

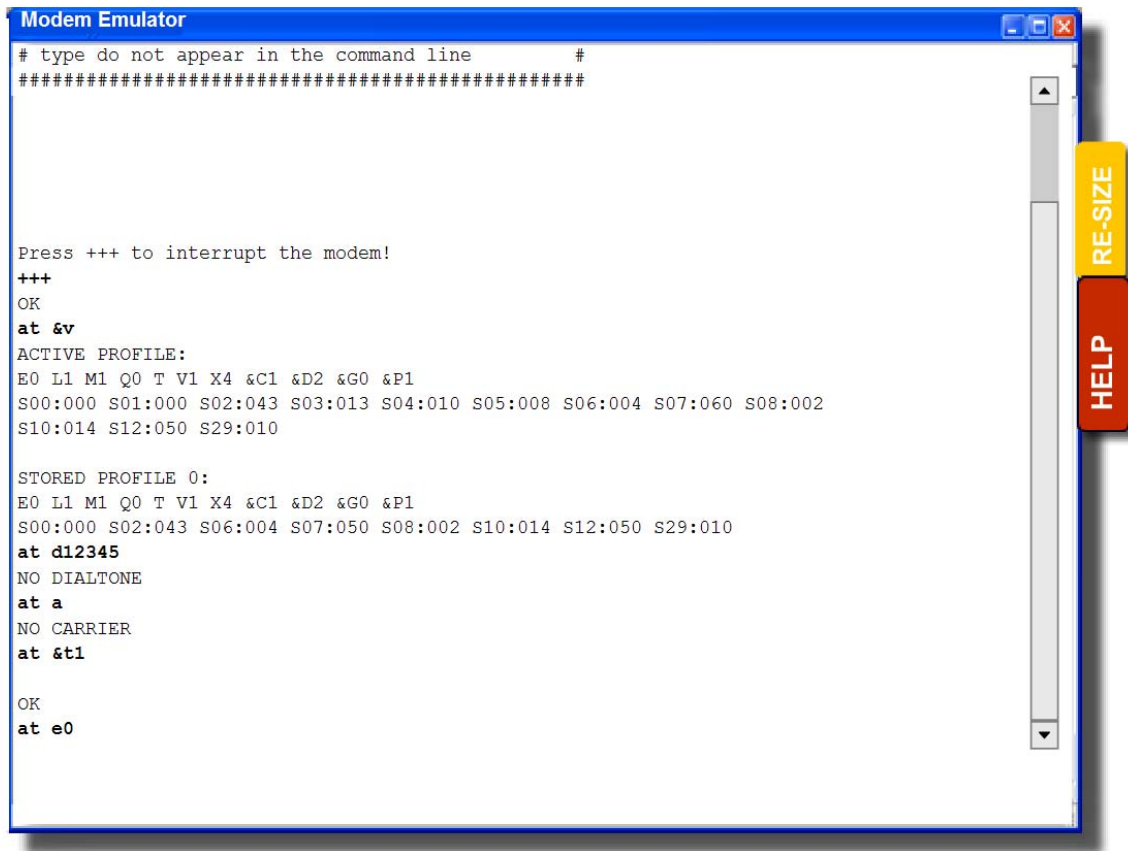
## Introduction

This document is a tutorial related to the Switch Emulator which is available at:

<http://www.dcs.napier.ac.uk/~bill/modem.html>

The requirements for it are:

- Macromedia Flash 6.



Time taken:

Correct:

Click mouse on emulator, and press any key to start

## Emulator

Using the modem emulator, complete the following.

### Getting the attention of the modem

A modem operates in two modes: commands and data mode. To get the attention of the modem the special string of '+++' is sent to the modem. This causes the modem to leave the data transfer and respond to commands. Thus:

- 1 Get the attention of the modem by sending +++ to it.

## Debugging the modem

Once you have the attention of the modem, the AT &V command can be used to view the status of the registers in the modem:

- 1 Enter the AT command of **AT &V**.
  - ▶ The S00 register contains the rings to auto-answer. What value is this?
  - ▶ The S01 register contains the rings counter. What value is this?
  - ▶ The S02 register contains the escape character. What value is this?
  - ▶ The S03 register contains the carriage return character. What value is this?
  - ▶ The S06 register contains the wait time for dial tone. What value is this?
  - ▶ The S07 register contains the wait time for carrier. What value is this?
  - ▶ The S08 register contains the pause time for automatic dialing. What value is this?
  - ▶ The S10 register contains the pause time for automatic dialing. What value is this?
  - ▶ The S12 register contains the escape code guard time. What value is this?
  - ▶ The S29 register contains the Flash dial modifier time. What value is this?

It is also possible to view individual registers with:

```
AT S0?.  
AT S1?.  
AT S2?.  
AT S3?.  
AT S4?.
```

and registers are set with the following format:

```
AT S0=10.  
AT S1=7.
```

## Checking product code/ROM details

The I registers contains information on the modem.

- 1 Enter the AT command of **AT I0** for product code.  
Enter the AT command of **AT I1** and for **AT I2** for ROM checksum.  
Enter the AT command of **AT I3** for product revision code.  
Enter the AT command of **AT I4** for response programmed by OEM.  
Enter the AT command of **AT I5** for country code.

## Setting word or digit result code

The modem will either gives words back as messages (such as OK, NO CARRIER, and so on), or numeric codes.

- 1 Enter the AT command of **AT v0** for numeric codes.  
Enter the AT command of **AT v1** for words.

## Setting speaker volume

The AT Ln command is used to set the speaker volume for the modem:

- 1 Enter the AT command of **AT L0** for low volume.  
Enter the AT command of **AT L2** for medium volume.  
Enter the AT command of **AT L3** for high volume.

## Speaker mode

The AT En command is used to set the operation of the speaker:

- 1 Enter the AT command of **AT M0** for Speaker off.  
Enter the AT command of **AT M1** for Speaker off while receiving carrier.  
Enter the AT command of **AT M2** for Speaker is always on.  
Enter the AT command of **AT M3** for Speaker on when dialing, then off.

## Command echo

The AT En command is used to set whether the AT command is echo'ed back:

- 1 Enter the AT command of **AT E0** for no echo.  
Enter the AT command of **AT E1** for echo.

## Tone/pulse dial

The modem uses tone dial with **AT T**, or pulse dial with **AT P**.

- 1 Enter the AT command of **AT T**.  
Enter the AT command of **AT P**.

## Go on-line and into answer mode

The modem is told to go into an answer mode with the AT command of **AT A**.

- 1 Enter the AT command of **AT A**.

If you are not connected to a telephone line, the modem will wait for a time-out period, and will display the message: NO CARRIER, else it will wait for a call.

## Making a call

The modem is told to dial a remote modem with the AT command of **AT D**.

- 1 The emulator simulates the non-connection of the modem to the phone line (based on a random event). If it displays a message of NO DIALTONE, keep trying the **AT D 123456** command. Otherwise you will get a message that says you are connected, such as CONNECT 9600. You will then get messages from the other side of the connection.

- 2 Type messages which will be sent to the other side. The other side should also send messages to you.
- 3 Put the modem back into commands mode with a +++.

## Hang-up a connection

The modem is told to hang-up a connection with **AT H**.

- 1 Enter the AT command of **AT H**.

## Test modes

The analogue loopback test is defined with **AT &T1**.

- 1 Enter the AT command of **AT &T1**. The commands will then be echo'ed back from the modem. To gain control of the modem enter +++.

W.Buchanan, 15 July 2003.

If you have any questions, please contact [w.buchanan@napier.ac.uk](mailto:w.buchanan@napier.ac.uk)