Quick Starting Guide

Fastrack Supreme and IESM Development Kit

Reference: **WA_DEV_Fastrk_UGD_017**

Revision: **001**

Date: **August 12, 2008**

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Plug and Play Fastrack Supreme Wireless CPU®

Fastrack Supreme Quick User Guide

Reference: WA_DEV_Fastrk_UGD_017
Revision: 001
Date: August 12, 2008

Supports Open AT® embedded ANSI C Applications

Document History

Revision	Date	List of revisions	
001	August 12, 2008	Creation	

Overview

The Fastrack Supreme 10 and Fastrack Supreme 20 are discrete, rugged cellular Plug & Play Wireless CPU® offering state-of-the-art GSM/GPRS (and EGPRS for Fastrack Supreme 20) connectivity for machine to machine applications.

Proven for reliable, stable performance on wireless networks worldwide, Wavecom's latest generation of Fastrack Supreme continues to deliver rapid time to market and painless integration.

Having comparable size with the previous M1306B generation, and updated with new features, the Fastrack Supreme offers an Internal Expansion Socket (IES) interface accessible for customer use. Expanding application features is easy without voiding the warrantee of the Fastrack Supreme by simply plugging in of an Internal Expansion Socket Module (IESM) board.

Fully certified, the quad band 850/900/1800/1900 MHz Fastrack Supreme 10 offers GPRS Class 10 capability and Fastrack Supreme 20 offers GPRS/EGPRS Class 10 capability. Both support a powerful open software platform (Open AT®). Open AT® is the world's most comprehensive cellular development environment, which allows embedded standard ANSI C applications to be natively executed directly on the Wireless CPU®.

Fastrack Supreme is controlled by firmware through a set of AT commands.

This document describes the Fastrack Supreme and gives information on the following topics:

- general presentation,
- configuration and using the Fastrack Supreme on the wireless networks,
- basicl troubleshooting.

Note:

This document covers the Fastrack Supreme Plug & Play alone and does not include

- The programmable capabilities provided via the use of Open AT® Software Suites.
- Detail technical and hardware features
- Detail trouble shooting guide
- The development guide for IESM for expanding the application feature through the IES interface.

RoHS Directive

The Fastrack Supreme and IESM-Ethernet are now compliant with RoHS Directive 2002/95/EC, which sets limits for the use of certain restricted hazardous substances. This directive states that "from 1st July 2006, new electrical and electronic equipment put on the market does not contain lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE)".

Plug & Plays which are compliant with this directive are identified by the RoHS logo on their label.

Disposing of the product

This electronic product is subject to the EU Directive 2002/96/EC for Waste Electrical and Electronic Equipment (WEEE). As such, this product must not be disposed off at a municipal waste collection point. Please refer to local regulations for directions on how to dispose off this product in an environmental friendly manner.

Caution

Information furnished herein by WAVECOM is accurate and reliable. However, no responsibility is assumed for its use. Please read carefully the safety recommendations given in Chapter **Error! Reference source not found.** for an application based on Fastrack Supreme Plug & Play.

IESM are ESD sensitive, it is recommended to use standard ESD precautions, as described in the following standard.

JEDEC standard JESD625-A, Requirements for Handling Electrostatic Discharge-Sensitive (ESDS) Devices.

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Web Site Support

General information about Wavecom and its range of products:	www.wavecom.com
Specific support is available for the Fastrack Supreme Plug & Play Wireless CPU®:	www.wavecom.com/fastracksupreme
Carrier/Operator approvals:	www.wavecom.com/approvals
Open AT® Introduction:	www.wavecom.com/OpenAT
Developer support for software and hardware:	www.wavecom.com/forum

Table of Contents

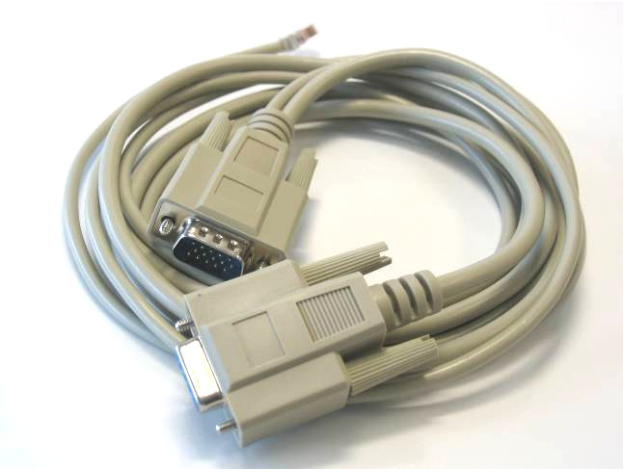
1 Packaging

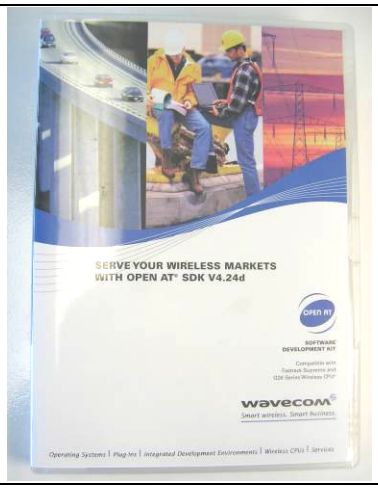
1.1 Contents

The package contains the following:

1	Open AT® SDK
2	GPS Antenna with cable
3	Serial Cable and IO Interface Cable
4	AC Power Adaptor
5	USB Cable
6	IESM Accessories
7	Fastrack Supreme
8	GSM Antenna
9	IESM Board

1.2 Fastrack Supreme and Accessories

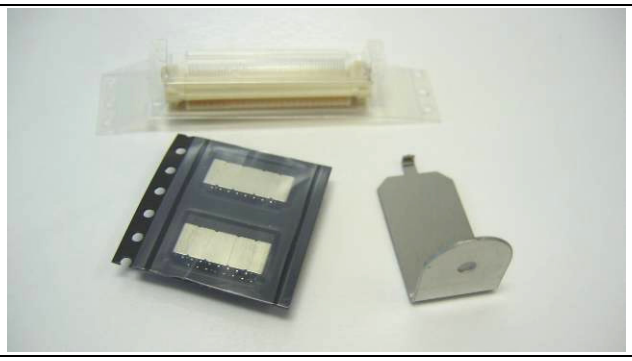
	
Fastrack Supreme	GSM Antenna
	
DB9 to DB15 Serial Cable	AC adaptor

	
DC Power Cord and holding bridles	Open AT® SDK

1.3 IESM Parts and Accessories

Note:

* Available on IESM-IO+USB+GPS Development Kit only
** Available for IESM Ethernet Development Kit only

	
IESM Board	50 pin Connector*/16pin IO Connector* /Extraction Tool
	
IO Interface Cable *	GPS Antenna*
	

USB Interface	Ethernet RJ45 Interface Cable**

Extension Board

2 General Information

2.1 Fastrack Supreme Description

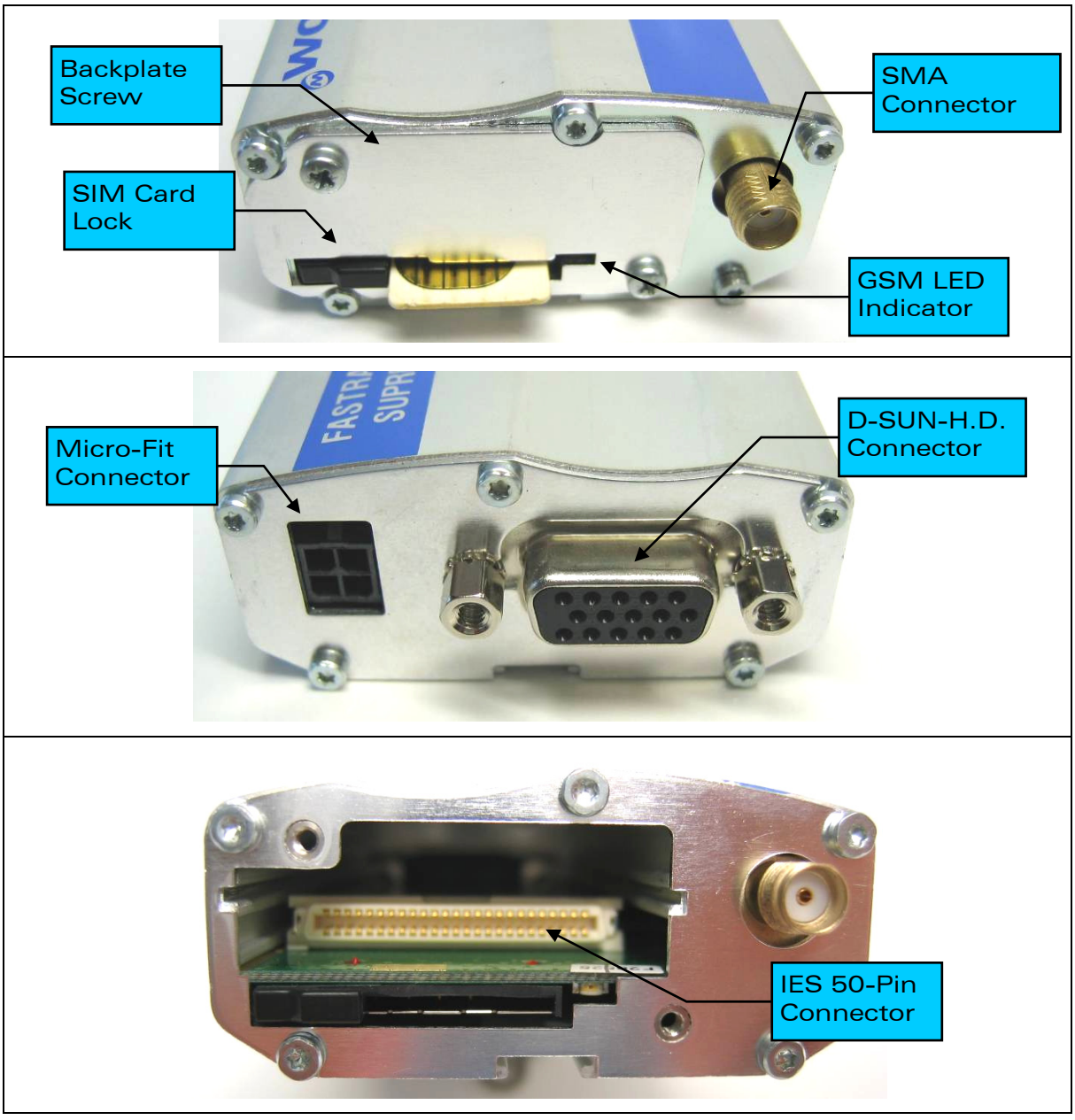
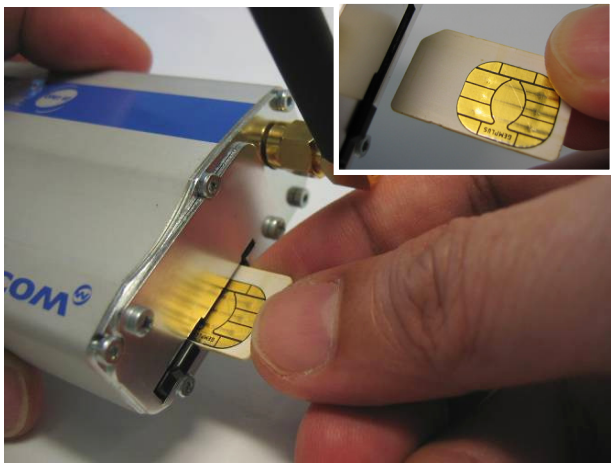
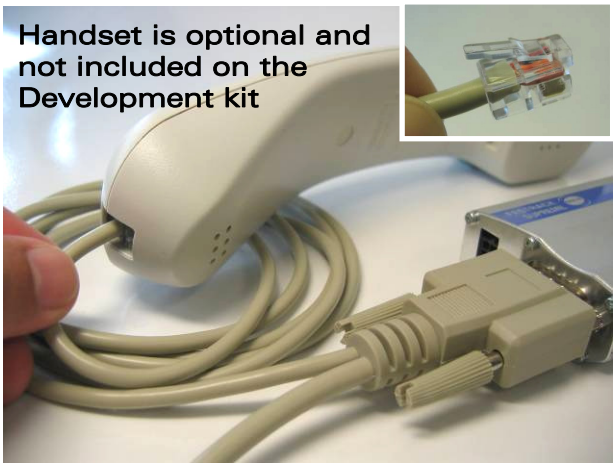


Figure 1: Fastrack Supreme general description

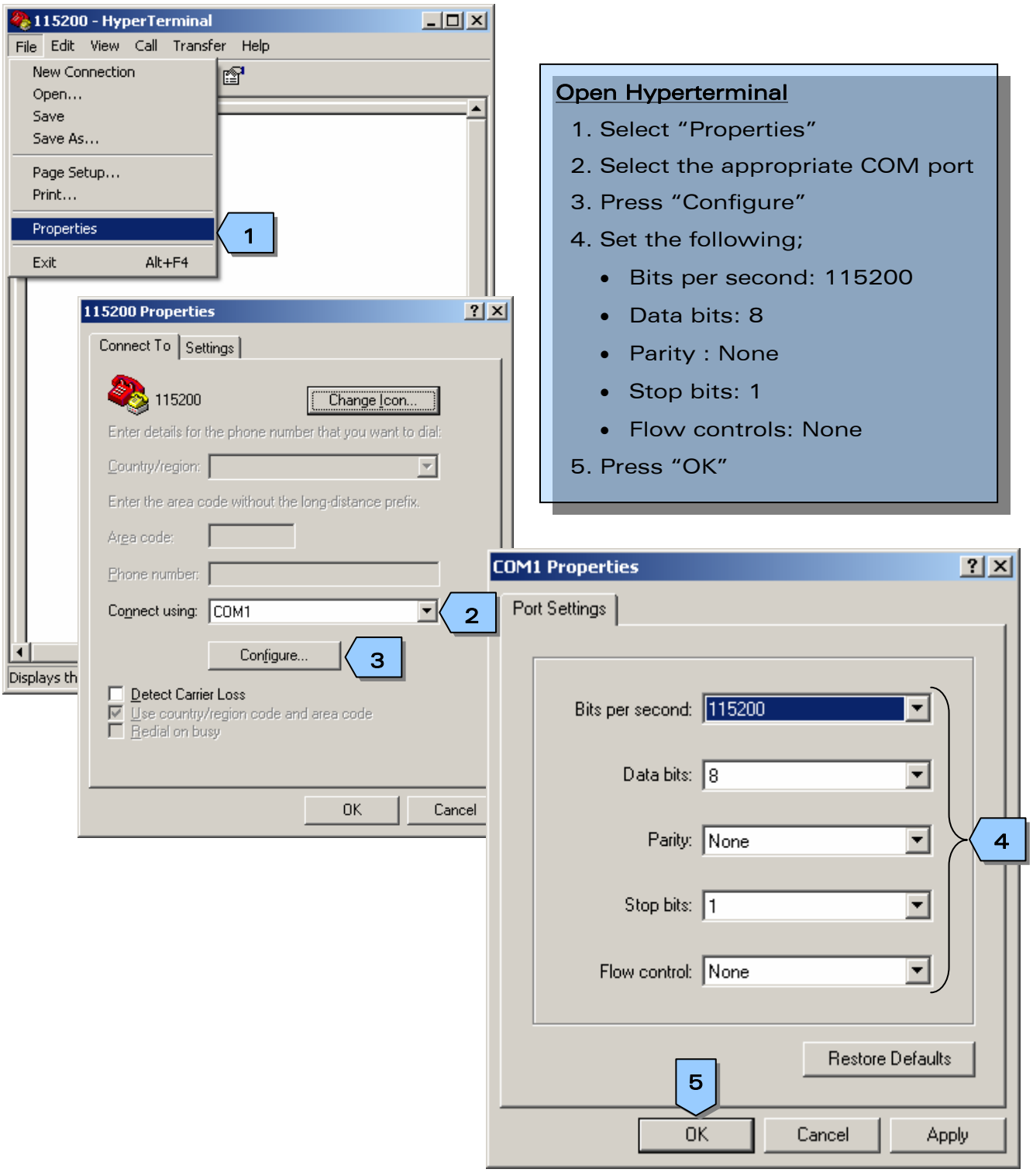
2.2 Setting-Up Fastrack Supreme

	
Attach the GSM antenna	Connect the serial cable D-Sub H.D. to Fastrack Supreme
	
Connect the serial cable other end to PC COM Port	Insert the SIM card and pay attention on the orientation

	
Slide-in the SIM card until a click is heard	Close the SIM card lock

	
If handset is available connect the 4P4C standard handset cable to the handset	Connect the power adapter cable to Fastrack Supreme

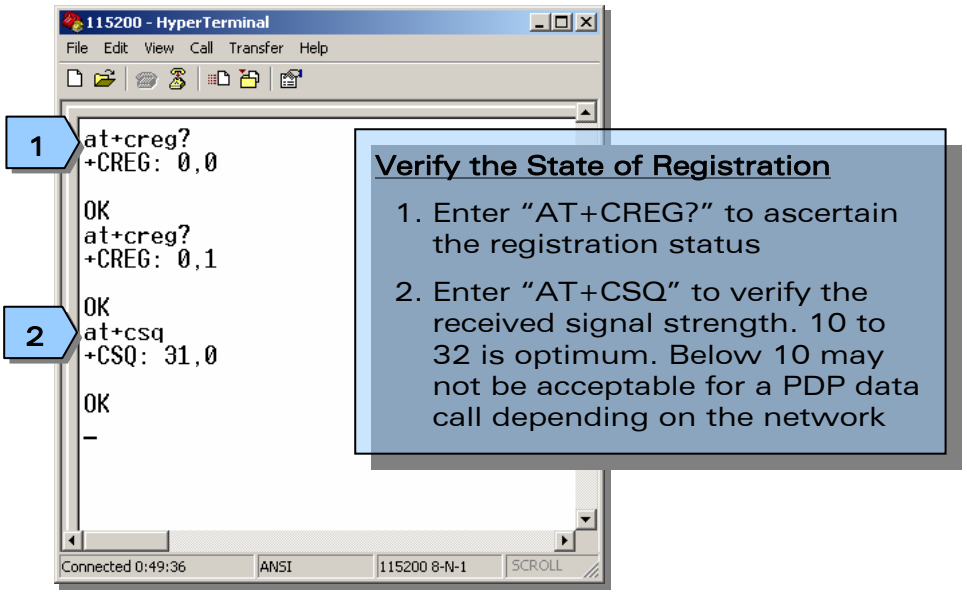
2.3 Setting-Up PC Serial Communication Software



Open Hyperterminal

1. Select "Properties"
2. Select the appropriate COM port
3. Press "Configure"
4. Set the following;
   - Bits per second: 115200
   - Data bits: 8
   - Parity : None
   - Stop bits: 1
   - Flow controls: None
5. Press "OK"

2.4 Verify the Fastrack Supreme Network Registration



Returned Value (*) +CREG: <mode>,<stat>	Network registration
+CREG: 0,0	No (not registered)
+CREG: 0,1	Yes (registered, home network)
+CREG: 0,5	Yes (registered, roaming)

If the Fastrack Supreme is not registered, perform the following procedure:

1. Check your SIM card installation and make sure the account is valid for voice and data.
2. Check your antenna connections and your serial connections.
3. Check your Network Band with "AT+WMBS?", the default setting is at GSM900/DCS1800.

Returned Value (*) +WMBS: <Band>,<ResetFlag>	Network registration
+WMBS: 5,0	Dual Band mode 900E (extended)/1800 MHz
+WMBS: 4,0	Dual Band mode 850/1900 MHz

(*) For further information on the other return values and their meaning, refer to "AT Commands Interface Guide" at this path D:\Firmware\doc\AT_Command_Interface_Guide.pdf on the SDK CD provided.

4. To set to the desired GSM Band enter the appropriate AT Command

AT Command	Network registration
AT+WMBS=5	Sets to Dual Band mode 900E (extended)/1800 MHz
AT+WMBS=4	Sets to Dual Band mode 850/1900 MHz

For further information, refer to "AT Commands Interface Guide" at this path D:\Firmware\doc\AT_Command_Interface_Guide.pdf on the SDK CD provided.

2.5 Placing a GSM Call

Placing a GSM Call

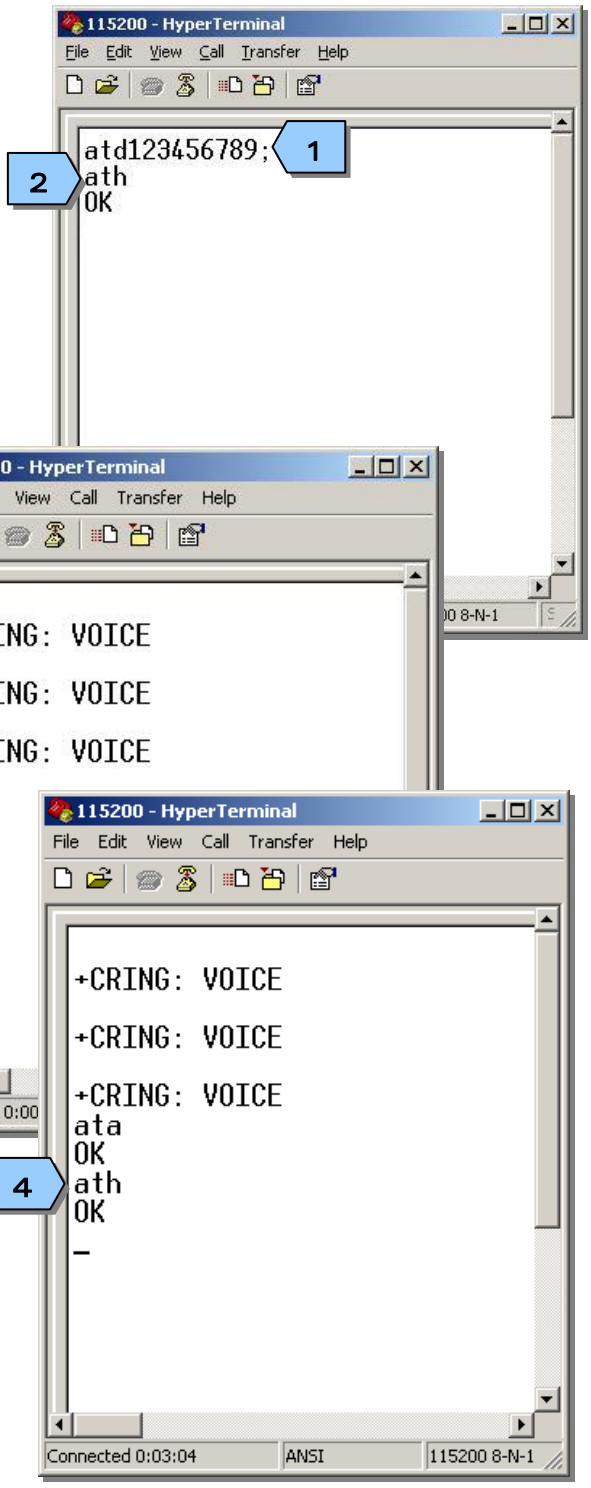
1. Dial the desired telephone number, enter "ATD<tel. no>;". Make sure to place semicolon at the end of the number to initiate a voice call. (No semicolon will initiate a data call)
2. Once the call is finished, enter "ATH" to terminate the voice call

Answering a GSM Call

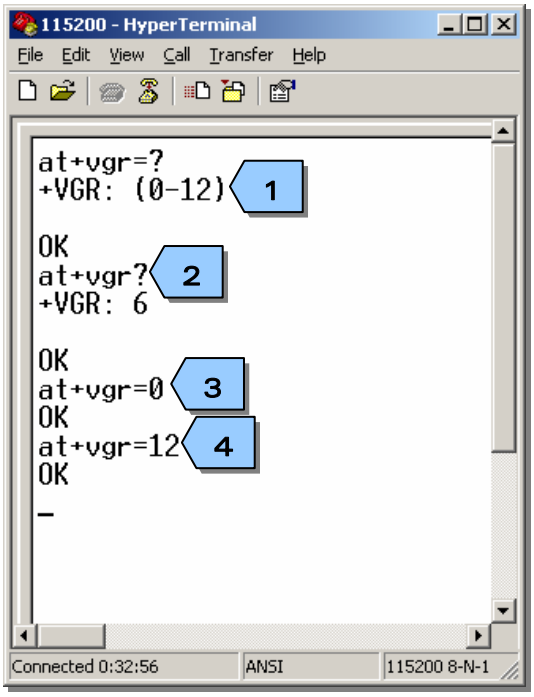
3. Enter "ATA" to answer an incoming voice call

Hanging-up a GSM Call

4. Enter "ATH" to hang-up the voice call

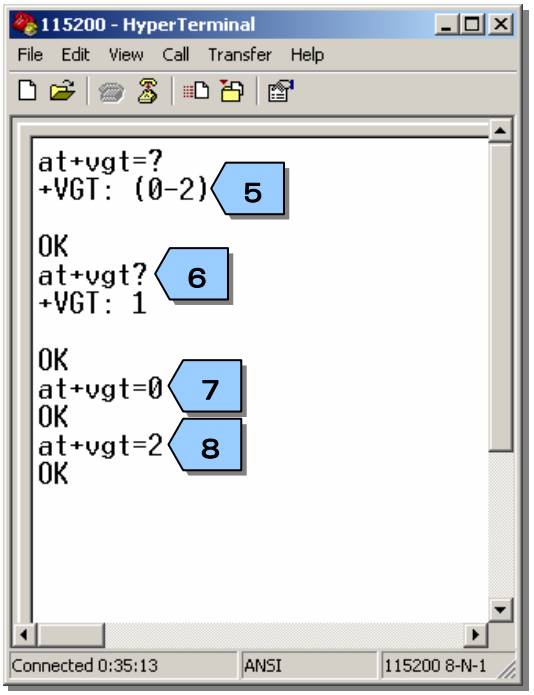


2.6 Volume Adjustment



Adjusting Speaker Volume

1. This is the volume setting range for the speaker, "+VGR: (0-12)"
2. To check the current volume setting, enter "AT+VGR?". The value will be displayed.
3. Enter "AT+VGR=<value>" - Lower value decreases the speaker volume.
4. Higher value increases the speaker volume



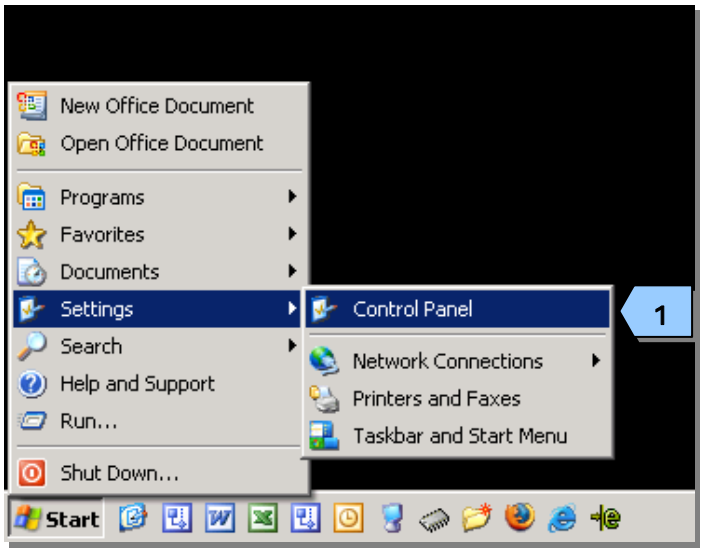
Adjusting Microphone Gain

5. This is the gain setting range for the microphone, "+VGR: (0-2)"
6. To check the current gain setting, enter "AT+VGT?". The value will be displayed.
7. Enter "AT+VGT=<value>" - Lower value decreases the microphone gain.
8. Higher value increases the microphone gain.

2.7 Connecting to Internet using GPRS

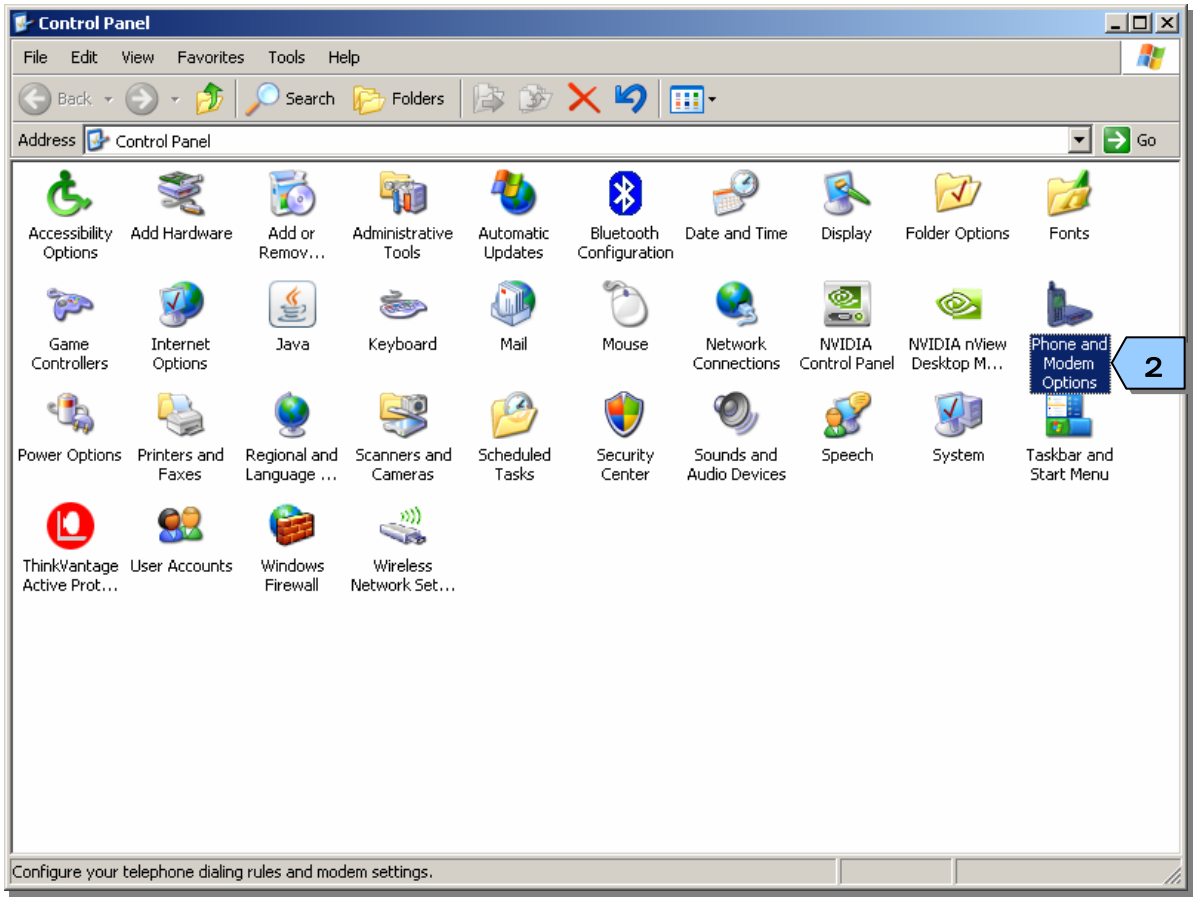
2.7.1 Configuring Modem on PC

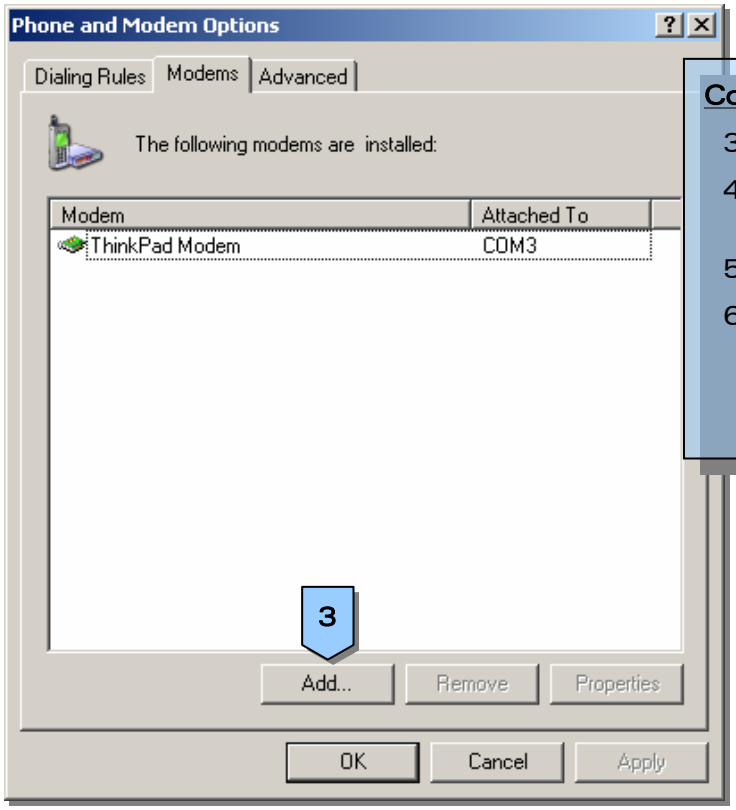
Open the control panel on the PC



Configuring Modem on PC

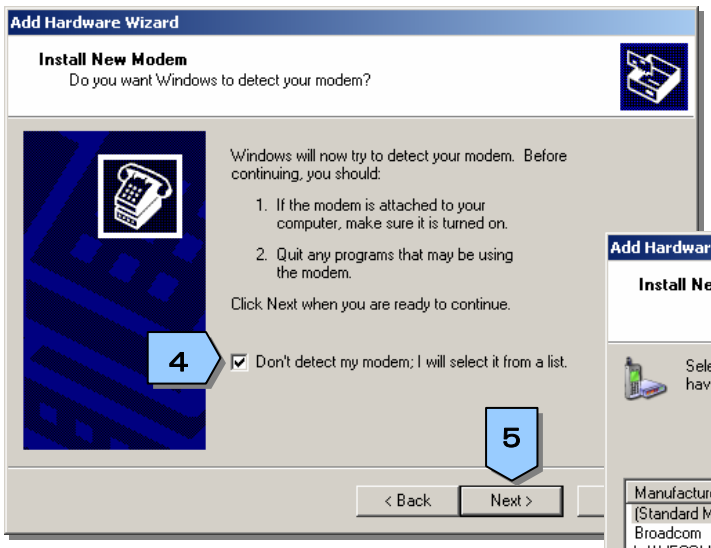
1. Open the control panel on the PC.
2. On the control panel window select "Phone and Modem Options"

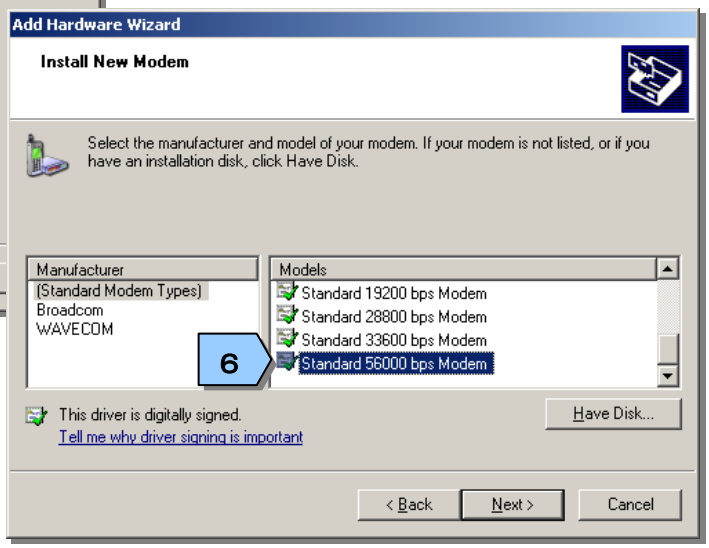


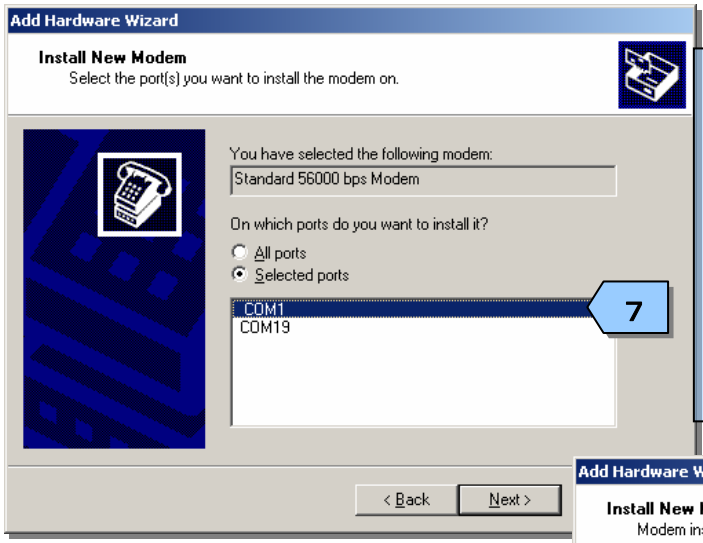


Configuring Modem on PC

3. Select "Add"
4. Select " Don't detect my modem, I select it from a list"
5. Select "Next"
6. On the standard modem types, select "Standard 56000 bps Modem"

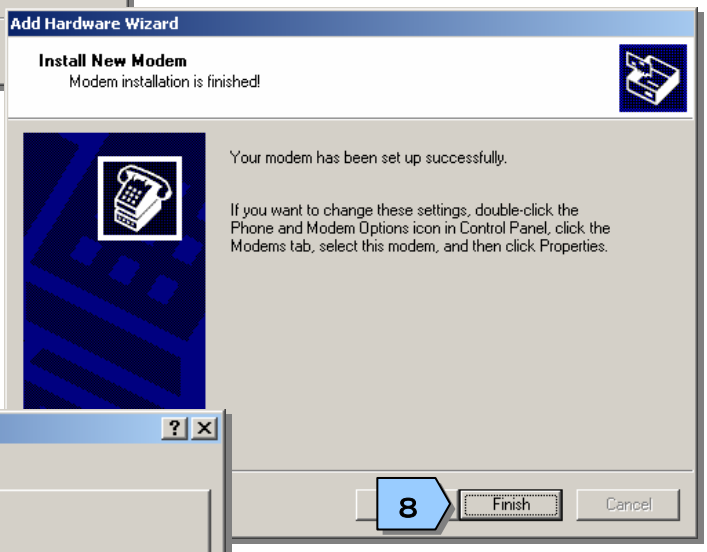


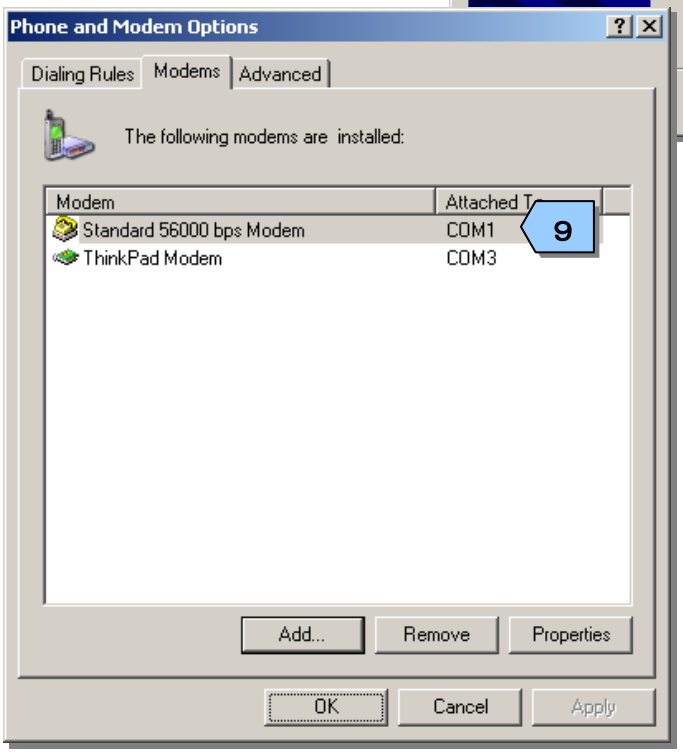




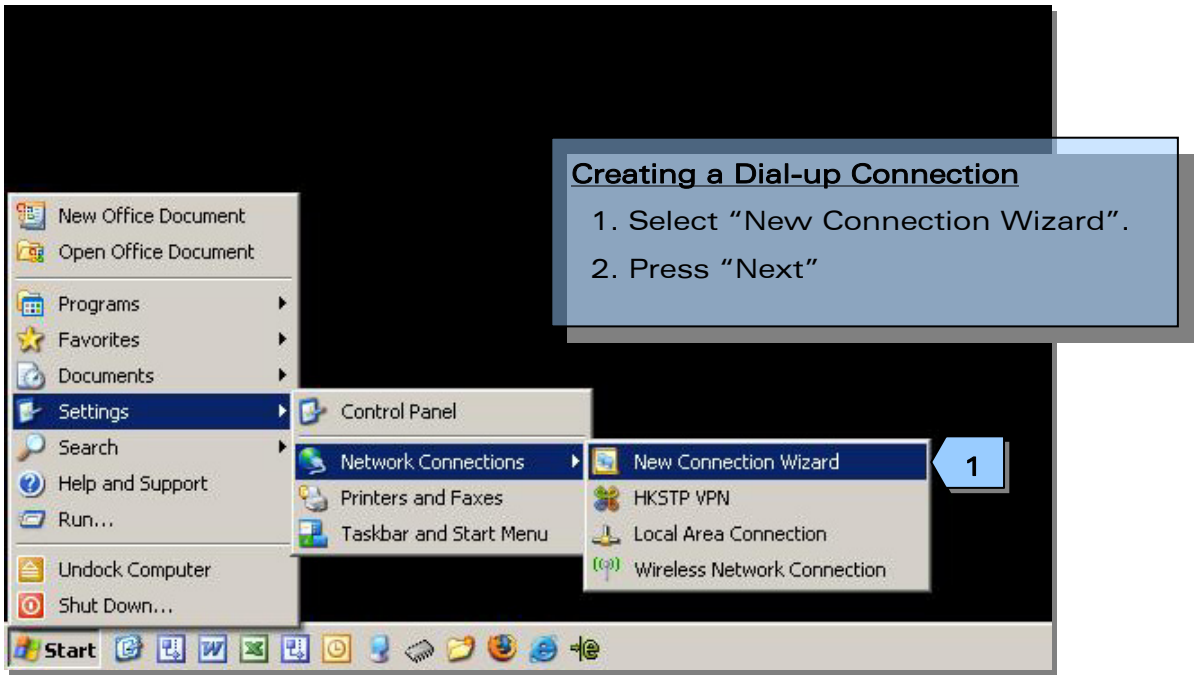
Configuring Modem on PC

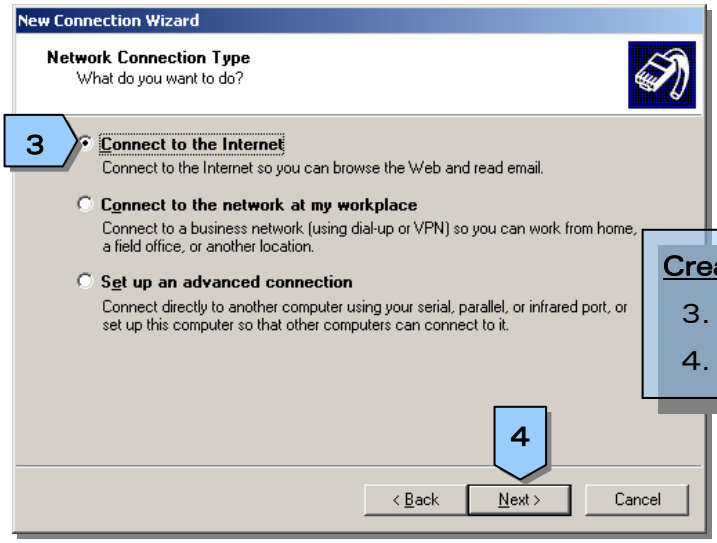
7. Select which port the modem will use.
8. Select "Finish" to complete the configuration.
9. On the "Phone and Modem Options pop-up window will show the new added modem





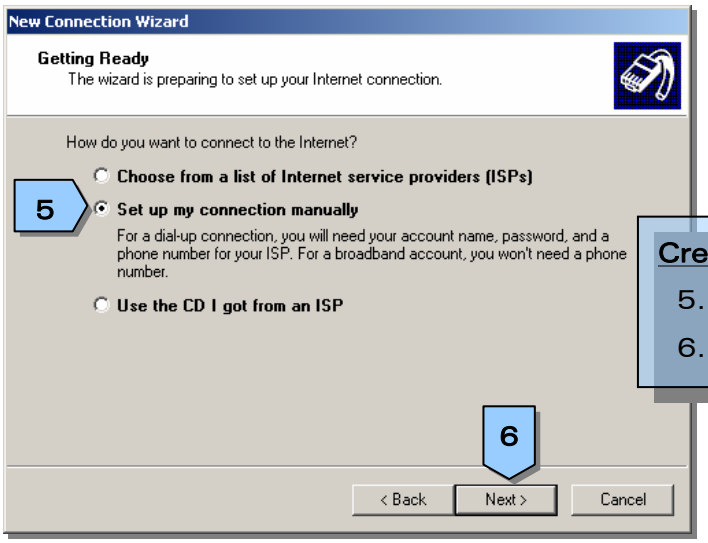
2.7.2 Creating a New Network Connection on PC





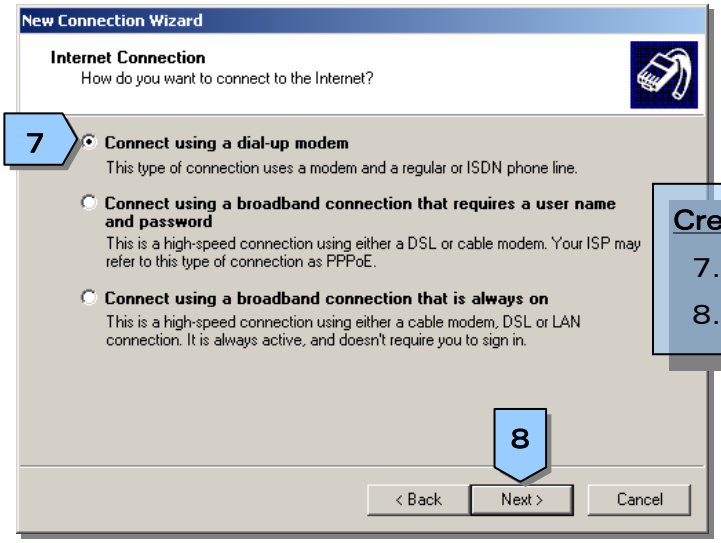
Creating a Dial-up Connection

3. Select "Connect to the Internet"
4. Press "Next"



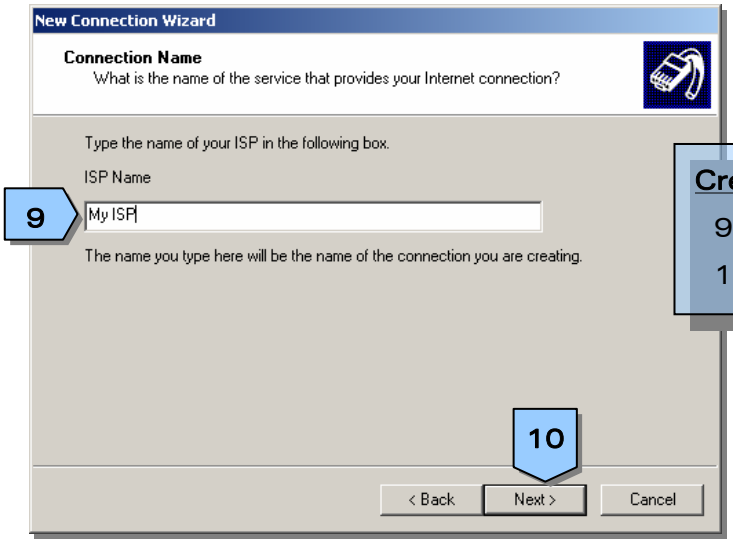
Creating a Dial-up Connection

5. Select "Connect to the Internet"
6. Press "Next"



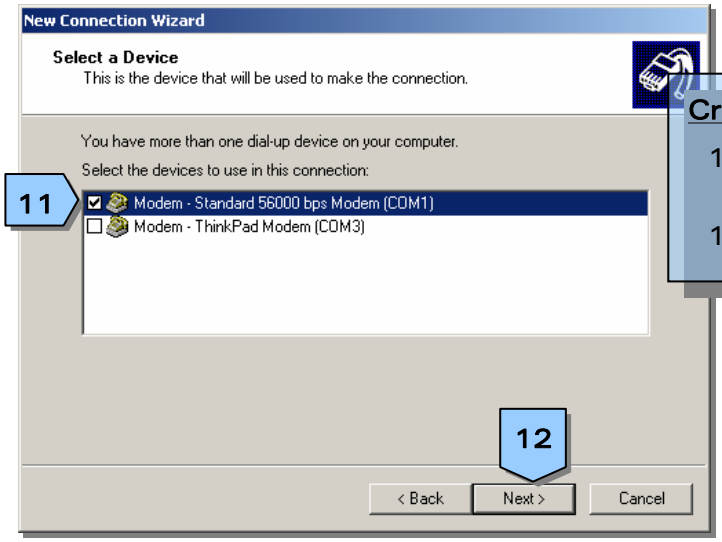
Creating a Dial-up Connection

7. Select "Connect to the Internet"
8. Press "Next"



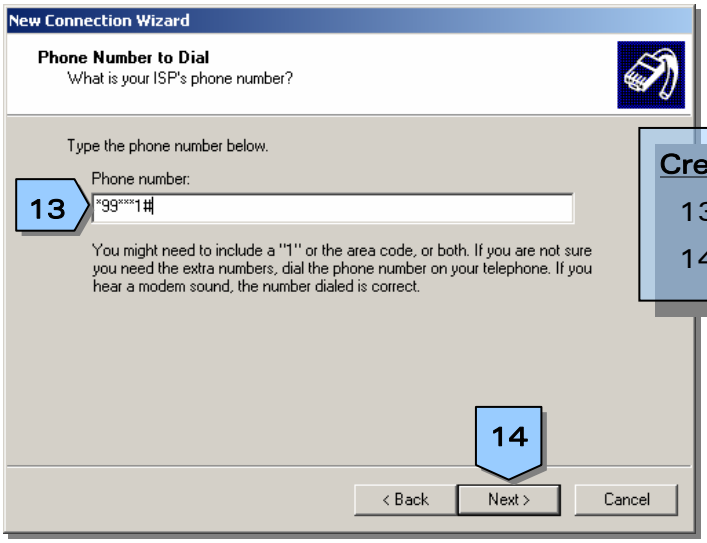
Creating a Dial-up Connection

9. Enter your preferred ISP Name
10. Press "Next"



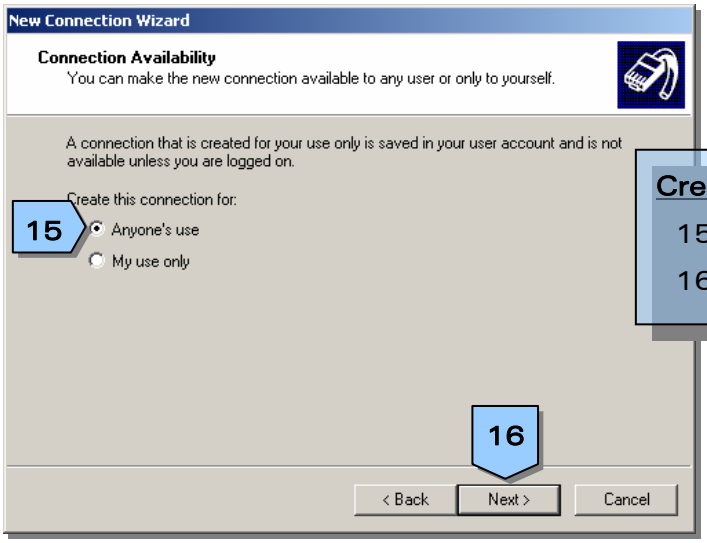
Creating a Dial-up Connection

11. Select the previously created modem device.
12. Press "Next"



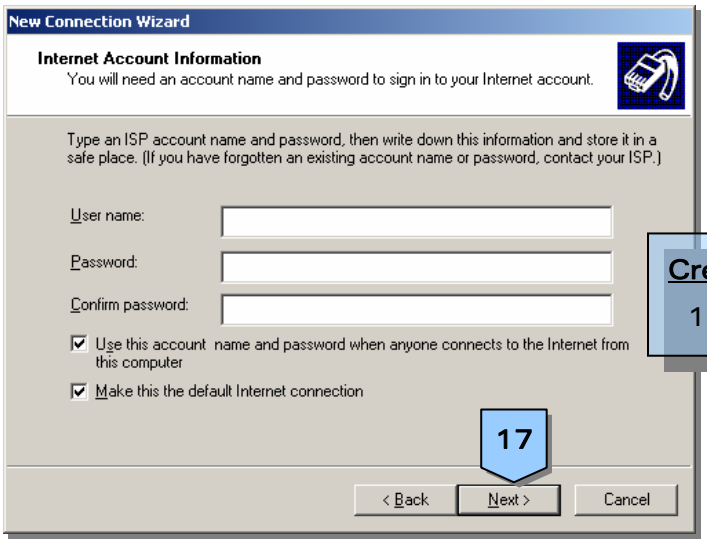
Creating a Dial-up Connection

13. Enter "*99***1#"
14. Press "Next"



Creating a Dial-up Connection

15. Select "Anyone's use"
16. Press "Next"



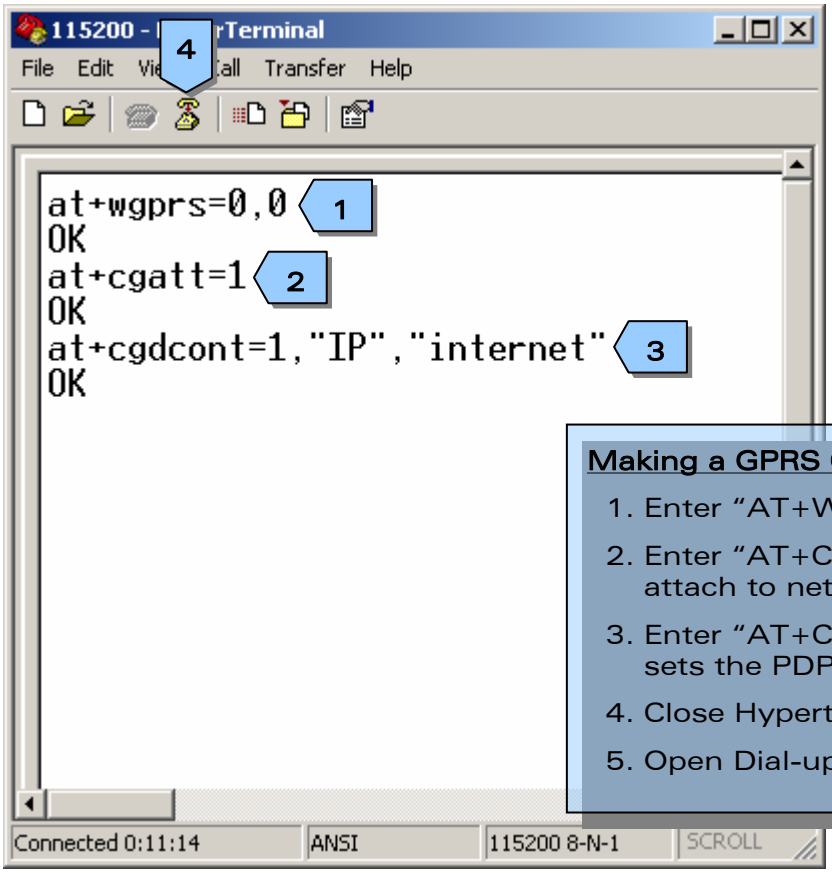
Creating a Dial-up Connection

17. Press "Next"

Creating a Dial-up Connection

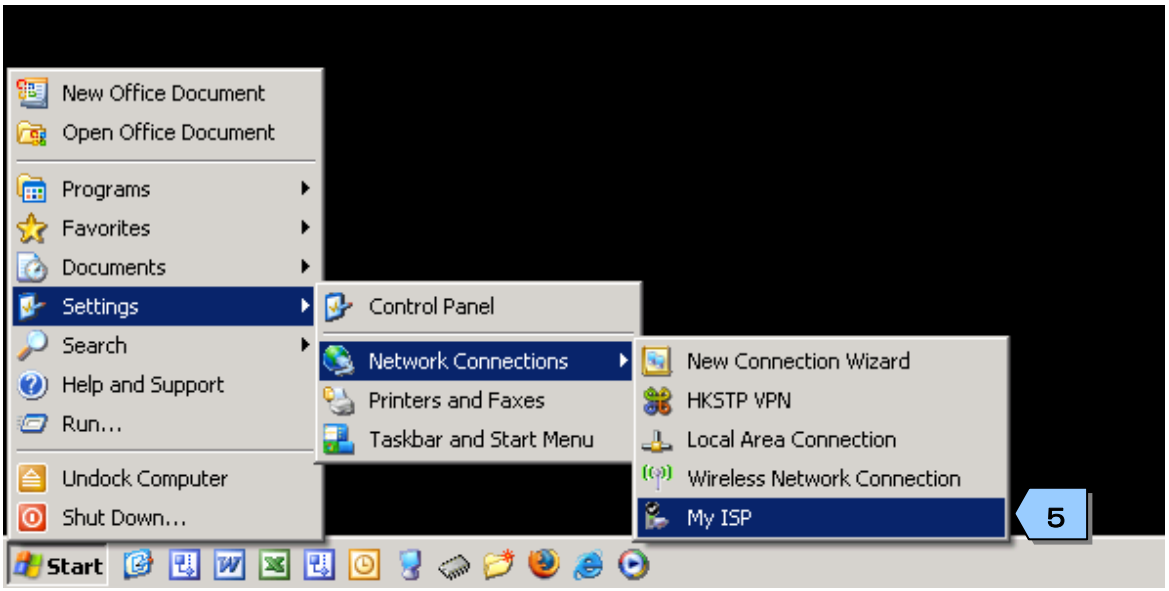
18. Select "Add a shortcut to this connection to my desktop"
19. Press "Finish" to end the configuration

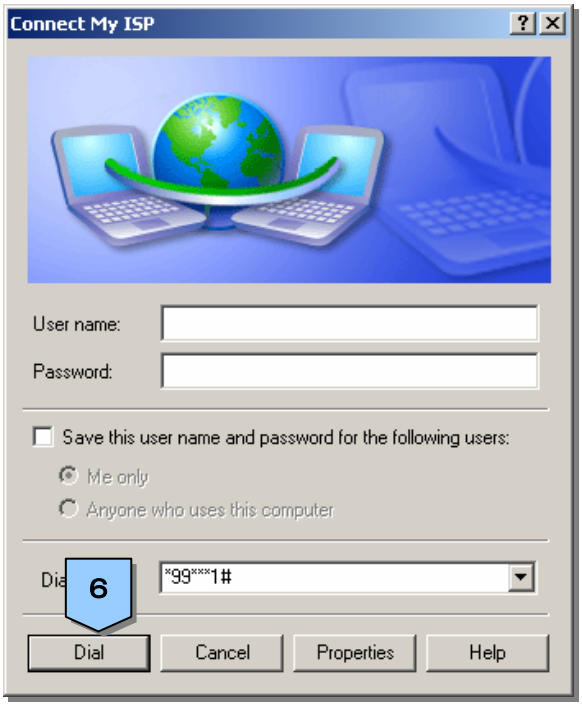
2.7.3 Making a GPRS Connection



Making a GPRS Connection

1. Enter "AT+WGPRS=0,0
2. Enter "AT+CGATT=1", to manually attach to network.
3. Enter "AT+CGDCONT=1,"IP","internet", sets the PDP context.
4. Close Hyperterminal
5. Open Dial-up connection created

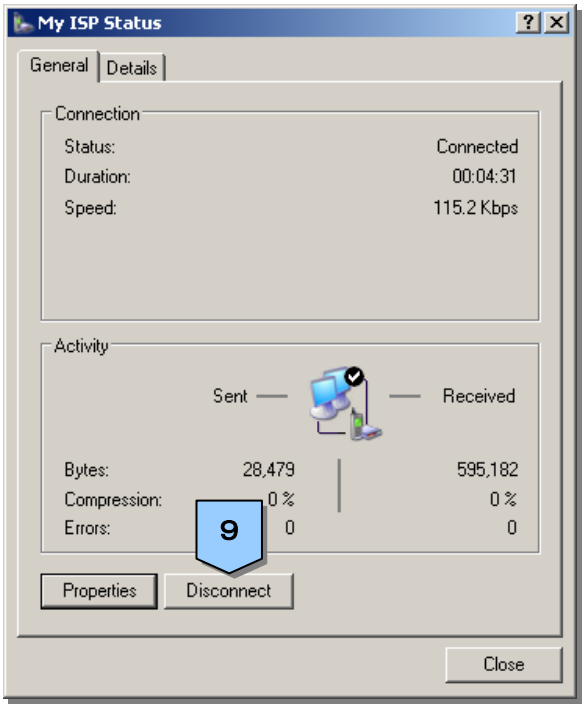




7

Making a GPRS Connection

6. To initiate connection, press "Dial"
7. Open the Internet Browser
8. To verify the connection, press the network connection icon at the lower right corner of the screen. The connection pop-up window will show the connection status.
9. Press "Disconnect" if wishes to terminate the network connection



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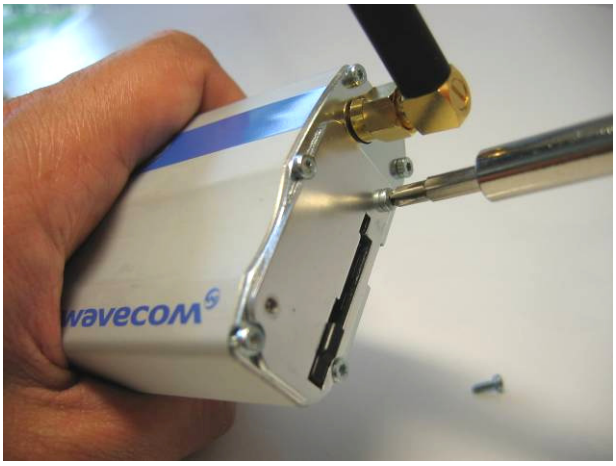
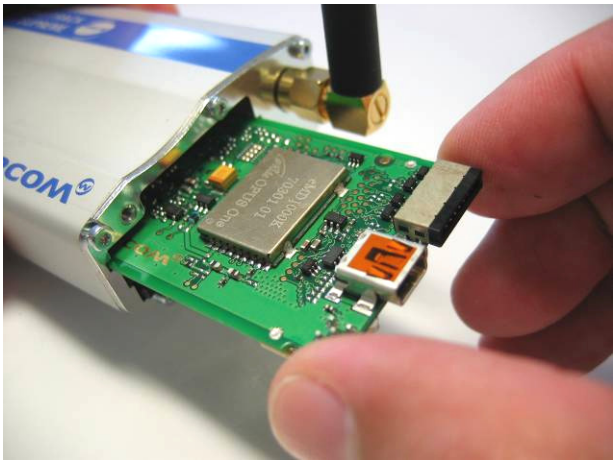
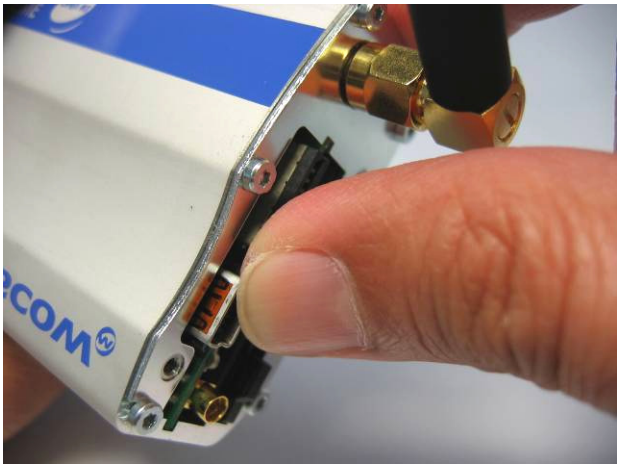
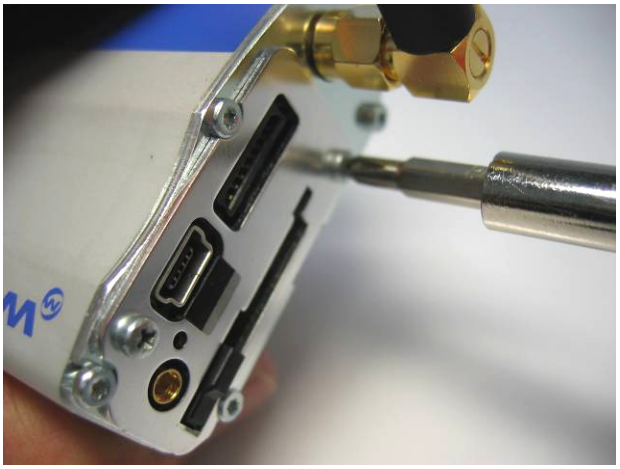
2.8 Setting-Up IESM IO+USB+GPS

	
Replace backplate, remove the two screws	After the screws are removed, the backplate can be detached from Fastrack Supreme

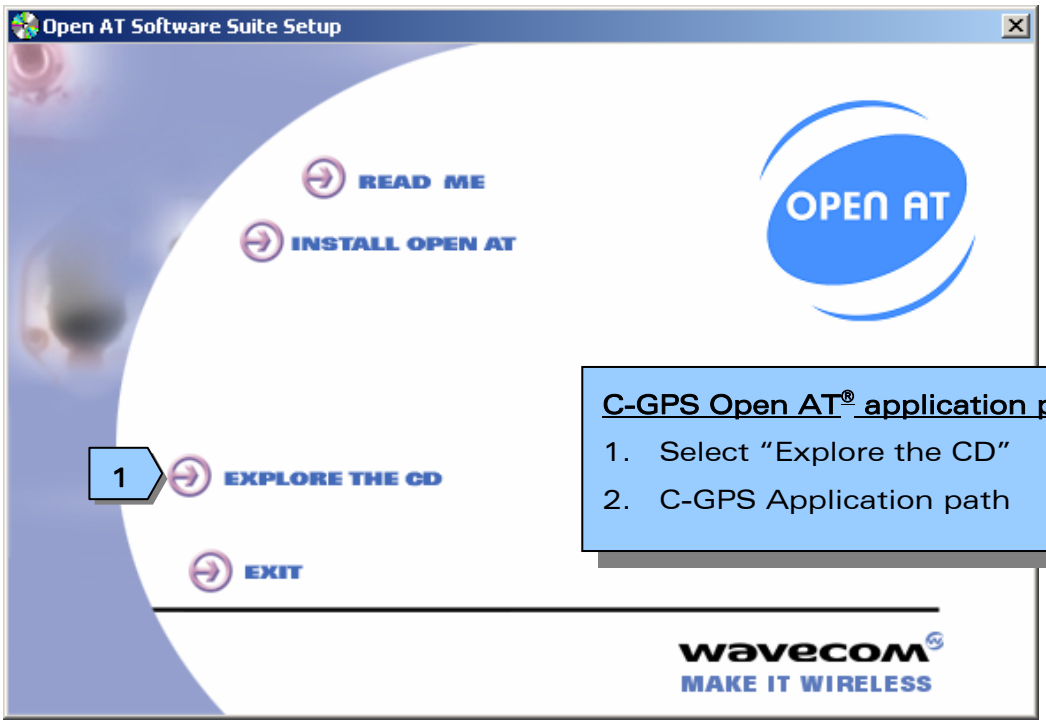
	
Insert the IESM IO+USB+GPS board	Slide the IESM board inside Fastrack Supreme and apply pressure at the middle of the board until the 50 pin connector mated.

	
Place the supplied new backplate	Align the new backplate

	
Place back the two screws	Connect the GPS antenna cable

2.8.1 Loading and Configuring C-GPS Open AT® Application

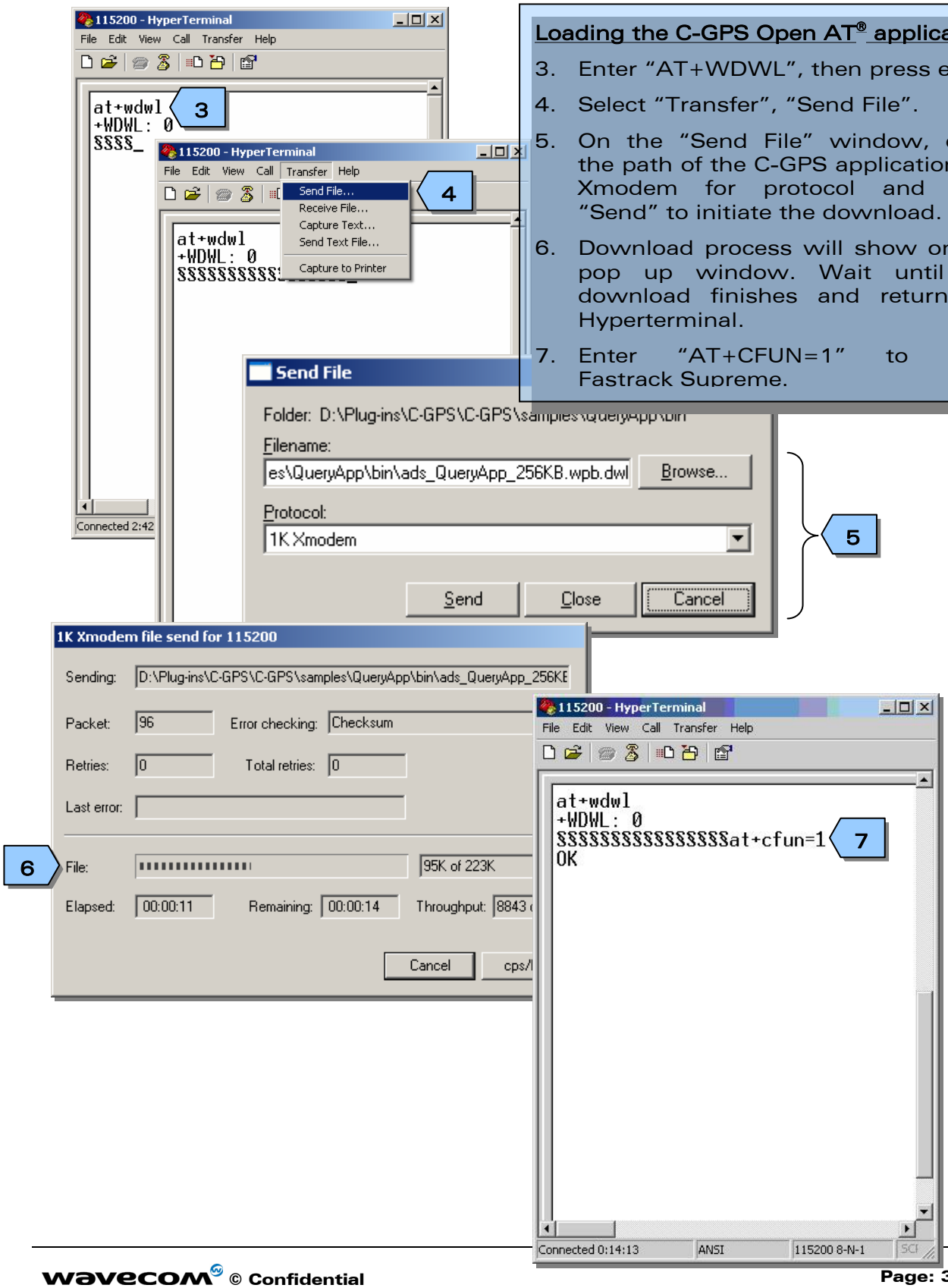
On the SDK CD provided, locate the C-GPS Open AT Application.



2 D:\Plug-ins\C-GPS\C-GPS\samples\QueryApp\bin\ads_QueryApp_256KB.wpb.dwl

Loading the C-GPS Open AT® application

3. Enter "AT+WDWL", then press enter.
4. Select "Transfer", "Send File".
5. On the "Send File" window, enter the path of the C-GPS application, 1K Xmodem for protocol and then "Send" to initiate the download.
6. Download process will show on the pop up window. Wait until the download finishes and returns to Hyperterminal.
7. Enter "AT+CFUN=1" to reset Fastrack Supreme.



2.8.2 Activating C-GPS Application

Enter the following AT Commands to activate the C-GPS application.

AT Command	Expected Response	Description	Other Responses	Error Description
AT+WOPEN=1	OK	Runs the Open AT® application		
AT+NMEA=1	OK	Sends standard format NMEA frames on the debug UART	+CME ERROR:3	Operation not allowed or parameters or number are out of range
AT+CGPS=2	OK	UART2 is use by IESM board to communicate with Fastrack Supreme. UART 1 is the debug UART	+CME ERROR:3	Operation not allowed or parameters or number are out of range
AT+CONFIG=1	OK	Saves the NMEA settings and UART used for C-GPS application	+CME ERROR:3	Operation not allowed or parameters or number are out of range

For further information about these AT Commands, refer to "Query Application for C-GPS" at this path D:\Plug-ins\C-GPS\C-GPS\samples\QueryApp\QueryApp.html on the SDK CD provided.

Enabling the active antenna power supply

AT Command	Expected Response	Description
AT+WHCNF=0,0	OK	Deactivates the Keypad feature of Fastrack Supreme
AT+WIOM=8,1,0	OK	Activates GPIO8 as an output and low at initial state
AT+WIOW=8,0	OK	Sends a low to GPIO8 and enables the 3.3V supply output

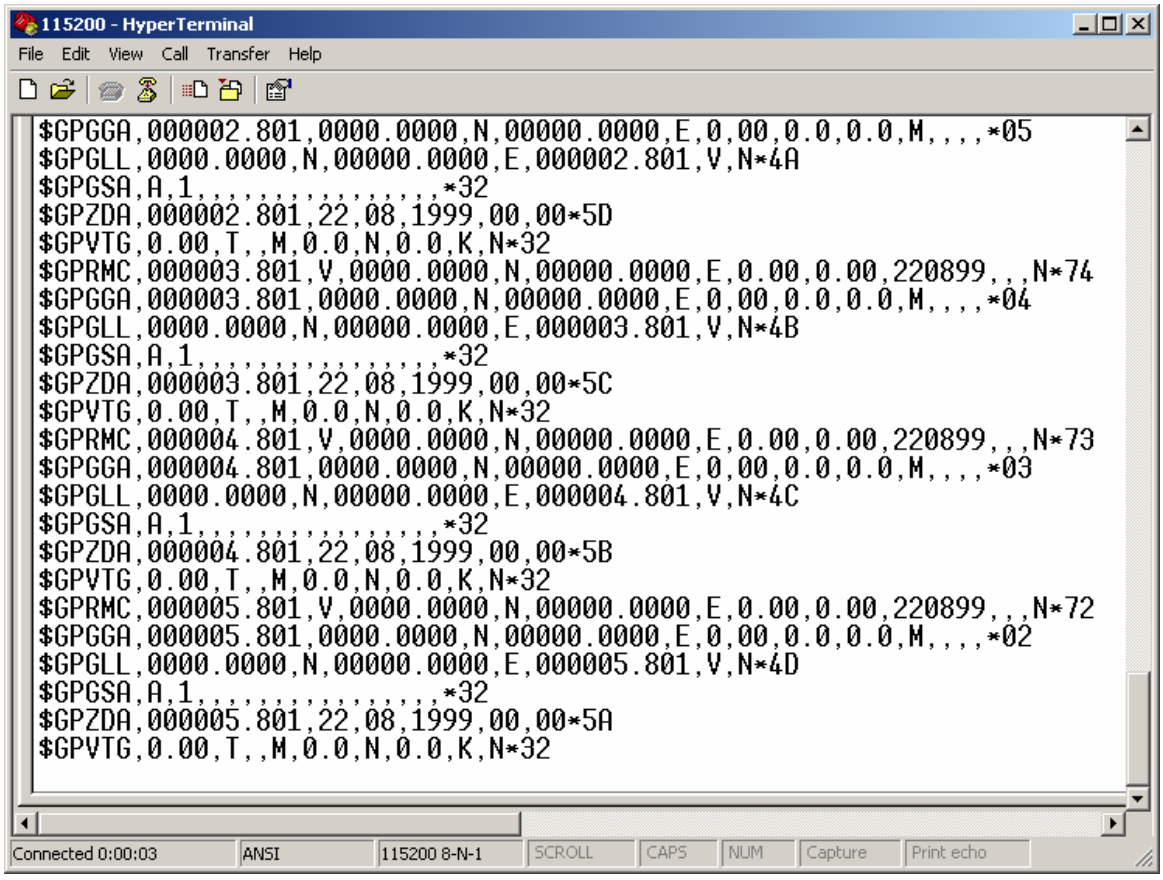
For further information on the other return values and their meaning, refer to "AT Commands Interface Guide" at this path D:\Firmware\doc\AT_Command_Interface_Guide.pdf on the SDK CD provided.

NOTE:

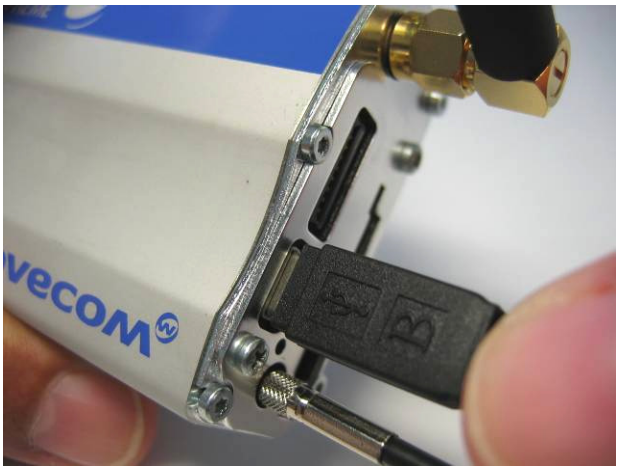
If Fastrack Supreme is upgraded to Open AT® Software Suite V2.02 (FW R71a01), the following AT Commands must be used to set the GPS antenna power supply.

AT Command	Expected Response	Description
AT+WHCNF=0,0	OK	Deactivates the Keypad feature of Fastrack Supreme
AT+WIOM=1,"GPIO8",1,0	OK	Activates GPIO8 as an output and low at initial state
AT+WIOW="GPIO8",0	OK	Sends a low to GPIO8 and enables the 3.3V supply output

Once the C-GPS application is properly set-up, the NMEA Frames will start to stream on Hyperterminal window.

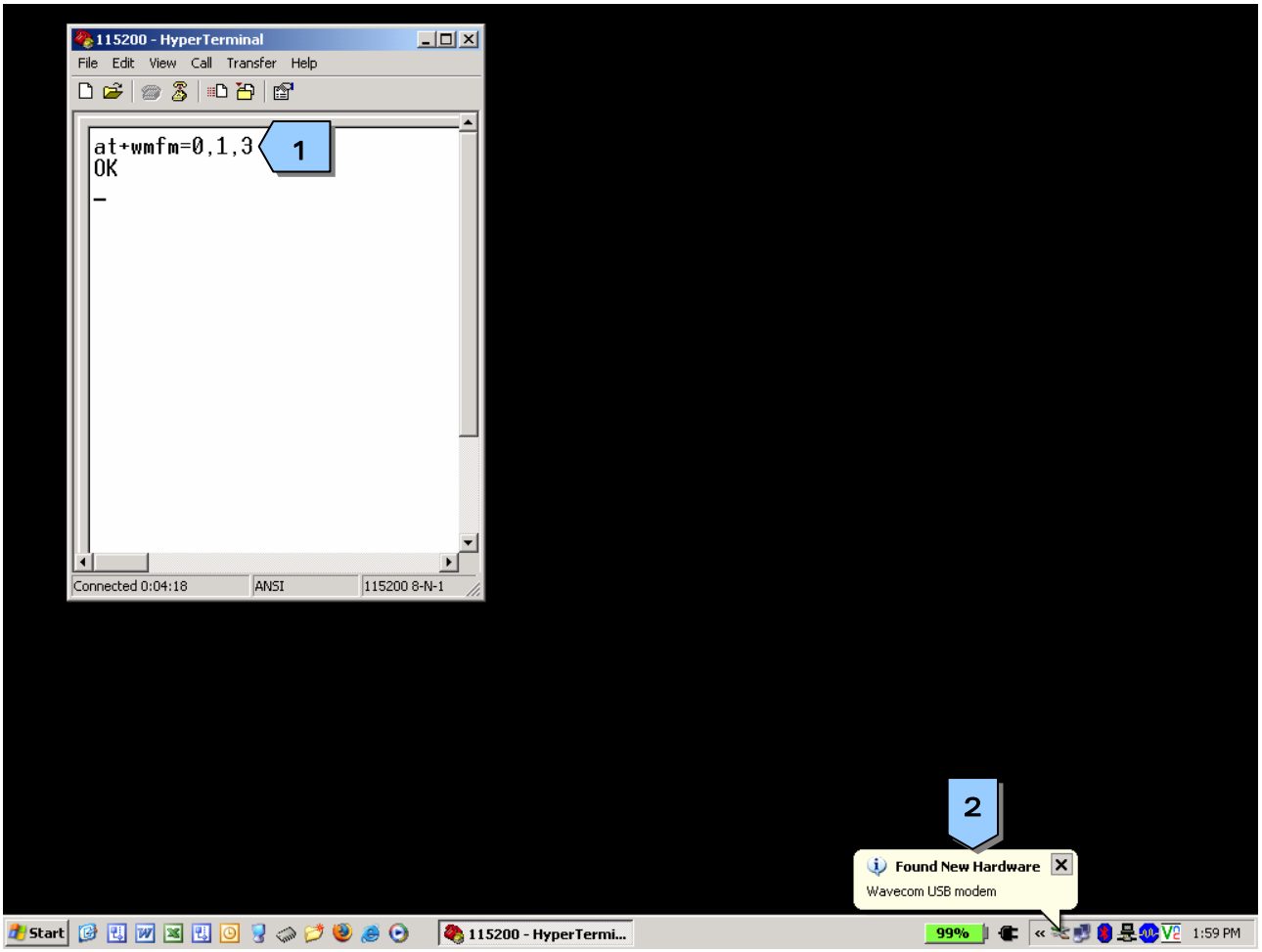


2.9 Activating USB Communication

	
Connect the USB cable supplied	Insert the other end to PC USB Port

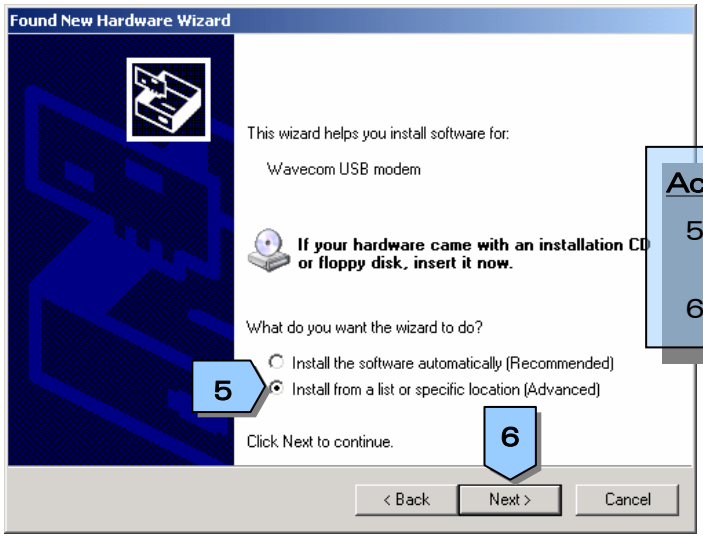
Activating USB

1. Open Hyperterminal connected to COM port. Enter "AT+WMFM=0,1,3" to enable the USB
2. Fastrack Supremes USB will be detected by Windows.



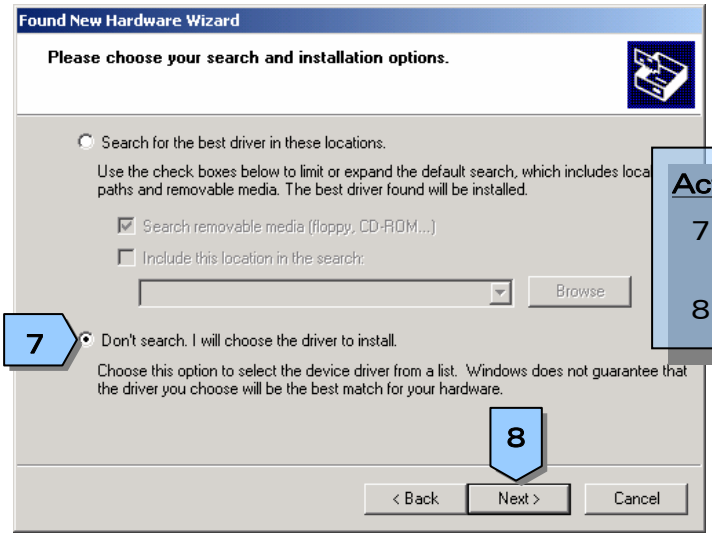
Activating USB

3. Select “Yes, this time only”
4. Press “Next”



Activating USB

5. Select "Install from a lost or specific location(Advance)"
6. Press "Next"



Activating USB

7. Select "Don't search, I will choose the driver to install"
8. Press "Next"

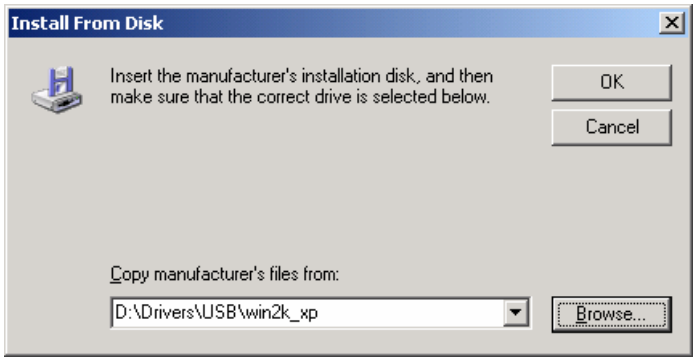
Activating USB

9. Press "Have Disk"
10. Press "Next"

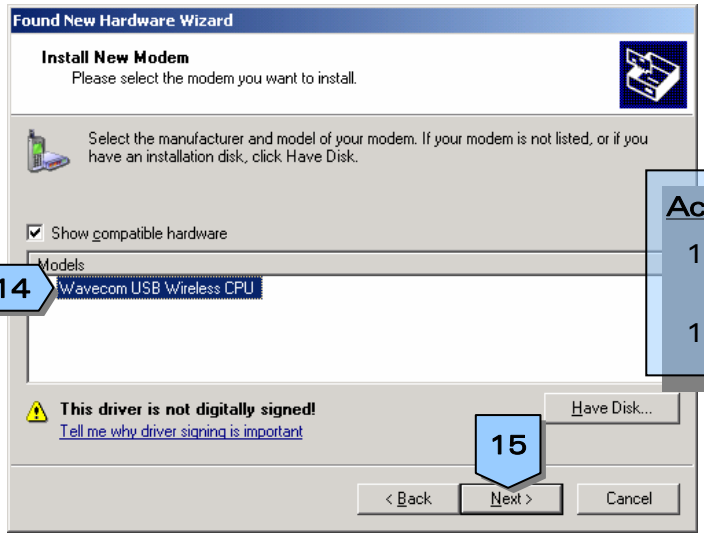
Activating USB

11. Select "Have Disk"
12. USB driver path on the SDK CD provided.
13. Press "OK"

11

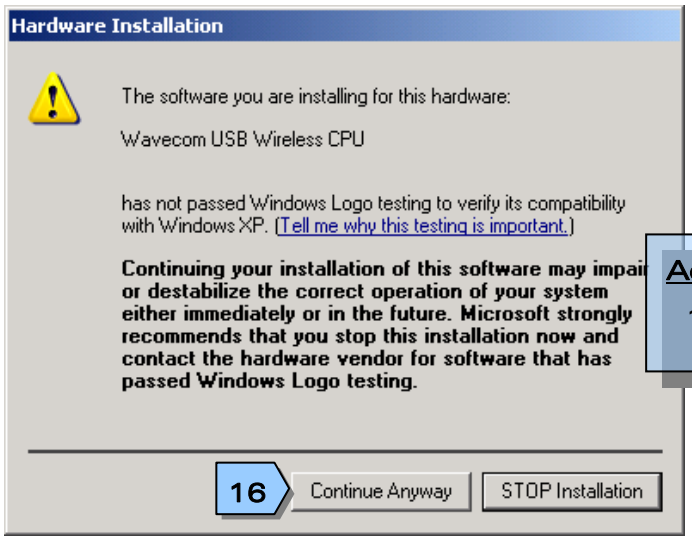


D:\Drivers\USB\win2k_xp



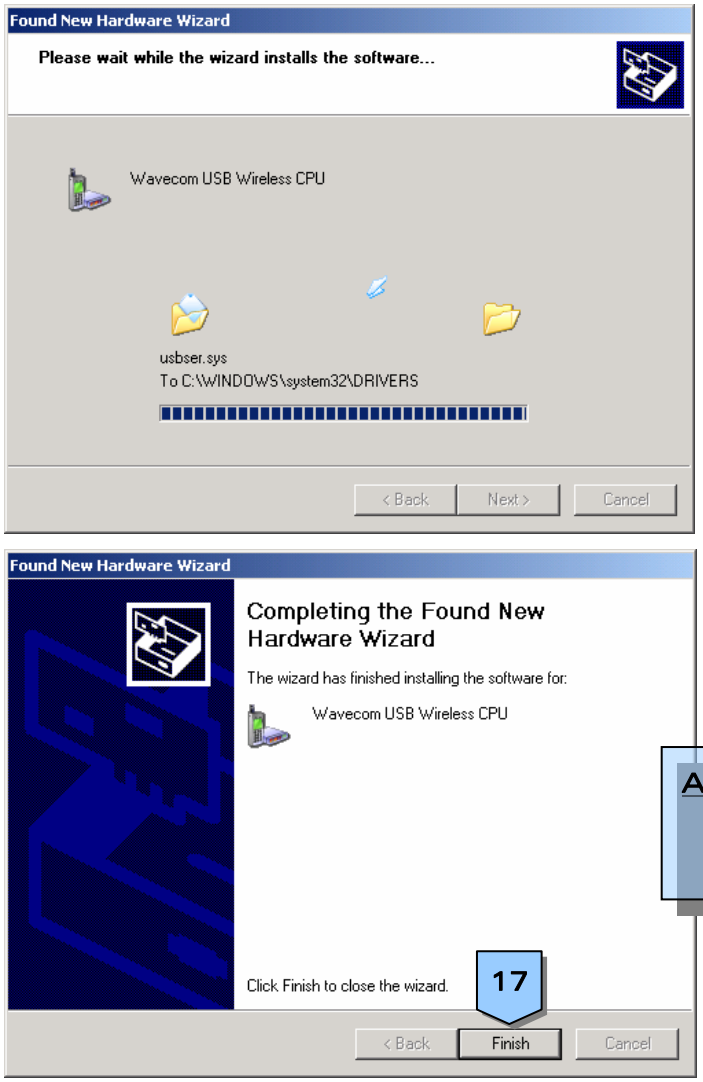
Activating USB

14. Select "Wavecom USB Wireless CPU"
15. Press "Next"



Activating USB

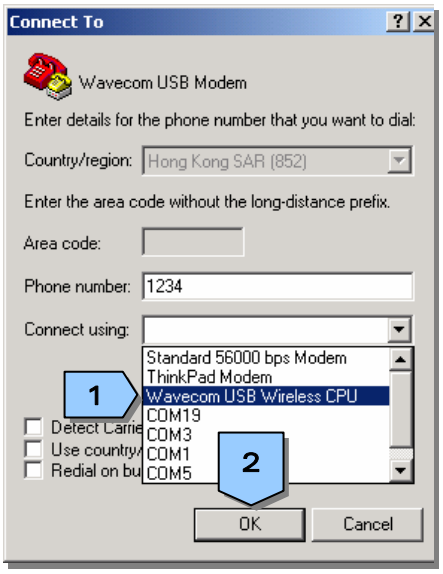
16. Press "Continue Anyway"



Activating USB

17. Press "Finish" to end the driver installation

2.9.1 Setting-Up USB Communication

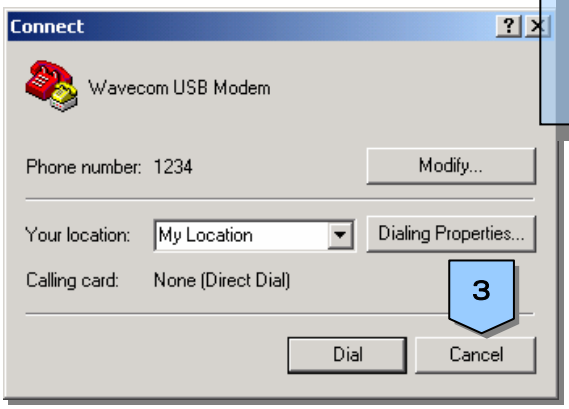


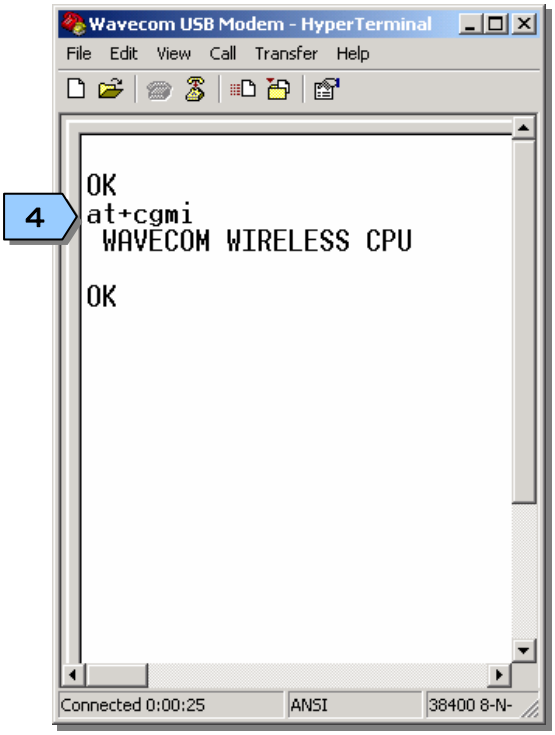
Open Hyperterminal

1. Select "Wavecom USB Wireless CPU"
2. Press "OK"
3. Press "Cancel"
4. On Hyperterminal window type "ATE1" then press enter. This AT Command is to activate echo on the screen.

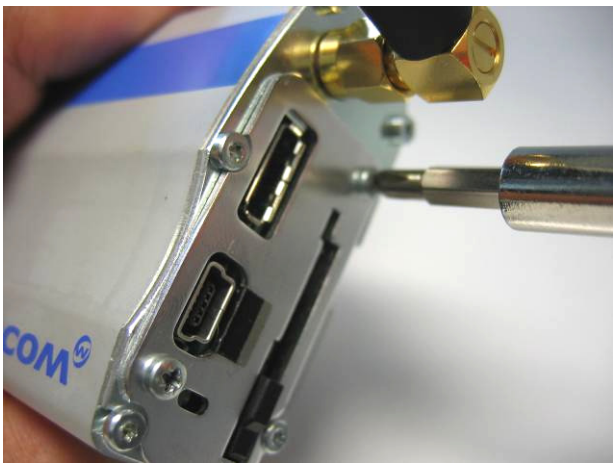
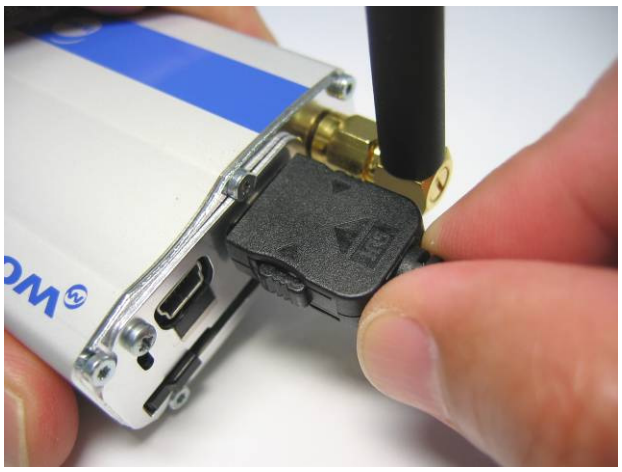
   Note: When you type this AT Command you will not see the characters yet on the screen, because the command hasn't taken place yet. Once initiated an "OK" response will be seen.

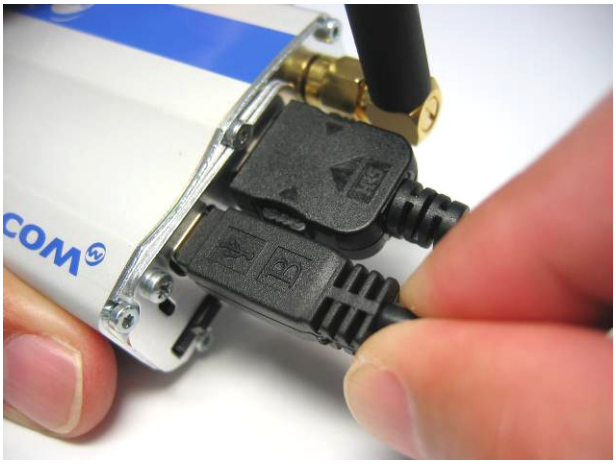
   Enter "AT+CGMI", to verify communication with Fastrack Supreme





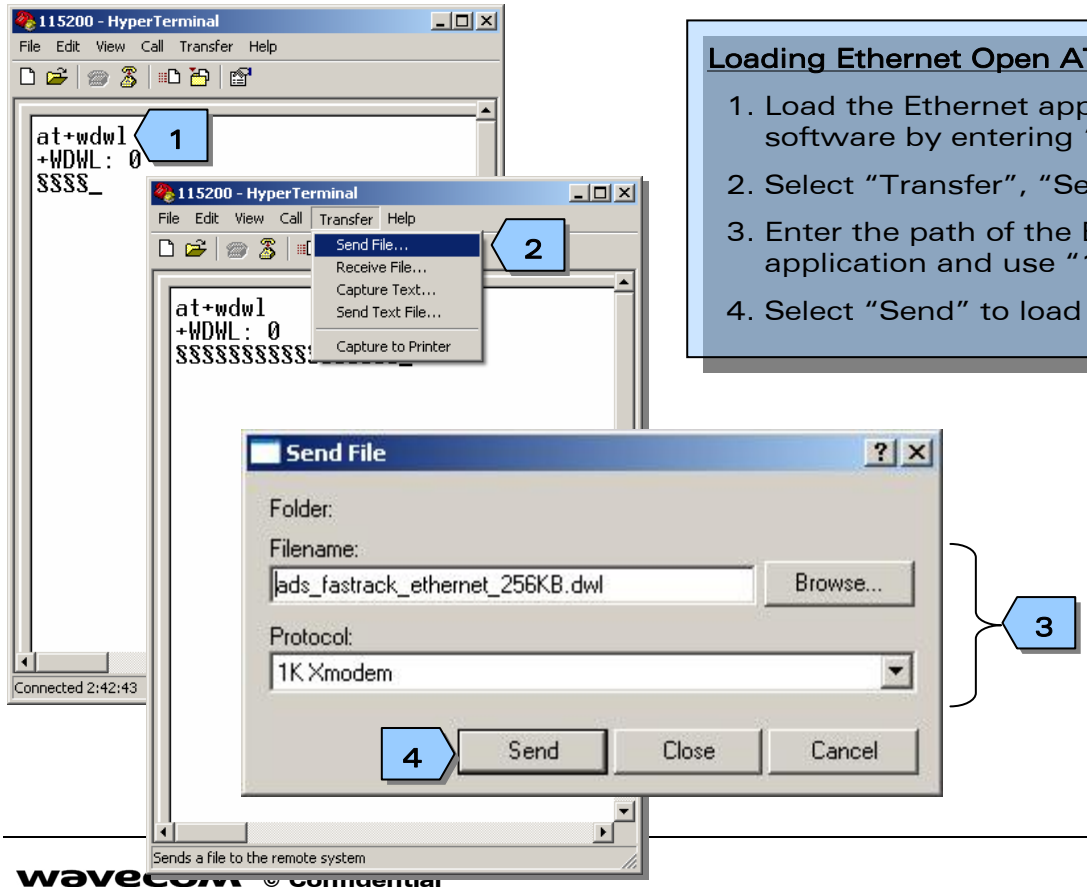
2.10 Setting-Up IESM Ethernet

	
Place the supplied new backplate	Align the new backplate
	
Place back the two screws	Connect the RJ45 Interface cable

	
Connect the USB cable supplied	Connect the RJ45 LAN Cable

2.10.1 Loading and Configuring Ethernet Open AT® Application

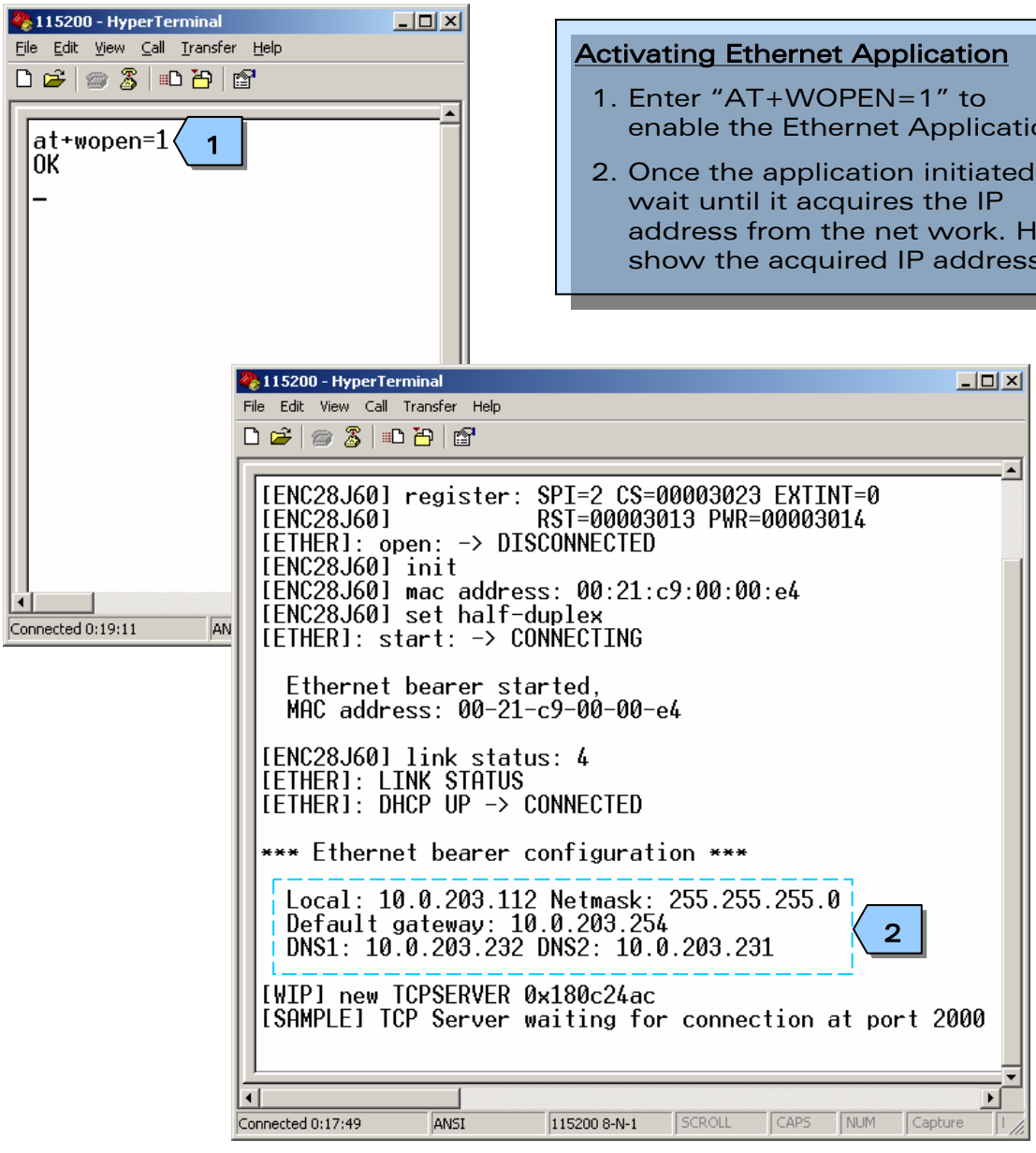
Before running Ethernet Open AT® application it is mandatory to upgrade Fastrack Supreme to Open AT® Software Suite V2.xx or later.



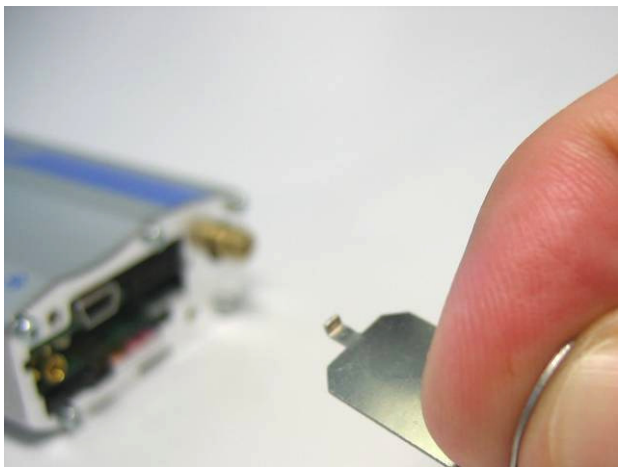
Loading Ethernet Open AT® application

1. Load the Ethernet application software by entering "AT+WDWL"
2. Select "Transfer", "Select File"
3. Enter the path of the Ethernet application and use "1K Xmodem"
4. Select "Send" to load the file

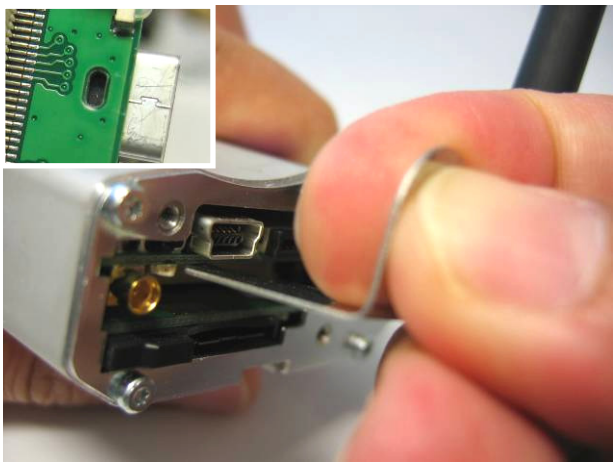
2.10.2 Activating Ethernet Application



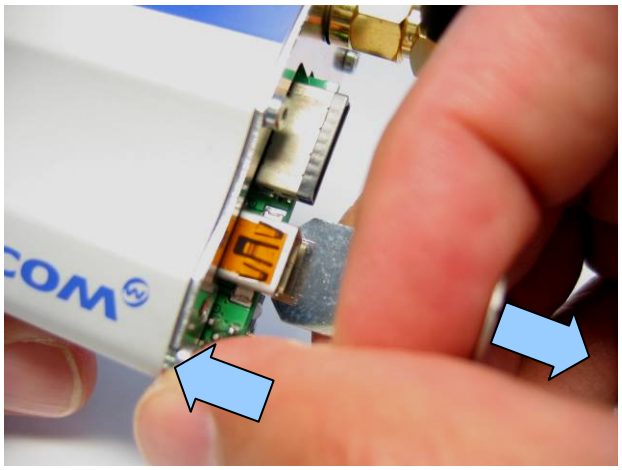
2.11 Removing IESM Board from Fastrack Supreme



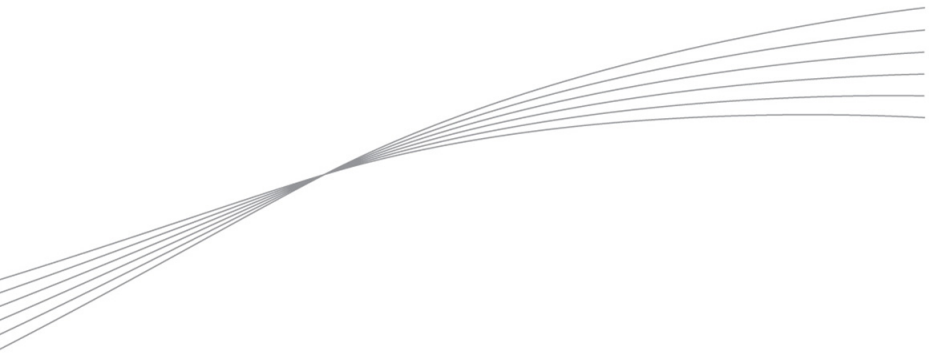
Use extraction tool to remove the IESM board.



The IESM board has hole underneath, attach the hook on that hole.



Hold firmly the Fastrack Supreme, place the thumb on the corner (as shown) and pull the extraction tool with the index finger to remove the board.



wavecom

Make it wireless

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