How To Configure A GSM Modem Using HyperTerminal

Introduction

This document provides a brief description of how to configure a GSM modem using the Windows HyperTerminal utility. Please consult your modem's documentation for more information.

Note: This document should be read in conjunction with the following documents on the Fleet Manager CD-ROM:

- ? Fleet Manager GSM Functionality
- ? Fleet Manager SMS Processor
- ? Fleet Manager Active Events and Tracking Extension

What you will need

- o RS232 Cable to connect the modem to your PC's serial port.
- o Power supply for the modem (check specifications).
- o HyperTerminal, it can be installed from your Windows installation disk if not installed already.

Getting started

Ensure that the Windows HyperTerminal utility is installed. Consult your Windows documentation for more information.

Start HyperTerminal by clicking on the Start menu and navigating the menu structure as follows:

Start ? Programs ? Accessories ? Communications ? HyperTerminal
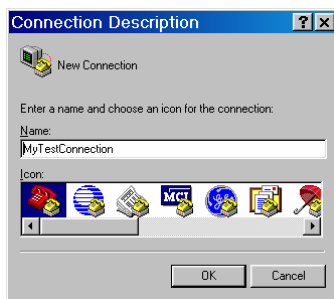
Enter a name for this session. You can save the session settings so that you can reuse them the next time you use HyperTerminal.

After clicking OK you are prompted to enter additional connection information. Drop down the Connect using combo box and select the communications port to which the modem is connected. Remember that a serial port can only be opened by a single application. Make sure that no other application is using the serial port you select.

After clicking the OK button, the properties of the selected communications will be displayed. In this dialog you must enter settings to match those of your modem. Most modems come with pre-configured settings. Refer to your modem's documentation for more information.

In the example below, the modem communicates with the personal computer at a baud rate of 19200 bits per second and uses hardware flow control. It is usually best to disable the flow control option by selecting None in the combo box.
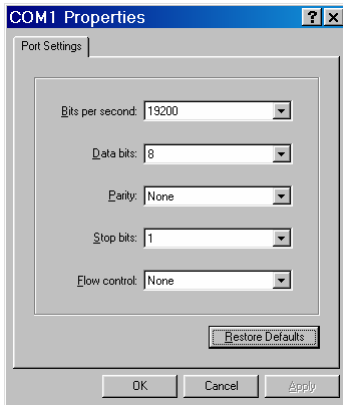
After clicking the OK button, the HyperTerminal window is opened.

Ensure that Caps Lock is enabled. All commands should be entered in upper case.
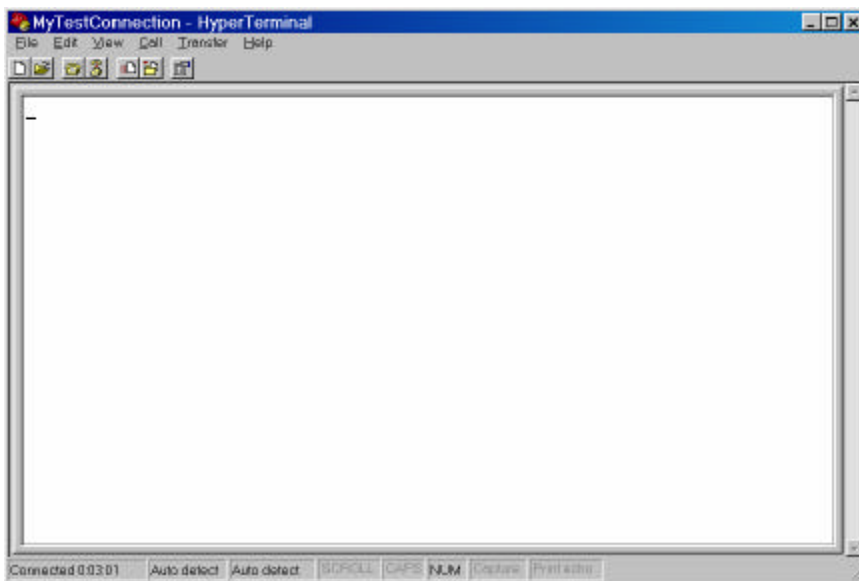
Most modems do not *echo* the characters sent entered in the HyperTerminal window. The first command sent to the modem enables echoing and tests that the settings you entered in the connection properties dialog are correct. Remember that while entering this command, you may not see the characters that you are typing. Enter the command **ATE1?** where **?** represents the Enter key on your keyboard.

If the modem is not responding, check that the correct serial port is selected and that the modem has the correct power supply. If the modem is still not responding try changing the baud rate in HyperTerminal to 9600. Other baud rates can also be tried if all else fails.

All of the commands documented below are in the following format. The bold text adjacent to the "Command:" label indicates text that you should enter into the HyperTerminal window. The bold text adjacent to the

"Response:" label indicates the response/s from the modem that will be displayed in the HyperTerminal window. Any text between square brackets is not part of the command or response.

Request the mode to ECHO all characters
Command: **ATE1?**
Response: **OK** *[comments]*

PIN code

Use the following command to determine whether your SIM card requires a PIN code to be entered before GSM services can be accessed.

Checking the PIN status
Command: **AT+CPIN?**
Response: **+CPIN: READY** *[No PIN required]*
             +CPIN: SIM PIN *[Need to enter a PIN, consult modem documentation]*
             +CPIN: SIM PUK *[PUK requested, enter this using a GSM handset]*

Detecting Errors

By default, most modems simply return ERROR when any error occurs. Use the following commands to analyze or detect more specific errors by requesting their codes.

Enable extensive error reports
Command: **AT+CMEE=1**
Response: **OK**

Request more info on the previous error
Command: **AT+CEER**
Response1: **+CEER: Error XX**
Response2: **OK**

Calls

Use the following commands to answer and place data and voice calls.

Enable caller line identification protocol
Command: **AT+CLIP=1**
Response: **OK**
Extended Result: **+CLIP: "PhoneNumber",xx**

Enable extra incoming line information
Command: **AT+CRC=1**
Response: **OK**
Extended Results: **+CRING: ASYNC**   *[Incoming data call detected]*
Extended Results: **+CRING: REL ASYNC** *[Incoming data call detected]*
Extended Results: **+CRING: VOICE**   *[Incoming voice call detected]*
Extended Results: **+CRING: FAX**   *[Incoming fax call detected]*

When both of the above commands have been executed, then any incoming calls will be displayed as follows, repeated every 2 or 3 seconds (normal ring interval):
+CRING: ASYNC
+CLIP: "0839876543",129

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SMS messaging

Use the following commands to send and receive SMS messages.

Set the SMSC number, this is the Service Center Number. It can be acquired from you GSM network service provider. This number is used in routing SMS messages to the destination number. **The number must be entered in international format.**

Set SMSC number
Command: **AT+CSCA="+27832000001"**
Response: **OK**

Save this setting
Command: **AT+CSAS**
Response: **OK**

Select the message service; most modems only support a value of "0" for this setting. Consult your modem's documentation for more information.
Command: **AT+CSMS=0**
Response1: **+CSMS: 1,1,1**
Response2: **OK**

Check the message storage setting
Command: **AT+CPMS?**
Response1: **+CPMS: "SM",0,15,"SM",0,15,"SM",0,15**
Response2: **OK** *["SM",0,15 ?   Saved to the SIM, 0 in use, 15 free spaces for messages]*

Select the preferred message format. Text would be preferred for testing in HyperTerminal. **Note:** The FM200 unit requires text format. Some modems do not support text format messaging (e.g. the Siemens M1). If your modem does not support text mode, it is not suitable for use with the FM200 unit for SMS functionality.
Command: **AT+CMGF=1**
Response1: **+CMGF: 1**
Response2: **OK**

Check/Get the New Message notification settings
Command: **AT+CNMI?**
Response1: **+CNMI: 0,2,2,1,0**   *[Typical values, Consult your modem's documentation for more information]*
Response2: **OK**

Get the possible New Message notification values
Command: **AT+CNMI=?**
Response1: **+CNMI: (0..3),(0..3),(0,2),(0,1),(0,1)**
Response2: **OK**

List all messages stored on the SIM card
Command: **AT+CMGL="ALL"**
Response1: **+CMGL: 1,"REC UNREAD","081234569",**
    This is the message text
    +CMGL: 2,"REC UNREAD","081234569",
    This is the message text
    Etc.
Response2: **OK**

Read a specific SMS message from the SIM
Command: **AT+CMGR=*X***   *[Where X is the storage location number 1..maxStore]*
Response1: **+CMGR: *X*,"REC UNREAD","081234569",**
        This is the message text
Response2: **OK**

Delete a specific Message from the SIM
Command: **AT+CMGD=*X***   *[Where X is the storage location number 1..maxStore]*
Response: **OK**

Send an SMS message
Parameter: DestinationPhoneNumber: *[Where the message should go, International or Standard format]*
Parameter: MessageBody: *[Any standard characters. Refer to a SMS character set for more detail]*
Command: **AT+CMGS="DestinationPhoneNumber"**
Response: **>**   *[The modem responds with this to show that it is waiting for the message]*
Command: **MessageBody**   *[Enter the message text]*
Command: **Ctrl-z**   *[Hold Control key and press the z key]*
Response: **+CMGS: Y**   *[Y = reference number]*
Response: **OK**

Example:
AT+CMGS="+27829876543"⏎
> Hi There, How are you *Ctrl-z*
+CMGS: 23
OK

Note: DO NOT press the Enter key after entering the message text. Use only Ctrl-z to indicate the end of the message text.

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