600. This means that your remote modem attached to the UniOP panel will have to be able to support a baud rate of 9600 between the modem and the data terminal. The safest option is to make both your modems use a baud rate of 9600. This means forcing a baud rate of 9600 between your host computer and the local modem, between the local modem and the remote modem and between your remote modem and the UniOP panel.

Some modems, for example MNP modems, support data compression / buffering. In this mode the modem does not send each byte individually but rather sends a buffer of bytes at a time to enable data compression. This mode will cause problems with the UniOP panel due to the handshaking protocol that it uses. Therefore, if your modem supports data compression you should disable it when using Designer.

Make sure that the remote modem is preprogrammed to be in Auto answer mode so that it will answer any incoming calls.

The standard UniOP programming cable cannot be attached directly to the remote modems serial communication port as the TX and RX lines are the wrong way around for the modem connection. Therefore, you will have to first place a gender changer on the modems serial communication port and then attach the standard UniOP programming cable to the gender changer.

The standard UniOP programming cable does not handle the DTR signal from the UniOP panel, therefore the DTR line in the UniOP programming cable is always OFF. Modems in auto answer mode can be configured to handle the DTR line in one of two ways, either to ignore it or to or to always check the DTR line before accepting a connection, in this mode a connection is only accepted if the DTR line is ON. This means that you must configure the remote modem to ignore the state of the DTR line or it will not answer the call from the modem attached to the host computer.

Remember that Designer can only communicate with UniOP when the UniOP is in Configuration Mode. This means that the remote UniOP will have to be placed manually in Configuration Mode to communicate with it via the modem. Be careful when you download to the UniOP as, by default, Designer places the UniOP in Start Mode after a successful download. When UniOP is in Start Mode it will no longer respond to any communication requests over the modem until it is manually reset to Configuration mode.

6. Modem Initialization Examples

The following examples assume MNP Hayes compatible modems:

Designer Modem:

AT &F \N1

&F - Set modem to default factory parameters.
\N1 - MNP direct mode for connection to remote modem - no data compression.

UniOP Modem:

AT S0=1 \N1 F8 &D0 &W

S0=1 - Puts the modem in auto answer mode.
\N1 - MNP direct mode for connection to remote modem - no data compression.
F8 - Limits the maximum modem-modem baud rate to 9600.
&D0 - Ignore the DTR value.
&W - write the settings to EPROM.

It is important to bear in mind that different brands of modems may use different AT commands to perform the functions listed above. In summary the modems should be configured as:

Designer Modem:

Disable Data Compression
(Disable software flow control - XON, XOFF)

UniOP Modem:

Disable Data Compression
Limit the maximum modem-modem baud rate to 9600
Disable the DTR control
(Disable software flow control - XON, XOFF)