INSTALLATION WITH MODEM CONTROL

This Application Note discusses some of the subtle issues regarding the installation and use of MIRAGE with modems, modem-controlled devices, and modem-control multiplexors.

Clear-to-Send at Power-Up

The MIRAGE CRT and AUX ports each have a Clear-to-Send input on pin 5. If this pin is not connected, it is assumed to be _true_. CTS must appear _true_ during MIRAGE power-up as some basic communications tests are performed at that time. If CTS is _false_ when the power-up self-tests are performed, the MIRAGE will fail these tests.

Follow these procedures:

1. If modems are in use, they should be powered up and made to set CTS _true_ before power is applied to the MIRAGE hardware;

2. Ensure that all other CTS signals connected to MIRAGE are _true_ prior to power-up;

3. Alternatively, disconnect signals from pin 5. CTS will appear _true_.

Problems With Early-Model Distribution Panels

MIRAGE Distribution Panels with part number 300-066-00
did not properly pass the following modem control signals through from the CRT connector to the HOST connector:

           Pin   4 (RTS)
           Pin   6 (DSR)
           Pin   8 (CD)
           Pin 22 (RI)

If you are using MIRAGE with a modem and you have one of these older Distribution Panels, contact your MIRAGE distributor for modification information.

The HOST Clear-to-Send Connection

If you are using the MIRAGE Pass-Through mode with a Data General multiplexor which supports modem control, you have some options regarding CTS even if you are not using a modem.

When the CTS signal is _false_, data transmissions from the computer (DTE) are inhibited by hardware. There is no way for software to override this.

Using the standard pass-through cables, the HOST's CTS signal will be connected to MIRAGE. When the user is in the pass-through mode, CTS will be made _true_, permitting data to flow to the user's terminal or modem. When in the MIRAGE mode, CTS will be held _false_, causing data from the host system to be held up until the user returns to pass-through mode.

This can cause problems on AOS modem lines. If the user is in the MIRAGE mode and his CLI process is terminated (from the OP console, for example), the termination text message cannot get out because CTS to the ECLIPSE is being held _false_ by MIRAGE. Because the message is still trapped inside the system, the user's CLI process is not really terminated and the modem is not forcibly disconnected.

After some experimentation, we have come up with a connection scheme which solves this problem. The technique is to make CTS always appear _true_ to the Data General system. This can be done in one of three ways:

   1. connect the multiplexor's CTS signal to -5v or -12v;

   2. connect CTS to DTR, (RS-232C pin 20), leaving DTR also connected to MIRAGE; or

   3. in the case of ULM-5s, jumper CTS true on the multi-plexor itself.

The disadvantage of this technique is that data from the host will no longer be held up while the user is in the MIRAGE mode. For example, messages from the operator will "fall on the floor" and go unnoticed by the user.

Security: The Data-Terminal-Ready Connections

In general, the Data-Terminal-Ready (DTR) signal (RS-232C pin 20) is passed-through from the HOST connector to the CRT connector, but this signal is also monitored by MIRAGE to enforce secutiry.

Most modem-control multiplexors will set DTR _true_ to enable console access, and _false_ to force a disconnect. In MIRAGE's pass-through mode, this is adequately secure. In the local (MIRAGE) mode, however, the DTR output at the CRT port is under the control of MIRAGE and a more complex scheme is used.

In the local mode, if the HOST's DTR signal is _true_ then MIRAGE holds the CRT's DTR signal _true_. If the HOST's DTR signal becomes _false_, then MIRAGE will perform the following sequence of events:

1. send the message "Console DTR Disabled" to the CRT port,

2. place the user in pass-through mode, and therefore...

3. make the CRT port's DTR signal _false_.

In general, the HOST's DTR signal should be connected to your DG multiplexor to keep your system secure. If you are not using the pass-through mode, or if your multiplexor does not support modem control signals, you may leave DTR (pin 20) of the HOST cable disconnected.

The HOST's DTR signal will be assumed _true_ by MIRAGE if not connected.