Remote Configuration Guide



iR1600 Rugged Modem iR1600 GPS-Enabled Modem



This page intentionally left blank.

TABLE OF CONTENTS

FCC COMPLIANCE	
INTRODUCTION	
Box Contents	
Documentation	
eLutions' Customer Care	
TOOLKIT INSTALLATION	5
Operating Requirements	
Installation Process	
Create Source Directory	5
Run the Application	
Enter Connection Parameters	7
Connect to Remote Modem	
Save Configuration	
Load Configuration	
Write Configuration	
USING THE TOOLKIT	
Remote Configuration Screen - Modem Values	
Remote Configuration Menu Options	
Modem Operational Mode	
Select Operating Mode	
Gateway/AVL Protocol Mode	
Select Protocol	
TCP/UDP Configuration	
Set the Remote IP Address	
Set the Remote Port Number	
Set the Local Port Number	
Set the Socket Timeout Parameter	
Set Retransmit Timeout Parameter	
Enable/Disable Keep TCP Client Socket Open	
Access Control List Configuration Menu – Gateway/AVL	
Set the Remote IP Address	
Set the Remote IP Range – Start Value	
Set ACL Address List	
JELAUL AUUIESS LIST	

IR1600 Modem

Select Stop Bits 36 Select Flow Control 36 Select Flow Control 36 Select Flow Control 36 Select PAD Maximum Packet Length. 38 Select PAD Maximum Packet Length. 38 AVL Configuration Menu 39 eLutions Proprietary Sentence (\$PELUI0) 41 eLutions Proprietary I/O Sentence (\$PELUI0) 42 Select ALUtions Proprietary Sentence (\$PELUI0) 43 Select Eutions Proprietary Sentence 43 Select Sentence to Send 43 Select Sentence and Forward 44 Enable/Disable Store and Forward 44 Select Sore and Forward Sentence Format 44 Select Buptor Length 45 Set Send Device ID Parameter 46 Remote Support Configuration Menu 47 Set the Remote Port Number. 48 Set the Remote Port Number. 48 Set the Remote Port Number. 49 SAPA Router Configuration Menu 50 Enable/Disable Restrict Remote Address. 49 SAPA Router Configuration Menu 51 Enable/Disable Encryption	Select Date Rate	
Select Parity 36 Select Flow Control 36 PAD Configuration Menu 37 Select PAD Inter-Character Timeout 38 Select PAD Maximum Packet Length. 38 AVL Configuration Menu 39 eLutions Proprietary Sentence (\$PELU01). 41 eLutions Proprietary Sentence (\$PELU01). 42 Set AVL Report Period 43 Select Edutions IV Osentence (\$PELU01). 41 Enable/Disable Store and Forward 43 Select Edutions IV Osentence 44 Enable/Disable Store and Forward Sentence Format 44 Enable/Disable Restrict Polier. 45 Set Set Bond Device ID Parameter 46 Remote Support Configuration Menu 47 Set the Remote IP Address 48 Set the Remote Port Number. 48 Set the Remote Port Number. 49 Set ACL Address List 49 Set Net Configuration Menu 50 Enter IP Addresses. 50 Set with Remote Port Number. 51 Generate Key 51 Enter IP Addressese. 50 <td< td=""><td>Select Stop Bits</td><td></td></td<>	Select Stop Bits	
Select Flow Control 36 PAD Configuration Menu 37 Select PAD Inter-Character Timeout. 38 Select PAD Maximum Packet Length. 38 AVL Configuration Menu 39 eLutions Proprietary VO Sentence (\$PELUI01). 41 eLutions Proprietary VO Sentence (\$PELUI02). 42 Set AVL Report Period 43 Select Sentence to Send 43 Select Lutions Proprietary Sentence 43 Select Sentence to Send 43 Select Sentence to Send 44 Select Sentence to Send 43 Select Sentence Tore and Forward 44 Select Sentence Tore and Forward 44 Select Sentence Format 44 Enable/Disable Restrict Poller 45 Set the Remote Port Number. 46 Remote Port Number. 48 Set the Remote Port Number. 49 BSAP Router Configuration Menu 50 Enable/Disable Restrict Remote Address 49 BSAP Router Configuration Menu 50 Enable/Disable Restrict Remote Address 51 Enter P Addresses 50	Select Parity	
PAD Configuration Menu	Select Flow Control	
Select PAD Inter-Character Timeout. 38 Select PAD Maximum Packet Length. 38 AVL Configuration Menu 39 eLutions Proprietary Sentence (\$PELU01). 41 eLutions Proprietary I/O Sentence (\$PELU01). 42 Set AVL Report Period 43 Select Sentence to Send 43 Select Lutions Proprietary Sentence 43 Select Lutions Proprietary Sentence 44 Enable/Disable Store and Forward 44 Select Sentence and Forward Sentence Format 44 Enable/Disable Restrict Poller 45 Set Send Device ID Parameter 46 Remote Support Configuration Menu 47 Set the Remote Port Number. 48 Set the Remote Port Number. 48 Set the Remote Port Number. 49 BSAP Router Configuration Menu 50 Enter Lipher Key Information. 51 Enter Chipter Key Information. 51 Enter Configuration Menu 51 Enter Chipter Key Information. 51 Enter Chipter Key Information. 51 Enter Chipter Key Information. 51 Enter	PAD Configuration Menu	
Select PAD Maximum Packet Length. 38 AVL Configuration Menu 39 eLutions Proprietary Sentence (\$PELU01). 41 eLutions Proprietary I/O Sentence (\$PELU01). 42 Set AVL Report Period 43 Select Sentence to Send. 43 Select Elutions Proprietary Sentence 43 Select Elutions I/O Sentence 43 Select Elutions I/O Sentence Format 44 Enable/Disable Store and Forward Sentence Format 44 Exote AU Enable/Disable Restrict Poller. 45 Set Send Device ID Parameter 45 Set the Remote Port Number. 48 Set the Remote Port Number. 48 Set the Remote Port Number. 49 Set Aler Port Number. 49 Set Aler Address. 49 Set the Remote Port Number. 50 Enter IP Addresse. 50 Security Configuration Menu 51 Enter IP Addresse. 50 Set Update Restrict Remote Address. 50 Security Configuration Menu 51 Enter IP Addresse. 50 Security Configuration Menu 51	Select PAD Inter-Character Timeout	
AVL Configuration Menu	Select PAD Maximum Packet Length	
eLutions Proprietary Sentence (\$PELU01)	AVL Configuration Menu	
eLutions Proprietary I/O Sentence (\$PELUIO) 42 Set AVL Report Period 43 Select Sentence to Send 43 Select Elutions Proprietary Sentence 43 Select Elutions I/O Sentence 44 Enable/Disable Store and Forward 44 Enable/Disable Store and Forward Sentence Format 44 Enable/Disable Restrict Poller. 45 Set Send Device ID Parameter 46 Remote Support Configuration Menu 47 Set the Remote IP Address 48 Set the Remote Port Number 48 Set the Coal Port Number 48 Enable/Disable Restrict Remote Address 49 Set ACL Addresse List 49 Set ACL Addresse List 49 Set Uper Key Information 50 Encert IP Addresses 50 Set upit Nomiguration Menu 51 Generate Key 51 Generate Key 51 Generate Key 51 In Clipse Key Information 52 Ignition Shutdown Delay Parameter 53 Allow Gateway Mode GPS Polling 53 Stat Ignition Shutd	eLutions Proprietary Sentence (\$PELU01)	41
Set AVL Report Period 43 Select Sentence to Send 43 Select el Lutions Proprietary Sentence 43 Select el Lutions I/O Sentence 44 Enable/Disable Store and Forward 44 Select Store and Forward Sentence Format 44 Enable/Disable Restrict Poller. 44 Set Send Device ID Parameter 46 Remote Support Configuration Menu 47 Set the Remote IP Address 48 Set the Remote Port Number. 48 Set the Local Port Number. 48 Set the Local Port Number. 49 BSAP Router Configuration Menu 50 Enable/Disable Restrict Remote Address. 50 Security Configuration Menu 51 Enable/Disable Restrict Remote Address. 50 Security Configuration Menu 51 Enable/Disable Encryption 51 Enable/Disable Encryption 52 Ignition Shutdown Delay 53 Set Ignition Shutdown Delay Parameter 53 Set Ignition Shutdown Delay Parameter 54 Finware Update 55 Update Remote Woden's Firmware	eLutions Proprietary I/O Sentence (\$PELUIO)	
Select Sentence to Send. 43 Select eLutions Proprietary Sentence 43 Select eLutions I/O Sentence 44 Enable/Disable Store and Forward 44 Enable/Disable Store and Forward 44 Select Store and Forward Sentence Format 44 Enable/Disable Restrict Poller 45 Set Send Device ID Parameter 46 Remote Support Configuration Menu 47 Set the Remote P Address 48 Set the Remote Port Number 48 Set the Remote Port Number 48 Enable/Disable Restrict Remote Address 49 BSAP Router Configuration Menu 50 Enter IP Addresses 50 Security Configuration Menu 50 Security Configuration Menu 51 Enter IP Addresses 50 Security Configuration Menu 51 Enter IP Addresses 50 Set up to Configuration Menu 51 Enable/Disable Restrict Remote 51 Enable/Disable Encryption 52 Ignition Shutdown Delay 53 Allow Gateway Mode GPS Polling 54	Set AVL Report Period	43
Select eLutions Proprietary Sentence 43 Select eLutions I/O Sentence 44 Enable/Disable Store and Forward 44 Select Store and Forward Sentence Format 44 Enable/Disable Restrict Poller. 45 Set Send Device ID Parameter 46 Remote Support Configuration Menu 47 Set the Remote IP Address 48 Set the Remote Port Number. 48 Set the Local Port Number. 48 Set the Local Port Number. 49 Set ACL Address List 49 BSAP Router Configuration Menu 50 Enter IP Addresses. 50 Security Configuration Menu 51 Enter IP Addresses. 50 Security Configuration Menu 51 Enter Cipher Key Information. 51 Generate Key. 51 Entel/Disable Encryption. 52 Ignition Shutdown Delay Parameter. 53 Allow Gateway Mode GPS Poling. 54 Firware Update. 55 Update Remote Modem's Firmware. 55 View Input/Output values. 57 View Input/Out	Select Sentence to Send	43
Select eLutions I/O Sentence44Enable/Disable Store and Forward44Select Store and Forward Sentence Format44Enable/Disable Restrict Poller.45Set Send Device ID Parameter46Remote Support Configuration Menu47Set the Remote IP Address48Set the Remote Port Number.48Set the Local Port Number.48Set the Local Port Number.49St ACL Address List49SAP Router Configuration Menu50Enter IP Addresses.50Security Configuration Menu51Generate Key51Enable/Disable Encryption52Ignition Shutdown Delay Parameter.53Allow Gateway Mode GPS Polling.54Firware Update55Update Remote Modem's Firmware.55View Input/Output values.57View Input/Output values.57View Input/Output values.57Update I/O Remote Values.58	Select eLutions Proprietary Sentence	43
Enable/Disable Store and Forward44Select Store and Forward Sentence Format44Enable/Disable Restrict Poller45Set Send Device ID Parameter46Remote Support Configuration Menu47Set the Remote IP Address48Set the Remote Port Number48Set the Local Port Number48Set the Local Port Number49Set Address List49SAP Router Configuration Menu50Enter IP Addresses50Security Configuration Menu51Enter IP Addresses50Security Configuration Menu51Enter Cipher Key Information51Generate Key51Enable/Disable Encryption52Ignition Shutdown Delay Parameter53Allow Gateway Mode GPS Polling54Firware Update55Update Remote Modem's Firmware55View Input/Output values57View Input/Output values57Update I/O Remote Values58	Select eLutions I/O Sentence	
Select Store and Forward Sentence Format 44 Enable/Disable Restrict Poller 45 Set Send Device ID Parameter 46 Remote Support Configuration Menu 47 Set the Remote IP Address 48 Set the Remote Port Number 48 Set the Local Port Number 48 Enable/Disable Restrict Remote Address 49 Set ACL Address List 49 BSAP Router Configuration Menu 50 Enter IP Addresses 50 Security Configuration Menu 51 Enter Cipher Key Information 51 Generate Key 51 Ignition Shutdown Delay 53 Set Ignition Shutdown Delay Parameter 53 Allow Gateway Mode GPS Polling 54 Enable/Disable Encryption 53 Allow Gateway Mode GPS Polling 54 EnableSet Ignition Shutdown Delay Parameter 54 Update Remote Modem's Firmware 55 View Input/Output values 57 Update I/O Remote Values 57 Update I/O Remote Values 57 Set Set Input/Output values 57	Enable/Disable Store and Forward	44
Enable/Disable Restrict Poller.45Set Send Device ID Parameter46Remote Support Configuration Menu47Set the Remote IP Address48Set the Remote Port Number.48Set the Cocal Port Number.48Enable/Disable Restrict Remote Address49Set ACL Address List49Set ACL Address List49Security Configuration Menu50Enter IP Addresses.50Security Configuration Menu51Enter Cipher Key Information.51Generate Key51Enable/Disable Encryption.52Ignition Shutdown Delay53Set Ignition Shutdown Delay Parameter.53Allow Gateway Mode GPS Polling.54Firware Update.55Update Remote Modem's Firmware.55View Input/Output values.57View Input/Output values.57Update I/O Remote Values.58	Select Store and Forward Sentence Format	
Set Send Device ID Parameter46Remote Support Configuration Menu47Set the Remote IP Address48Set the Remote Port Number48Set the Local Port Number48Enable/Disable Restrict Remote Address49St ACL Address List49BSAP Router Configuration Menu50Enter IP Addresses50Security Configuration Menu51Enter Cipher Key Information51Generate Key51Ignition Shutdown Delay52Ignition Shutdown Delay Parameter53Allow Gateway Mode GPS Polling54Firware Update54View Input/Output values55Update I/O Remote Nodem's Firmware.57Update I/O Remote Values57Update I/O Remote Values57	Enable/Disable Restrict Poller	45
Remote Support Configuration Menu47Set the Remote IP Address48Set the Remote Port Number48Set the Local Port Number48Enable/Disable Restrict Remote Address49Set ACL Address List49BSAP Router Configuration Menu50Enter IP Addresses50Security Configuration Menu51Enter Cipher Key Information51Generate Key51Inter Cipher Key Information51Generate Key51Allow Gateway Mode GPS Polling53Allow Gateway Mode GPS Polling54Firware Update55Update Remote Modem's Firmware55View Input/Output values57Update I/O Remote Modem's Firmware57Update I/O Remote Values57Update I/O Remote Values58	Set Send Device ID Parameter	
Set the Remote IP Address48Set the Remote Port Number.48Set the Local Port Number.48Enable/Disable Restrict Remote Address49Set ACL Address List49BSAP Router Configuration Menu50Enter IP Addresses50Security Configuration Menu51Enable/Disable Encryption51Generate Key51Ignition Shutdown Delay Parameter53Set Ignition Shutdown Delay Parameter53Allow Gateway Mode GPS Polling54Firware Update55Update Remote Modem's Firmware55V/O Expander55View Input/Output values57View Input/Output values57View Input/Output values57	Remote Support Configuration Menu	
Set the Remote Port Number.48Set the Local Port Number.48Enable/Disable Restrict Remote Address.49Set ACL Address List49BSAP Router Configuration Menu50Enter IP Addresses.50Security Configuration Menu51Enter Cipher Key Information.51Generate Key51Ignition Shutdown Delay53Set Ignition Shutdown Delay Parameter.53Allow Gateway Mode GPS Polling.54Firware Update.55Update Remote Modem's Firmware.55I/O Expander55View Input/Output values.57Update I/O Remote Values.58	Set the Remote IP Address	
Set the Local Port Number.48Enable/Disable Restrict Remote Address.49Set ACL Address List49BSAP Router Configuration Menu50Enter IP Addresses.50Security Configuration Menu51Enter Cipher Key Information.51Generate Key51Ignition Shutdown Delay53Set Ignition Shutdown Delay Parameter.53Allow Gateway Mode GPS Polling.54Firware Update55Update Remote Modem's Firmware.55VIO Expander55Update Remote Modem's Firmware.57View Input/Output values.57Update I/O Remote Values.58	Set the Remote Port Number	
Enable/Disable Restrict Remote Address.49Set ACL Address List49BSAP Router Configuration Menu50Enter IP Addresses.50Security Configuration Menu51Enter Cipher Key Information.51Generate Key51Ignition Shutdown Delay53Set Ignition Shutdown Delay Parameter.53Allow Gateway Mode GPS Polling.54Finware Update.54Firware Update.55Update Remote Modem's Firmware.55U/O Expander57View Input/Output values.57Update I/O Remote Values.58	Set the Local Port Number	
Set ACL Address List49BSAP Router Configuration Menu50Enter IP Addresses50Security Configuration Menu51Enter Cipher Key Information51Enter Cipher Key Information51Enable/Disable Encryption52Ignition Shutdown Delay53Set Ignition Shutdown Delay Parameter53Allow Gateway Mode GPS Polling54Firware Update55Update Remote Modem's Firmware55I/O Expander57View Input/Output values57Update I/O Remote Values58	Enable/Disable Restrict Remote Address	49
BSAP Router Configuration Menu50Enter IP Addresses50Security Configuration Menu51Enter Cipher Key Information51Generate Key51Ignition Shutdown Delay52Ignition Shutdown Delay Parameter53Set Ignition Shutdown Delay Parameter53Allow Gateway Mode GPS Polling54Firware Update55I/O Expander55I/O Expander57Update I/O Remote Values58	Set ACL Address List	
Enter IP Addresses	BSAP Router Configuration Menu	
Security Configuration Menu 51 Enter Cipher Key Information 51 Generate Key 51 Enable/Disable Encryption 52 Ignition Shutdown Delay 53 Set Ignition Shutdown Delay Parameter 53 Allow Gateway Mode GPS Polling 54 EnableSet Ignition Shutdown Delay Parameter 54 Firware Update 55 Update Remote Modem's Firmware 55 I/O Expander 57 View Input/Output values 57 Update I/O Remote Values 58	Enter IP Addresses	50
Enter Cipher Key Information51Generate Key51Enable/Disable Encryption52Ignition Shutdown Delay53Set Ignition Shutdown Delay Parameter53Allow Gateway Mode GPS Polling54EnableSet Ignition Shutdown Delay Parameter54Firware Update55Update Remote Modem's Firmware55I/O Expander57View Input/Output values57Update I/O Remote Values58	Security Configuration Menu	51
Generate Key51Enable/Disable Encryption52Ignition Shutdown Delay53Set Ignition Shutdown Delay Parameter53Allow Gateway Mode GPS Polling54EnableSet Ignition Shutdown Delay Parameter54Firware Update55Update Remote Modem's Firmware55I/O Expander57View Input/Output values57Update I/O Remote Values58	Enter Cipher Key Information	51
Enable/Disable Encryption52Ignition Shutdown Delay53Set Ignition Shutdown Delay Parameter53Allow Gateway Mode GPS Polling54EnableSet Ignition Shutdown Delay Parameter54Firware Update55Update Remote Modem's Firmware55I/O Expander57View Input/Output values57Update I/O Remote Values58	Generate Key	51
Ignition Shutdown Delay 53 Set Ignition Shutdown Delay Parameter 53 Allow Gateway Mode GPS Polling 54 EnableSet Ignition Shutdown Delay Parameter 54 Firware Update 55 Update Remote Modem's Firmware 55 I/O Expander 57 View Input/Output values 57 Update I/O Remote Values 58	Enable/Disable Encryption	
Set Ignition Shutdown Delay Parameter 53 Allow Gateway Mode GPS Polling 54 EnableSet Ignition Shutdown Delay Parameter 54 Firware Update 55 Update Remote Modem's Firmware 55 I/O Expander 57 View Input/Output values 57 Update I/O Remote Values 58	Ignition Shutdown Delay	
Allow Gateway Mode GPS Polling	Set Ignition Shutdown Delay Parameter	53
EnableSet Ignition Shutdown Delay Parameter	Allow Gateway Mode GPS Polling	54
Firware Update 55 Update Remote Modem's Firmware 55 I/O Expander 57 View Input/Output values 57 Update I/O Remote Values 58	EnableSet Ignition Shutdown Delay Parameter	
Update Remote Modem's Firmware	Firware Update	55
I/O Expander	Update Remote Modem's Firmware	55
View Input/Output values	I/O Expander	57
Update I/O Remote Values	View Input/Output values	57
	Update I/O Remote Values	

Remote Configuration Guide

Time Since Boot		59
View Time Since Boot	59	
Get Log		60
View Event Log	60	
SAFETY NOTICE	61	
APPENDIX A: GLOSSARY	63	
INDEX	69	

IMPORTANT! Please Read Safety Notice on Page 61 before using the iR1600 Modem.

Last Updated RFM-6005-5015 June 2004 © 2004 eLutions, Inc. This page intentionally left blank.

FC	\mathbf{C}	റവ	MPI	ΙΔΝ	
	\mathcal{O}				

	DECLARATION O Per FCC CF	DF CONFORMITY FR 47 2.989
	F	C
	Responsible party name Address:	eLutions, Inc. 5905 Breckenridge Parkway Suite F Tampa, FL 33610 1-800-836-9900
Herebv	declares that the product	:
,	Product name: Model Number:	iR1600 GPS-Enabled Modem 6000-C5-RFM
	Product name: Model Number:	iR1600 Rugged Modem 6100-C5-RFM
Confor	ms to the following regula	tion:
FCC Par	t 15, subpart B t 90, subpart S Digital device	
FCC Par Class B		
Class B	March 8, 2004	

This page intentionally left blank.

INTRODUCTION

Thank you for purchasing the iR1600 modem. Once installed and configured, the iR1600 modem provides you with reliable, wireless data communication within the iDEN[®] network. This chapter includes:

Box Contents	Page 3
Documentation	Page 3
Customer Care	Page 4

Box Contents

The iR1600 modem ships with the following:

- iR1600 Modem
- CD with documentation
 - Installation Guide
 - o Configuration Guide
 - Quick Reference Guide (for operators/end users)
 - o Warranty Card
 - o Getting Started Installation and Usage Requirements
 - o CD with Remote Configuration Tool Kit
 - **§** Remote Configuration (Over-the-Air) Guide

Documentation

Documentation for the iR1600 consists of three guides, an Installation Guide, Configuration Guide and a Remote Configuration Guide. This document, the iR1600 Remote Configuration Guide provides you with instructions on how to:

- Install the Over the Air Tool Kit.
- Retrieve and view remote device parameters.
- Perform remote over the air (OTA) configuration changes.
- Perform firmware updates remotely.

IR1600 Modem

The iR1600 Configuration Guide provides you with instructions on how to:

- Install the iDEN[®] Packet Data Applet (for data services).
- Set up Windows Components.
- Configure the modem's operating modes.
- Configure data encryption parameters.
- Configure the Access Control List for IP Address.
- Configure BSAP protocol for translation to IP Address.
- Use AT Commands to configure the modem.

The iR1600 Installation Guide provides you with instructions on how to:

- Mount the modem in a mobile environment (vehicle installation).
- Mount the modem in a fixed environment.
- Install and connect the required components (power cables, antennas, etc.).
- Verify the installation.
- Connect and configure your computer and I/O devices (e.g. Remote Terminal Units (RTU), sensors, controllers, etc.).
- Troubleshoot common installation problems.

eLutions' Customer Care

For network, installation or device issues contact:

• eLutions Wireless Support Center by phone at 1-888-349-4338 or by email at customersupport@elutions.com

When you call, please have a detailed description of your problem. To provide you with fast and quality support, our Customer Care representative may ask for the following:

- Computer operating system (Windows 95/98/NT/2000/CE)
- Version of the operating system (e.g. NT 4, Windows 95 Version B, CE 2.1, etc.)
- Information regarding the modem (most can found on the diagnostic menu)
- Geographic location of use
- The modem's operating mode
- Other configuration settings

TOOLKIT INSTALLATION

The Remote Over the Air (OTA) Configuration toolkit is a GUI (Graphical User Interface) application provides an administrator with the ability to remotely configure the iR1600 modem or perform remote firmware updates. This chapter contains detailed steps for installing the remote configuration toolkit. This chapter includes:

Operating Requirements	Page 5
Installation Process	Page 5
Run the Application	Page 6
Enter Connection Parameters	Page 7
Connect to Remote Modem	Page 8
Save Configuration	Page 11
Load Configuration	Page 12
Write Configuration	Page 12

Operating Requirements

The remote configuration toolkit requires that your computer have Java 2 Runtime Environment SE version 1.4.2_02 (or higher) program installed.

Installation Process

The necessary file(s) to install the toolkit are contained in the "OTA Toolkit" folder located on the documentation CD. The following steps describe how to install and run the remote configuration GUI application.

Create Source Directory

NOTE: Over the air configuration and updates can only be performed on modems that are in either the Gateway or AVL operating mode.

1. Create a directory where all the files will be stored on your computer's c:\ drive (e.g. OTA Toolkit)

- 2. Insert the CD into your computer and locate the **pluscfg.jar** file.
- 3. Copy the **pluscfg.jar** file to the newly created directory.

Run the Application

- To run the Remote Configuration application, locate the pluscfg.jar file.
 NOTE: Make sure that your host computer is connected to the Internet.
- 2. Double-click on the .jar file to launch the application.
- 3. The iR1600 Remote Configuration window appears with "No Connection Selected" on the screens' title.

# 1040 Aurobia Configeration - N	a Deleter toor Sciel Tell	A1013
file Twels Help		
Sertial Number		
Standware Part Namber		
Hardware Revision		
Application Part Number		
Application Revision		
Application Date		
Application Info	·	
Ecol Part Number		
Boot Bywsian		
100 Expander Part Number		
the Cilencia reason	100	
Operational Mode	Marreal Hoda	
Gateway/Ant Presacol Mode	TCP Client	1.1
TCP/UDF Configuration	DIE Port Configur	uties:
PAD Certigoration	AVIL Configurati	ios .
Send Device 10	Remote Support Con	diger
ESAP Configuration	Security Configur	ation
Ignition Shutdown Delay	3	
Allow Gitzway Bade GPS Pet.		
distant.	Contractor 1	
and Parallel	serress.	

Enter Connection Parameters

1. From the **Remote Configuration** window, select the *File* à Connect option from the window's toolbar.

S DIAN For advice type, the Ho Mark Tours, He p	fe sealt ar Standard 📃 🛓 🗖 🗖
Concender	
AREA CONTRACTOR SUPPORT	
Incidentia additionation	
Write Carifle Peylsion	
SUPERIOR FOR STREET	
Application Revision	
Approximent the state	
application info	
Dast fer, Namper	
ARTI KEVENEN	
1/D Excender Park Fember	
QUE Expandent Komstant	
Operational Made	Henrie Made 🔹 🔻
Openational Mode Sedence, (Art Android Mode	Hanna Kada 🔫 1970-ni
Openalised Mede Subscay/Ast Anton (Parks 1647, 1941, oil: parators	Hanna, Kath v 1970 an a 1006 Fact Contegration
Openalized Mode Subscript Sof Anthrop Plante 16 Marth Soft Soft produce Auth Soft Spectrum	Names, Krath v 1960 teach ann an 1996 teacht antag antain Ant Charlege atom
Openational Medie Subscriptfort Andrea (Medie 1616) ISBN subscription Auto Subscription Subscription operation	Hanna Fack v 1900 v Hills kent frankryssion dat frankryssion Krande frankryssion
Opena Lond Heide Solerson, Antonia Meride (CR) - CR Contract Meride Antonia Contractor South Contractor Read-Contractor	Harrin, Fradis v 1990 (1990) 1990 (1990) 1990 (1990) 1990 (1990) 1990 (1990) 1990 (1990) 1990 (1990) 1990 (1990) 1990 (1990) 1990 (1990)
Openational Made Codeway Anti-Anti-Anti-Anti-Anti-Anti-Anti-Anti-	Hanna Fada v Félixe v Hilbert Endoprator dat fair genden Krande for per con gen Nande for per con ge
Openational Analytics (Market Colores, J. And Analytics (Market 1997) (1997) and providers Statif Consequences (Statif Consequences) (Statif Consequences) (Statif Consequences) (Statif Consequences) (Statif Consequences) (Statif Consequences)	Hannan, Frank v Friedland Contraction of a Hille Start Frankry and an Address Frankry and agent of a Network year lagran and E

- 2. The Connection window opens. Click on the blank fields under each column heading and enter the following parameters:
 - IP address of remote modem(s) that you want to configure.
 - **Port number** of the remote modem(s) that you want to configure.
 - Enable (true) or disable (false) the CipherOn parameter, if applicable.
 - Decipher key number, if applicable.

£.						×
Deek el	ar 👘	- P		27.	Cathe On	
					1560	
1			* * *			•
		lisip	Same		x	
1		Carrent	Lannes)	Juni Inf		
IP Address						
Fort						
Clober On	6 XH					
Kary						
Description						

NOTE: All the fields will be blank when you initially access the Remote Configuration application.

- 3. Click the Save button to save the information entered.
- 4. **Repeat** steps 2 and 3 for additional remote modems.

5. The information entered for each column will appear on the bottom portion of the screen. Click on the *OK* to close the window when you are done entering all the information.

٩						×
D	•	I	1		Career	
P 701		657744	672	26320	Class.	
					1-1	
• • • • • • • • • • • • • • • • • • • •	··	····	·			Þ
			1	- 11		
		нер	20	ne	UK	
		Curien	l (inn	- Lein In	l .	
IP Address	69.0	10.115				
Port	16160	1				
Lipher Gu	Hex-					
Кну						
Description	121 BI					

Connect to Remote Modem

1. From the **Remote Configuration** window, select the **Connect** option.

Solution Francesco a base libra his	Provide the second s
hat lance the se	
Consider	
AR-A VALUE ZALIDAL	
In all only of Homeses	
Write Carling Devision	
STREATING FROM THE TRAINING T	
Application Revision	
Approximent II.	
application info	
Raul fac, Namer	
4871 121/270	
1/D Excertise Part Familier	
1201 Page and a Kines rate	
Operational Made	Harran Irrah -
	HINTE F JON T
"advecting/ Golf Produce of Planks	14Clm a
"adowing/Ant Andrea (Marke 16 K) - 1961 and gaudana	1471on a Different Lastrynakoa
Subsect, (Ad. Andread Planks 1637) ISB and produce Add Story produce	Harris Pada
fadeway/Art Android Plack RCR/ CPC and produce Artification produce Data Description	Hanne y daa oo o
Subseq (Ad Anton e Parke 1797) 1991 antoposition Add Some produce Data Description Rade Contexposition	Harrishi yana yana ya 1960 yana wa 1910 kanti ti satayasha Asti Yana yana dan Kanadiy Yana yana na ya
Subseq (Ad Anton e Barde 1797) 1721 artigonation Add Son spins for Data David College Kade College at the Spin on the Spin Antop	Allina y da y y 1 4 7 fen y y 1 16 fen 1 och profes dat fen ger den Krauf y to profes y Neudy so figer och
 Solarsay 2004 Andreas Plante Solar Plante providence Solar Plante et al. Solar P	Harris 2 das 2 1970 - Las 2 Hitte best 1 celeptades dat 2 cer que des Reaute 2 ce per cer que Namedy ce legas ce 1
Adamsey See Andreas Filmer 1999 - PP Filmer See Andreas Add Filmer Specification Sea Construction Read Configuration application market for tax application market for tax The International Configuration Adamset Sector States The International Configuration Adamset Sector States The International Configuration Adamset Sector States The International Configuration The International	Harris 2 das
Advectory 2004 Andreas Filteria 1019 FPF Finding reactions Add France specifies Provide Security Provide Security Allow Security Security Security	Hilling 200

2. The **Connection** window opens. Locate and select the IP address of the remote modem that you want to connect with. The connection information appears on the bottom portion of the screen. **Click** on the **OK** to close the window.

\$				×
C coordpl on	F	For	ClpherCh	
2.00	3512470.50	25353	ld an	
			14	
4 1010000000	www.www.ww	nan nan		
	Help St	vr [] •	94 1	
	LUTCHLUTCH	in the second	•	
If Address (C.C.	N 1532			
Pmm 1000	(
Lipper in 1975				
Katy				
Discoylan <mark>i 318</mark>	00			

3. You are returned to the **iR1600 Remote Configuration** window. Notice that the window now displays the IP address of the remote modem on the title bar. Click the **Refresh** button to initiate connection. A message confirming the connection attempt appears.



- NOTE: The remote modem's operating mode must be set to Gateway mode and the Restrict Support IP must be set to "NO" for connection to be successful.
- NOTE: You may experience a slight delay (a few seconds) this is because the application is trying to acquire the remote modem's parameters to display.
- 4. If the connection to the remote modem was successful, the remote modem's values will be displayed on the upper portion of the **iR1600 Remote Configuration** window.

🔹 iR1600 Remote Configuration - No	Connection Selected	
File Tools Help		
· · · · · · · · · · · · · · · · · · ·		
Serial Number	0800013408	
Hardware Part Number	4000-C5-RFM	
Hardware Revision	1	
Application Part Number	RFM-6001-2014	
Application Revision	1	
Application Date	7/2/04	
Application Info	eLutions AVL version 1.2.1 7/2/04	
Boot Part Number	RFM-6001-2014	
Boot Revision	1	
I/O Expander Part Number	RFM-6001-2014	
1/0 Expander Revision	1	
0		
Operational Mode	Normal Mode 🔹 👻	
Gateway/Avi Protocol Mode	TCP Client 👻	
TCP/UDP Configuration	DTE Port Configuration	
PAD Configuration	AVL Configuration	
Send Device ID	Remote Support Configur	
BSAP Configuration	Security Configuration	
Ignition Shutdown Delay	0	
Allow Gateway Mode GPS Pol		
Reboot	Refresh	

Save Configuration

The Save Configuration option allows you to save the remote modem's current or modified settings to a specific file location or disk.

	 Materials for a posterior to 	The alberty alcal	12 2
	Els ars Hila		
	Correctas		
	See OLI DU LINERI		
	Example And Annual Sectors		
	Andred and a literation		
	and to less them and		
	fagda derettere		
	Seg Lo. Inne Life		
	BET FOR HENCY		
	the proteins		
	TO POPULATE TAKE.		
	1/C Descent Re-Hrlon		
	Partment wate		•
	George-Avd Protocol Heater	TOT Cleve	-
	regular constration	Distant Company	n -
	CONCIDENTS (1997)	521 C 2003 (2008)	
	AND INCOME.	states sufficient of the	e -
	bo-Pitenbigen den	service type independent	
	Sector Mathematicay	1	
	Linding Games-Race GT NL.		
	<u>Kilmal</u>	Kirtursk	
A 8. a.			
Des 11	F T Famous Too Mr	• 🗐 🕹	 32 2
Tridewo	e 10 Statuko		
Ξ			
5			
1			
-June	ig is close the		
Jun:	(yold,m		
ີມາດທ	is fublic		
File Konn	•		
Electric	When All thes		
		Sinc	Cancel

- **1.** Configure or change the values of the modem's parameter, as necessary.
- 2. To save this configuration select *FileàSave Config*. The Save screen appears.
- 3. Use the drop-down arrow on the Save In: field of the screen to locate and select the directory or folder where the file will be stored.
- 4. Enter the name of the file in the File Name: field of the screen then click the Save button.

Load Configuration

The Load Configuration option allows you to load a previously saved configuration to a remote modem.

🗼 Oper			×
tunkų 🛛	g - e can de la cadènt	 * a n	
Treate fi Treate fi Treate fi Marca) ti uudets en pr k A2004 Jan		
DMassiy Distantsi	old,au abe		
File Konste		 	
FIRE COMP	////ike	 	-
		Oute	Cunct

- 1. To load saved configurations select *FileàLoad Config*. The Open screen appears.
- 2. Use the drop-down arrow on the Look In: field of the screen to locate the directory or folder where the desired file is stored.
- 3. Click on the desired file from the list of stored files. The selected file will appear in the File Name: field.
- 4. Click the Open button to load the saved configurations.

Write Configuration

The Write Configuration option allows you to send the loaded configuration information to the remote modem.



- 1. To send the loaded configurations to the remote modem select *Fileà Write Config*. A message box appears.
- 2. Select the **Start** button to send the configuration to the modem. A message will appear while the information is being sent.
- 3. When the status bar (located at the bottom of the screen) displays "100%", the send process is complete.
- 4. Click the "X" icon to close the window.

This page intentionally left blank.

USING THE TOOLKIT

This chapter contains information on the configuration options available and detailed instructions on how to remotely update or configure the iR1600 modem. This chapter includes:

Remote Configuration Screen – Modem Values	Page 16
Remote Configuration Menu Options	Page 18
Modem Operational Mode	Page 20
Gateway/AVL Protocol Mode	Page 22
TCP/UDP Configuration Menu	Page 25
Access Control List Configuration Menu	Page 31
DTE Configuration Menu	Page 35
PAD Configuration Menu	Page 37
AVL Configuration Menu	Page 39
Send Device ID	Page 46
Remote Support Configuration Menu	Page 47
BSAP Router Configuration Menu	Page 50
Security Configuration Menu	Page 51
Ignition Shutdown Delay	Page 53
Allow Gateway Mode GPS Polling	Page 54
Firmware Update	Page 55
I/O Expander	Page 57
Time Since Boot	Page 59
Get Log	Page 60

Remote Configuration Screen - Modem Values

The upper section of the iR1600 Remote Configuration screen displays the modem parameter and current values.

👙 iR1600 Remote Configuration - No	Connection Selected	
File Tools Help		
Serial Number	0800013408	The unner costion of the
Hardware Part Number	4000-C5-RFM	screen displays the
Hardware Revision	1	parameters and current
Application Part Number	RFM-6001-2014	values of the remote
Application Revision	1	modem.
Application Date	7/2/04	
Application Info	eLutions AVL version 1.2.1 7/2/04	
Boot Part Number	RFM-6001-2014	
Boot Revision	1	
I/O Expander Part Number	RFM-6001-2014	
I/O Expander Revision	1	
Operational Mode	Normal Mode 🗸	
Gateway/Avi Protocol Mode	TCP Client 🔻	
TCP/UDP Configuration	DTE Port Configuration	
PAD Configuration	AVL Configuration	
Send Device ID	Remote Support Configur	
BSAP Configuration	Security Configuration	
Ignition Shutdown Delay	0	
Allow Gateway Mode GPS Pol		
Reboot	Refresh	

The following table describes the parameters and values that are displayed on this section of the iR1600 Remote Configuration screen.

Parameter	Description	
Serial Number	This is the serial number assigned to the modem.	
Hardware Part Number	This is the part number of the modem. The iR1600 GPS-Enabled modem is part number 6000-CF-RFM and the Non-GPS part number is 6100-C5-RFM.	
Hardware Revision	This value indicates the number of times the hardware was revised for the modem.	
Application Part Number	This is the part number of the Remote Configuration toolkit.	
Application Revision	This is the number of times the Remote Configuration toolkit has been revised.	
Application Date	This is the date that the Remote Configuration was updated.	
Application Info	This is the information regarding the specific application which the modem is connected. This field may typically display the application's version number, date, etc.	
Boot Part Number	This is the part number for the boot used for the remote modem.	
Boot Revision	This is the number of times the boot has been revised.	
I/O Expansion Part Number	This is the part number for the input/output expansion that was used for this modem.	
I/O Expansion Revision	This is number of times the input/output expansion part was revised for this modem.	

Remote Configuration Menu Options

🛓 iR1600 Remote Configuration - No	Connection Selected	1	
File Tools Help			
Serial Number	0800013408]	
Hardware Part Number	4000-C5-RFM]	
Hardware Revision	1]	
Application Part Number	RFM-6001-2014]	
Application Revision	1]	
Application Date	7/2/04]	
Application Info	eLutions AVL version 1.2.1 7/2/04]	
Boot Part Number	RFM-6001-2014]	
Boot Revision	1]	
I/O Expander Part Number	RFM-6001-2014]	
I/O Expander Revision	1]	
Operational Mode	Normal Mode 🔹	Ī	
Gateway/Avi Protocol Mode	TCP Client 🔹	Í	The lower section of the
TCP/UDP Configuration	DTE Port Configuration		screen provides access to remote configuration
PAD Configuration	AVL Configuration		menus.
Send Device ID	Remote Support Configur		
BSAP Configuration	Security Configuration		
Ignition Shutdown Delay	0	Ī	
Allow Gateway Mode GPS Pol			
Reboot	Refresh		

Option	Description
Operational Mode	This parameter displays the current operating mode of the remote modem and allows you to change the operating mode from a drop-down selection list located to the right of the parameter.
Gateway/AVL Protocol Mode	This parameter displays the current protocol for the modem's Gateway/AVL mode and allows you to change the protocol from a drop-down selection list located to the right of the parameter.

TCP/UDP Configuration	This option takes you to the TCP/UDP Configuration menu where parameters such as IP address, port and socket times can be specified.
DTE Port Configuration	This option takes you to the DTE Port Configuration screen where DTE parameters such as data rate, stop bits and flow control can be specified.
PAD Configuration	This option takes you to the PAD (Packet Assembler/Disassembler) Configuration screen where you can specify the parameters such as when to send data that is received from the DTE.
AVL Configuration	This option takes you to the AVL Configuration screen where the operational characteristics of the AVL mode can be configured for the iR1600.
Send Device ID	This option specifies whether the iR1600 serial number should be sent with the data when the modem is in Gateway mode or AVL operating modes.
Remote Support Configuration	This option takes you to the Remote Support Configuration screen that allows you to specify the parameters for configuring the iR1600 remotely.
Security Configuration	This option takes you to the Security Configuration screen where you can enable or disable the modem of data encryption and enter the Cipher key information.
BSAP Router Configuration	This option takes you to the BSAP Router Configuration screen where you can enter the IP addresses and communication parameters for modems that will be utilizing the BSAP feature.
Ignition Shutdown Delay	This option allows you to set the delay period (in seconds) that the modem will wait before shutting down. The delay timer will commence when an ignition sense is no longer detected (e.g., vehicle is turned off).

Modem Operational Mode



The following table describes the different operating modes available.

Option	Description
Normal Mode	This is the factory default mode. In this mode, the modem port is connected to the i30 radio board. The modem can operate in circuit switched or packet data connections.
Gateway Mode	This mode allows a non TCP/IP enabled device to connect to the modem port and communicate within the iDEN [®] packet data connection. In this mode, the modem provides a virtual serial connection over the IP network. The modem can accept serial data from the device via the modem port (the DTE). Serial data is placed in IP packets and sent to a predefined port and IP address on the network.
	Serial data received from the IP network is removed from the IP packets and sent to the DTE.

AVL Mode	This mode allows the internal GPS receiver to send GPS NMEA sentences, over the packet data
	network, to a specific port and IP address. When AVL mode is activated, the modem and GPS ports
	are deactivated.

Select Operating Mode

The iR1600 modem is configured to default to Normal mode. The following steps describe how to change the modem's operating mode and configure the modem's communication parameters.

- 1. From the **Remote Configuration screen, click** on the arrow displayed next to the Operational Mode value.
- 2. A drop-down list with the available operating modes appears. Click on the desired operating mode.
- 3. The new value appears next to the **Operating Mode** option.
- 4. Click on the **Reboot** button located at the bottom of the **Remote Configuration** menu to save and initiate the change.

Gateway/AVL Protocol Mode

🗍 iR1600 Remote Configuration -	167.20.47.64	
Connect Tools Help		
Serial Number	0600013438	
Hardware Part Number	4000-C5-FIFM	
Handware Revision	1	
Application Part Number	RFM-8801-2014	
Application Revision	1	
Application Date	3/31/2004	
Application Info	Version 1.5 3/31/2004	
Boot Part Number	RFM-6800-2014	
Bost Revision	1	
I/O Expander Part Number	RFM-8002-2014 8	
I/O Expander Revision		
Operational Mode	Gateway Mode 🔹	
Gateway/Avt Protocol Mode	TCP Client 🔻	
TCP.UOP Configuration	TCP Client	
PAD Configuration	TCP Server	
Sand Desice ID	Hayes TCP Client	
BSAP Configuration	Second Country and	
Ignition Shutdown Delay		
Reboat	Refresh	

Option	Description
TCP Client	In Gateway mode , this selection will cause the iR1600 to use TCP for the transport layer protocol and function as a client and initiate the connection to a TCP server.
	In AVL mode, this selection will cause the iR1600 to use TCP for the transport layer. When AVL pushes data on a timed basis, it always acts as a client and initiates a connection to a server. In this mode, the modem can be polled for AVL data by using the "?P" command string.

Option	Description
TCP Server	In Gateway mode , this selection will cause the iR1600 to use TCP for the transport layer protocol and function as a server and listen for connections from a TCP client.
	In AVL mode, this selection will cause the iR1600 to use TCP for the transport layer. When AVL pushes data on a timed basis, it always acts as a client and initiates a connection to a server. It also has the option of acting as a server and can listen for connections and can be polled for AVL information.
UDP	In Gateway and AVL modes, this selection will cause the iR1600 to use UDP for the transport layer protocol.
Hayes TCP Client	This mode only effects Gateway mode and is a subset of TCP client mode. This mode partially emulates the Hayes compatible packet data mode of the iO1000 modem. When set to this mode, the iR1600 will accept AT commands from the DTE.
BSAP Router	This mode allows the routing of BSAP messages between a host computer (BSAP Level 0) and remote controllers (BSAP LEVEL 1-6) through the iDEN [®] network. Each end, both the host computer, and the remote controllers are set up to expect a direct wired serial interface. (The same as if they were direct wired). The iR1600 accepts the serial BSAP messages and delivers the messages to the proper point.
	Remote Modem - The iR1600 connected to the remote device should be configured to operate in UDP Gateway mode.
	NOTE: When setting up the BSAP network, both the host and remote DTE configuration must be set to NO FLOW CONTROL.

Select Protocol

The following steps describe how to change the modem's Gateway/AVL protocol.

- 1. From the Remote Configuration screen, click on the arrow displayed next to the Gateway/AVL Protocol value.
- 2. A drop-down list with the available protocols appears. Click on the desired protocol.
- **3.** The new value appears next to the Gateway/AVL Protocol option.
- 4. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change.

TCP/UDP Configuration

The iR1600 TCP/UDP Configuration menu allows you to set the communication parameters for the modem. Descriptions of these options are listed below.

🔹 TCP/UDP Configuration		
Remote IP Address	0.0.0.0	
Remote Port Number	1234	
Local Port Number	2100	
Socket Timeout (secs) 1		
Retransmit Timeout (secs) 10		
Keep TCP Client Socket Open		
Access Control List		

Option	Description
Primary Remote IP Address	The primary remote IP address specifies the node to which the iR1600 will communicate.
	TCP Client – in this mode, the address must be set to a valid IP address to which the iR1600 will connect and communicate.
	TCP Server - in this mode, the remote IP address can be set to a valid IP address to indicate that the iR1600 should restrict communications to only the node at that address or other IPs that have been defined on the Access Control List (ACL).
	If you want to allow the iR1600 to communicate with any node at any IP address, then the value "0.0.0.0." should be entered.
	UDP mode – in this mode, the address must be set to a valid IP address to which the iR1600 will send UDP packets.
	If you want to allow the iR1600 to communicate with any node at any IP address, then the value "0.0.0.0." should be entered. If the value is set to "0.0.0.0", then the modem will send data to the address it last connected with.

	 Hayes TCP Client - this field has no impact in Hayes TCP Client mode. AVL mode – in this mode, the address must be set to a valid IP address to which the iR1600 will connect and communicate. If this value is set to 0.0.0.0, AVL mode will not push data. NOTE: Currently, the iR1600 can only communicate with one node at a time.
Remote Port Number	The remote port number specifies the TCP or UDP port to which the iR1600 will connect and communicate. TCP Client – in this mode, the address must be set to a valid port number to which the iR1600 will connect and communicate.
	 TCP Server – in this mode, this value is not used. UDP – in this mode, the address must be set to a valid port number to which the iR1600 will send UDP packets. The modem will send data to the port that it connected with last. Hayes TCP Client - this field has no impact in Hayes TCP Client mode. AVL – in this mode, this value must be set to a valid port number to which the iR1600 will connect and communicate. If the port number is set to 0 AVL mode will not push data

Local Port Number	The local port number specifies the TCP or UDP port through which the iR1600 will communicate.
	TCP Client – in this mode, the value is not used.
	TCP Server – in this mode, the value must be set to the port number to which the iR1600 will listen.
	UDP – in this mode, the address must be set to a valid port number to which the iR1600 will listen for UDP packets.
	Hayes TCP Client - this field has no impact in Hayes TCP Client mode.
	AVL – in this mode, to allow the iR1600 to be polled for AVL data, this value must be set to a valid port number to which the iR1600 will listen for the polling request. If this value is set to 0, then the iR1600 cannot be polled for AVL data.
Socket Timeout	As mentioned previously, TCP is a connection-oriented protocol. Sometimes connections become abandoned for various reasons. To have the iR1600 cleanup abandoned connections, set the socket timeout field. After the specified number of seconds of no activity (either transmission or receive) on that socket, the iR1600 will close out the socket.
	If this value is set to 0, the iR1600 will not close idle sockets. The selection of this value should be carefully chosen and should take into account the communication system as a whole.
	NOTE: This value is only used for TCP connections. The value for this parameter must be greater than the retransmit timeout.
	The range for this parameter is 0-65535 seconds. This parameter defaults to 60 seconds, which is the recommended setting for this parameter.

Retransmit Timeout	As part of its error recovery mechanism, TCP may need to resend a packet. It knows to resend the packet because it did not receive an acknowledgement when it previously sent the packet. When selecting this value, you should keep in mind the transit time for the packet to be sent to the remote node, and for the transit time for the acknowledgement to be received from the remote node. Care should be taken to not set this number too high, since this may cause an inordinate amount of time to recover from an error and the remote system may view this as an error. We recommend setting the value in the range of 5 to 10 seconds.
	NOTE: The value is only used for TCP connections and has no effect in UDP mode. The value for this parameter must be less than the socket timeout.
Keep TCP Client Socket Open	In TCP Client mode, the iR1600 does not open a connection to the server until it has received data from the DTE (and has met one of the events defined in the PAD configuration). This ensures that a connection won't be opened that will then sit idle and unused.
	There are times when this is not always advantageous. For example, if the DTE has no data to send, but the server does want to send data to the DTE, the server will have to wait for the DTE to have data before the connection is opened.
	To set the iR1600 where it will immediately open the socket and to keep it open (regardless of whether the DTE has data to send) you should set this value to Yes.
	NOTE: This setting will work in conjunction with the socket timeout. A socket timeout may occur, causing an open connection to be closed.
	This parameter is not used in TCP Server mode since other PCs. Similarly controls the socket, this parameter is not used in the UDP connection.
Access Control List Configuration	When the modem is in either Gateway or AVL operating mode, it will act as a "listener" and will use the ACL to query for available IP addresses. This option provides access to the Access Control List Menu where IP addresses can be specified.

The following steps describe how to set or change the parameters on the TCP/UDP Configuration menu.

Set the Remote IP Address

- 1. From the Remote Configuration menu, click on the TCP/UDP Configuration option.
- 2. The TCP/UDP Configuration menu appears.
- 3. Enter or change the remote IP address in the Remote IP Address field then click the "X" (close window) icon.
- 4. Click on the **Reboot** button located at the bottom of the **Remote Configuration** menu to save and initiate the change.

Set the Remote Port Number

- 1. From the Remote Configuration menu, click on the TCP/UDP Configuration option.
- 2. The TCP/UDP Configuration menu appears.
- 3. Enter or change the remote port number in the Remote Port Number field then click the "X" (close window) icon.
- 4. Click on the **Reboot** button located at the bottom of the **Remote Configuration** menu to save and initiate the change.

Set the Local Port Number

- 1. From the **Remote Configuration** menu, **click** on the **TCP/UDP Configuration** option.
- 2. The TCP/UDP Configuration menu appears.
- 3. Enter or change the local port number in the Local Port Number field then click the "X" (close window) icon.
- 4. Click on the **Reboot** button located at the bottom of the **Remote Configuration** menu to save and initiate the change.

Set the Socket Timeout Parameter

- 1. From the **Remote Configuration** menu, **click** on the **TCP/UDP Configuration** option.
- 2. The TCP/UDP Configuration menu appears.
- 3. Enter or change the timeout parameter in the Socket Timeout field then click the "X" (close window) icon.

IR1600 Modem

4. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change.

Set Retransmit Timeout Parameter

- 1. From the **Remote Configuration** menu, **click** on the **TCP/UDP Configuration** option.
- 2. The TCP/UDP Configuration menu appears.
- 3. Enter or change the timeout parameter in the Retransmit Timeout field then click the "X" (close window) icon.
- 4. Click on the **Reboot** button located at the bottom of the **Remote Configuration** menu to save and initiate the change.

Enable/Disable Keep TCP Client Socket Open

- 1. From the Remote Configuration menu, click on the TCP/UDP Configuration option.
- 2. The TCP/UDP Configuration menu appears.
- 3. From the **TCP/UDP Configuration** menu, **click** on the box next to the **Keep TCP Client Socket Open** parameter to place a check mark in the box and enable the feature. Click on the box again to remove the check mark and disable the feature. **Click** the "**X**" (close window) icon.
- 4. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change.
Access Control List Configuration Menu – Gateway/AVL

The iR1600 Gateway/AVL Access Control List (ACL) Configuration Menu allows you to populate IP addresses for query. The menu is a lookup table that can store a range of IP addresses and up to 30 IP addresses within the list. When the modem is in either Gateway or AVL operating mode, it will act as a "listener" and will use the ACL to query for IP addresses specified on this list.

📥 TCP/UDP Configuration	×				
Remote IP Address	0.0.0.0				
Remote Port Number	1234				
Local Port Number	2100				
Socket Timeout (secs)	1				
Retransmit Timeout (secs) 10					
✓ Keen ICP Client Socket Open					
Access Control List					

🚔 Gateway/AVL Access Control List Configura 🗙				
Primary Remote IP Address	0.0.0.0			
Remote IP Range Start	255.255.255.255			
Remote IP Range Stop	255.255.255.255			
Remote IP List	255.255.255.255			
	255.255.255.255 🦉			
	255.255.255.255			
	255.255.255.255			
	255 255 255 255 🔎 🗡			

Option	Description		
Primary Remote IP Address	The primary remote IP address specifies the node to which the iR1600 will communicate. TCP Client – in this mode, the address must be set to a valid IP address to which the iR1600 will connect and communicate.		
	TCP Server - in this mode, the remote IP address can be set to a valid IP address to indicate that the iR1600 should restrict communications to only the node at that address.		
	If you want to allow the iR1600 to communicate with any node at any IP address, then the value "0.0.0.0." should be entered.		
	UDP mode – in this mode, the address must be set to a valid IP address to which the iR1600 will send UDP packets.		
	Hayes TCP Client - this field has no impact in Hayes TCP Client mode.		
	AVL mode – in this mode, the address must be set to a valid IP address to which the iR1600 will connect and communicate. If this value is set to 0.0.0.0, AVL mode will not push data.		
	NOTE: Changes to this parameter can be made on either the Access Control List Configuration Menu or from the TCP/UDP Configuration Menu.		
	NOTE: Currently, the iR1600 can only communicate with one node at a time.		
Remote IP Address Range Start	This option allows you to enter the start value of the IP addresses that will be queried. This parameter accepts a dotted-decimal IP numbers that range from 0 to 255.		
Remote IP Address Range Stop	This option allows you to enter stop value of the IP addresses that will be queried. This parameter accepts a dotted-decimal IP numbers that range from 0 to 255.		
Remote IP Address List	This option allows you to enter the individual IP addresses (up to 30) that will be queried. This parameter accepts a dotted-decimal IP numbers that range from 0 to 255.		

The following steps describe how to enter IP addresses on the Access Control List Configuration menu.

Set the Remote IP Address

- 1. From the Remote Configuration menu, click on the TCP/UDP Configuration option.
- 2. The TCP/UDP Configuration menu appears. Select the Access Control List option.
- 3. The Gateway/AVL Access Control List menu appears.
- 4. Enter or change the remote IP address in the Remote IP Address field then click the "X" (close window) icon.
- 5. Click on the **Reboot** button located at the bottom of the **Remote Configuration** menu to save and initiate the change.

Set the Remote IP Range – Start Value

- 1. From the Remote Configuration menu, click on the TCP/UDP Configuration option.
- 2. The TCP/UDP Configuration menu appears. Select the Access Control List option.
- 3. The Gateway/AVL Access Control List menu appears.
- 4. Enter or change the start value for the range of IP addresses in the Remote IP Range Start field then **click** the "X" (close window) icon.
- 5. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change.

Set the Remote IP Range – Stop Value

- 1. From the **Remote Configuration** menu, **click** on the **TCP/UDP Configuration** option.
- 2. The TCP/UDP Configuration menu appears. Select the Access Control List option.
- 3. The Gateway/AVL Access Control List menu appears.
- **4.** Enter or change the stop value for the range of IP addresses in the Remote IP Range Stop field then **click** the "**X**" (close window) icon.
- 5. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change.

Set ACL Address List

- 1. From the **Remote Configuration** menu, **click** on the **TCP/UDP Configuration** option.
- 2. The TCP/UDP Configuration menu appears. Select the Access Control List option.
- 3. The Gateway/AVL Access Control List menu appears.
- 4. Select the arrow to bring up the list of IP address. Select the number from the list that you want to enter or change the IP address value. Click the "X" (close window) icon.
- 5. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change.

DTE Configuration Menu

This menu configures communication parameters on the iR1600 to control how it communicates to the DTE in Gateway mode.

NOTE: These settings are only used in Gateway mode and do not change the communications settings to the radio card in the iR1600.

DTE Port Configuration				
Data Rate	19200 💌			
Data Bits	8 🗸			
Stop Bits	1 🔹			
Parity	None 🔻			
Flow Control	None 🔻			

The following table lists the parameters and descriptions available on the DTE Configuration Menu.

Option	Description	Recommended Setting
Data Rate	This option allows you to select the desired date rate (300 to 115200) that the iR1600 will communicate while in Gateway mode.	19200
Data Bits	This option allows you to select the number of data bits (5 thru 8) when the iR1600 is communicating in Gateway mode.	8
Stop Bits	This option allows you to select the number of stop bits (1 or 2) when the iR1600 is communicating in Gateway mode.	1
Parity	This option allows you to select the parity (None, Even or Odd) when the iR1600 is communicating in the Gateway mode.	None
Flow Control	This option allows you to select the flow control (None or Hardware) that the iR1600 will use when communicating in Gateway mode.	Either None or Hardware. Hardware is recommended for Gateway Mode.

The following steps describe how to set or change the parameters on the DTE Configuration menu.

Select Date Rate

- 1. From the **Remote Configuration** menu, **click** on the **DTE Configuration** option.
- 2. The DTE Configuration menu appears.
- 3. Select the value from the drop-down list for the Data Rate then **click** the "X" (close window) icon.
- 4. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change.

Select Stop Bits

- 1. From the **Remote Configuration** menu, **click** on the **DTE Configuration** option.
- 2. The DTE Configuration menu appears.
- 3. Select the value from the drop-down list for the Stop Bits then **click** the "**X**" (close window) icon.
- 4. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change.

Select Parity

- 1. From the **Remote Configuration** menu, **click** on the **DTE Configuration** option.
- 2. The DTE Configuration menu appears.
- 3. Select the value from the drop-down list for the Parity then click the "X" (close window) icon.
- 4. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change.

Select Flow Control

- 1. From the **Remote Configuration** menu, **click** on the **DTE Configuration** option.
- 2. The DTE Configuration menu appears.
- 3. Select the value from the drop-down list for the Flow Control then **click** the "X" (close window) icon.
- 4. Click on the **Reboot** button located at the bottom of the **Remote Configuration** menu to save and initiate the change.

PAD Configuration Menu

The PAD (Packet Assembler/Disassembler) Configuration Menu allows you to configure the events that will trigger the modem to send data that is received from the DTE to the remote. These parameters are used only when the modem is operating in the Gateway mode. The iR1600 only sends data when at least one of the trigger events is true. The two values are used in conjunction to provide the operational characteristics of Gateway mode. You should carefully consider the entire system when setting these values.

🚔 PAD Configuration	×
PAD Inter-Character Timeout (sec/10)	10
PAD Maximum Packet Length (bytes)	900

The following table lists the parameters and descriptions available on the PAD Configuration Menu.

Option	Description			
PAD Inter-Character Timeout	This parameter indicates a pause between received characters in tenths of a second. If the DTE stops sending characters for at least this amount of time, the iR1600 will send whatever data it has received up to that point from the DTE to the remote. The value is in tenths of a second, so if you want to send data after a two-second delay, the value should be set to 20.			
PAD Maximum Packet Length	 This parameter indicates the number of bytes of data to receive from the DTE before sending. For example, if this value was set to 20, after at least 20 bytes have been received from the DTE, the iR1600 will send 20 bytes of the received data. These two parameters work together to determine when data is sent. The following two examples best illustrate this using 20 for the inter-character timeout and 20 byte as the maximum packet length. 1. 19 characters are received from the DTE and then the DTE stops. After 2 seconds, the iR1600 sends the 19 received characters. 2. The DTE sends data to the iR1600 with no pauses. After 20 bytes have been received from the DTE, the iR1600 sends them. 			

The following steps describe how to set the parameters on the PAD Configuration menu.

Select PAD Inter-Character Timeout

- 1. From the **Remote Configuration** menu, **click** on the **PAD Configuration** option.
- 2. The PAD Configuration menu appears.
- **3.** Enter or change the timeout parameter in the PAD Inter-Character Timeout field then **click** the "**X**" (close window) icon.
- 4. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change.

Select PAD Maximum Packet Length

- 1. From the **Remote Configuration** menu, **click** on the **PAD Configuration** option.
- 2. The PAD Configuration menu appears.
- 3. Enter or change the parameter in the PAD Maximum Packet Length field then click the "X" (close window) icon.
- 4. Click on the **Reboot** button located at the bottom of the **Remote Configuration** menu to save and initiate the change.

AVL Configuration Menu

This menu is used to configure the operational characteristics of the iR1600 in AVL (Automatic Vehicle Location) mode. When in AVL mode, it is possible for the iR1600 to go out of cell coverage, meaning that it will not be able to report its GPS data (i.e. position, speed, etc.) back to the host system. The iR1600 has store and forward capabilities to handle the potential lost of GPS data. The store and forward parameters can be set up from the AVL Configuration Menu.

👙 AYL Configuration	X
AVL Report Period (secs)	300
Check sent	ences to send.
🗹 GGA - Global Positioning	System Fixed Data
VTG - Course Over Groun	nd and Ground Speed
🗹 RMC - Recommended Mi	nimum Specific GNSS Data
GSV - GNSS Satellites in	View
GSA - GNSS DOP and Act	tive Satellites
🗹 GLL - Geographic Positio	n - Latitude/Longitude
🗹 ZDA - Time & Date	
🗹 ELU01 - eLutions Proprie	etary 01
ELUIO - eLutions Proprie	tary - I/O States
Other A	VL Options
🗹 Store-and-Forward Enab	led
Store-and-Forward Sentenc	e 🖲 RMC
	O ELU01
Restrict Pollers	

The following table lists the parameters and descriptions available on the AVL Configuration Menu.

Command	Description	Recommended setting
AVL Report Period	This parameter specifies how often the iR1600 will 'push' AVL (GPS) data to the remote. If the value is set to " 0 ", this feature is disabled and the	
	modem will never push AVL data to the remote.	

NMEA Sentence	 This option specifies which NMEA sentences will be sent to the remote. If these options are set to Yes, the iR1600 will attempt to send the chosen sentences at the requested interval or upon request. Refer to the NMEA specification for what is contained in each of these sentences and their format. 	Any combination of one or more of the 7 available standard NMEA sentences and the 2 eLutions proprietary NMEA sentences can be configured to be sent to a remote host.	
ELU01 (eLutions Proprietary) Sentence	This option specifies whether the eLutions proprietary sentence will be sent to the remote at the requested interval or upon request. If this option is set to Yes , the modem will send the eLutions proprietary sentence (\$PELU01). Refer to the eLutions \$PELU01 sentence table for what is contained in each of these sentences and their format.	Any combination of one or more of the 7 available standard NMEA sentences and the 2 eLutions proprietary NMEA sentences can be configured to be sent to a remote host.	
ELUIO (eLutions proprietary) I/O Sentence	 This option specifies whether the eLutions proprietary I/O sentence will be sent to the remote at the requested interval or upon request. If this option set to Yes, the modem will send the eLutions proprietary I/O sentence (\$PELUIO). Refer to the eLutions \$PELUIO sentence table for what is contained in each of these sentences and their format. 	Any combination of one or more of the 7 available standard NMEA sentences and the 2 eLutions proprietary NMEA sentences can be configured to be sent to a remote host.	
Store and Forward uses	This option allows you to select which sentence format the modem will use when the store and forward feature is enabled. If set to RMC , the modem will store the RMC (standard NMEA "Recommended Minimum Specific GPS/Transit Data") messages for sending when coverage is reestablished. If set to ELU01 , the modem will store and forward the eLutions Proprietary sentence (\$PELU01).		

Store and Forward mode	This option allows you to enable the store and forward feature on the modem. If set to Yes , the store and forward feature is enabled. If set to No , the store and forward feature is disabled.	
Restrict Pollers	This option specifies whether the iR1600 should restrict who may poll it for AVL data. If set to Yes , then only the remote with the Remote IP address specified in the TCP/UDP configuration menu may request AVL data.	

eLutions Proprietary Sentence (\$PELU01)

Field	Format	Max Size	Notes	Source
Unit ID	XXXXXXXXXX,	11	Serial Number (optional)	iR1600
Identifier	\$PELU01,	7	Specifies this message	
UTC Time	HHMMSS.SSS,	11		RMC
Status	Х,	2	Status = V when valid, A when not valid	RMC
Latitude	DDMM.MMMM,	10	North or South specified in next field	RMC
Latitude N/S flag	Х,	2	N = North, S = South	RMC
Longitude	DDDMM.MMMM,	11	East or West specified in next field	RMC
Longitude E/W flag	Х,	2	E = East, W = West	RMC
Speed over ground	SSS.S,	6	Knots	RMC
True Direction	DDD.D,	6	True Azimuth	RMC
UTC Date	DDMMYY,	7	Date	RMC
Magnetic Variation	DD.D,	5	Degrees	RMC
Variation Direction	F,	2	E = East, W = West	RMC
Satellites used	NN,	3	From \$GPGGA message	GGA
MSL Altitude	XXXXX,	6	Meters (integer)	GGA
Geoid Separation	XXX,	5	Meters (signed integer)	GGA
PDOP	X.XX,	5	Position Dilution of Precision	GSA

Field	Format	Max Size	Notes	Source
HDOP	X.XX,	5	Horizontal Dilution of Precision	GSA
VDOP	X.XX,	6	Vertical Dilution of Precision	GSA
Digital Inputs	123I,	5	1 = ON, 0 = OFF (3 characters for 3 inputs plus ignition sense, I)	iR1600
Digital Outputs	12,	3	1 = ON, 0 = OFF (2 characters for 2 outputs) Currently Not Used.	iR1600
Analog Input1	XXXXX,	6	Analog 1 value (Decimal)	iR1600
Analog Input1 Mode	m,	2	Analog 1 mode m = mA, V = volts	iR1600
Analog Input2	XXXXX,	6	Analog 2 value (Decimal)	iR1600
Analog Input2 Mode	m	1	Analog 2 mode m = mA, V = volts	iR1600
Checksum	*CC	3	Checksum	Calc.
CR-LF	<cr><lf></lf></cr>	2		
	Maximum Stored	tbd		
	Maximum Sent	tbd		

eLutions Proprietary I/O Sentence (\$PELUIO)

Field	Format	Max Size	Notes	Source
Identifier	\$PELUIO,	8	Specifies this message	
Digital Inputs	123I,	5	1 = ON, 0 = OFF (3 characters for 3 inputs plus ignition sense, I)	iR1600
Digital Outputs	12,	3	1 = ON, 0 = OFF (2 characters for 2 outputs) Currently Not Used.	iR1600
Analog Input1	XXXXX,	6	Analog 1 value (Decimal)	iR1600
Analog Input1 Mode	m,	2	Analog 1 mode m = mA, V = volts	iR1600
Analog Input2	XXXXX,	6	Analog 2 value (Decimal)	iR1600
Analog Input2 Mode	m	1	Analog 2 mode m = mA, V = volts	iR1600
Checksum	*CC	3	Checksum	Calc.
CR-LF	<cr><lf></lf></cr>	2		

The following steps describe how to set the parameters on the AVL Configuration menu.

Set AVL Report Period

- 1. From the **Remote Configuration** menu, **click** on the **AVL Configuration** option.
- 2. The AVL Configuration menu appears.
- 3. Enter or change the value in the AVL Report Period field then **click** the "**X**" (close window) icon.
- 4. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change.

Select Sentence to Send

- 1. From the **Remote Configuration** menu, **click** on the **AVL Configuration** option.
- 2. The AVL Configuration menu appears.
- 3. Click on the box next to the sentence format that you want the modem to send then click the "X" (close window) icon.
- 4. Click on the **Reboot** button located at the bottom of the **Remote Configuration** menu to save and initiate the change.

Select eLutions Proprietary Sentence

- 1. From the **Remote Configuration** menu, **click** on the **AVL Configuration** option.
- 2. The AVL Configuration menu appears.
- 3. From the AVL Configuration menu, click on the box next to the ELU01- eLutions Proprietary 01 parameter to place a check mark in the box and enable the feature. Click on the box again to remove the check mark and disable the feature. Click the "X" (close window) icon.
- 4. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change.

Select eLutions I/O Sentence

- 1. From the **Remote Configuration** menu, **click** on the **AVL Configuration** option.
- 2. The AVL Configuration menu appears.
- 3. From the AVL Configuration menu, click on the box next to the ELU01- eLutions Proprietary I/O States parameter to place a check mark in the box and enable the feature. Click on the box again to remove the check mark and disable the feature. Click the "X" (close window) icon.
- 4. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change.

Enable/Disable Store and Forward

- 1. From the Remote Configuration menu, click on the AVL Configuration option.
- 2. The AVL Configuration menu appears.
- 3. From the AVL Configuration menu, click on the box next to the Store and Foward parameter to place a check mark in the box and enable the feature. Click on the box again to remove the check mark and disable the feature. Click the "X" (close window) icon.
- 4. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change.

Select Store and Forward Sentence Format

- 1. From the Remote Configuration menu, click on the AVL Configuration option.
- 2. The AVL Configuration menu appears.
- **3.** Click on the box next to the Store and Forward sentence format that you want the modem to send then click the "X" (close window) icon.
- 4. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change.

Enable/Disable Restrict Poller

- 1. From the **Remote Configuration** menu, **click** on the **AVL Configuration** option.
- 2. The AVL Configuration menu appears.
- 3. From the AVL Configuration menu, click on the box next to the Restrict Poller parameter to place a check mark in the box and enable the feature. Click on the box again to remove the check mark and disable the feature. Click the "X" (close window) icon
- 4. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change.

Set Send Device ID Parameter

This option specifies whether the modem's serial number will be sent with the data when the operating mode is set to either Gateway or AVL mode. If this option is set to "**Yes**", the iR1600 will append the serial number at the beginning of a stream of data. Since TCP is a streaming protocol, chunks of data may be coalesced where multiple chunks of data appear within a single TCP packet. Therefore, the serial number may appear multiple times within a single TCP packet. TCP packetizing should be transparent to the remote application layer. UDP packets don't have the same constraints as TCP packets in this regard.

IR1600 Remote Configuration -	167.20.47.64		
Connect Tools Help			
Serial Number	0800013408		
Hardware Part Number	4000-C5-RFM		
Hardware Revision	1		
Application Part Number	RFM-6001-2014		
Application Revision	1		
Application Date	3/18/2004		
Boot Part Number	RFM-6000-2014		
Boot Revision	1		
I/O Expander Part Number	RFM-6002-2014		
NO Expander Revision	1		
Operational Mode	Gateway Mode		
Operational Made	Narmal Mode TCP Client		
Gateway/Avi Protocol Mode			
TCP/UDP Configuration	DTE Port Configuration		
PAD Configuration	AVL Configuration		
Send Device ID	Remote Support Configuration		
PSAP Configuration	Security Configuration		
Ignition Shutdown Delay			
Reboot	Refresh		

The following steps describe how to enable or disable the Send Device ID parameter.

- 1. From the **Remote Configuration** menu, **click** on the box next to the **Send Device ID** parameter to place a check mark in the box and enable the feature. Click on the box again to remove the check mark and disable the feature. **Click** the "**X**" (close window) icon.
- 2. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change.

Remote Support Configuration Menu

The Remote Support Configuration menu allows you to enter the IP addresses and communication parameters for the host and remote units to facilitate over the air updates and modem configuration.

🚔 Remote Support (Configuration	×
Remote IP Address	255.255.255.255	
Remote Port Number	65535	
Local Port Number	65535	
🗹 Restrie	ct Remote Address	
Acce	ss Control List	
Remote Support A	Access Control List Config	×
Remote Support A Primary Remote IP Ad	Access Control List Config ddress 255.255.255.255	X
Remote Support A Primary Remote IP A Remote IP Range Sta	Access Control List Config ddress 255.255.255.255 rt 255.255.255.255	×
Remote Support A Primary Remote IP A Remote IP Range Sta Remote IP Range Sto	Access Control List Config ddress 255.255.255.255 Int 255.255.255.255 Ip 255.255.255.255	X
Remote Support A Primary Remote IP A Remote IP Range Sta Remote IP Range Sto Remote IP List	Access Control List Config ddress 255.255.255.255 rt 255.255.255.255 p 255.255.255.255 255.255.255.255	
Remote Support A Primary Remote IP A Remote IP Range Sta Remote IP Range Sto Remote IP List	Access Control List Config ddress 255.255.255.255 int 255.255.255.255 p 255.255.255.255 255.255.255.255 255.255.	
Remote Support A Primary Remote IP A Remote IP Range Sta Remote IP Range Sto Remote IP List	Access Control List Config ddress 255.255.255.255 int 255.255.255.255 p 255.255.255.255 255.255.255.255 255.255.	
Remote Support A Primary Remote IP A Remote IP Range Sta Remote IP Range Sto Remote IP List	Access Control List Config ddress 255.255.255.255 rt 255.255.255.255 255.255.255.255 255.255.	

Option	Description	
Remote IP Address	This option allows entry of the remote IP address specifies the node to which the remote iR1600 (field devices) will listen to for over the air configuration.	
Remote Port Number	This option allows entry of the remote port number specifies the node to which the remote iR1600 (field devices) will listen to for over the air configuration.	
Local Port Number	This option allows entry of the local port number specifies the node to which the remote iR1600 (field devices) will listen to for over the air configuration.	

Restrict Remote Address	This option allows you to restrict communication to a specified IP defined in option '1' and addresses on the Access Control List, if the parameter is set to "Yes". If the parameter set to 'No", then the restriction is disabled and opens communication up to any address.
Access Control List Configuration	This option takes you to the Access Control List Configuration menu where IP addresses of the field modems are entered. Addresses on this list will receive remote updates and configuration.

The following steps describe how to set the parameters on the Remote Support Configuration menu.

Set the Remote IP Address

- 1. From the **Remote Configuration** menu, **click** on the **Remote Support Configuration** option.
- 2. The Remote Support Configuration menu appears.
- 3. Enter or change the remote IP address in the Remote IP Address field then click the "X" (close window) icon.
- 4. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change.

Set the Remote Port Number

- 1. From the **Remote Configuration** menu, **click** on the **Remote Support Configuration** option.
- 2. The Remote Support Configuration menu appears.
- 3. Enter or change the remote port number in the Remote Port Number field then click the "X" (close window) icon.
- 4. Click on the **Reboot** button located at the bottom of the **Remote Configuration** menu to save and initiate the change.

Set the Local Port Number

- 1. From the **Remote Configuration** menu, **click** on the **Remote Support Configuration** option.
- 2. The Remote Support Configuration menu appears.
- 3. Enter or change the local port number in the Local Port Number field then click the "X" (close window) icon.
- 4. Click on the **Reboot** button located at the bottom of the **Remote Configuration** menu to save and initiate the change.

Enable/Disable Restrict Remote Address

- 1. From the **Remote Configuration** menu, **click** on the **Remote Support Configuration** option.
- 2. The Remote Support Configuration menu appears.
- 3. From the **Remote Support Configuration** menu, **click** on the box next to the **Restrict Remote Address** parameter to place a check mark in the box and enable the feature. **Click** on the box again to remove the check mark and disable the feature. **Click** the "**X**" (close window) icon.
- 4. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change

Set ACL Address List

- 1. From the **Remote Configuration** menu, **click** on the **Remote Support Configuration** option.
- 2. The Remote Support Configuration menu appears. Select the Access Control List option.
- 3. The Remote Support Access Control List menu appears.
- 4. Select the arrow to bring up the list of IP address. Select the number from the list that you want to enter or change the IP address value. **Click** the "X" (close window) icon.
- 5. Click on the **Reboot** button located at the bottom of the **Remote Configuration** menu to save and initiate the change.

BSAP Router Configuration Menu

The BSAP Router Configuration menu allows you to enter the IP Address and port information of devices that will route BSAP messages between a host computer (BSAP Level 0) and remote controllers (BSAP LEVEL 1-6) through the iDEN[®] network. Each end, both the host computer, and the remote controllers are set up to expect a direct wired serial interface. (The same as if they were direct wired). The iR1600 accepts the serial BSAP messages and delivers the messages to the proper point.

NOTE: The host modem can store up to sixty (60) remote devices' address. The complete IP address and BSAP address is entered on the BSAP Router Configuration Menu. If the Access Control List feature is being used on either host or remote modem, then the IP addresses must also be entered in the Access Control List I. Otherwise, the iR1600 should have their remote address in TCP/UDP mode configuration set to 0.0.0.0 (allow all).

NOTE: When setting up the BSAP network, both the host and remote DTE configuration must be set to NO FLOW CONTROL.

👙 BSAP Router (Configuration		×
	🗹 Make BSAP	global headers local	
Local	Global	Route	
255	m	255.255.255.255	-
255	ffff	255.255.255.255	33
255	ffff	255.255.255.255	200
255	ffff	255.255.255.255	
255	m	255.255.255.255	-

Enter IP Addresses

- 1. From the **BSAP Router Configuration** menu, enter the Local, Global and Route addresses for the BSAP routes for your network then **click** the "**X**" (close window) icon
- 2. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change.
 - NOTE: Enter the global address of the device if it is at Level 1 through 6 or enter the local address for devices at Level 1. When entering a global address, leave the local address set to 255 (not used). When entering a local address for a device at Level 1, the Global address may also be specified.
 - NOTE: The IP addresses entered in the BSAP Route Configuration menu must match the addresses entered in the Access Control List.

Security Configuration Menu

This option, available in the iR1600 Operating Mode Configuration menu, allows you to enable or disable the encryption feature for the modem. If this option is set to "Yes", then the encryption feature is enabled. If this value is set to "No", then the encryption feature is disabled. The cipher key information that will be validated for access is also entered on this menu.

Cipher Key 00000000000000000000000000000000000	
Generate Key	
🗹 Enable Encryption	

NOTE: The modem must be set to Gateway mode for the encryption feature to work regardless of whether it is enabled on this menu.

The following steps describe how to set the parameters on the Security Configuration menu.

Enter Cipher Key Information

- 1. From the **Remote Configuration** menu, **click** on the **Security Configuration** option.
- 2. The Security Configuration menu appears.
- 3. Enter the key information in the Cipher Key field then **click** the "**X**" (close window) icon.
- 4. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change.

Generate Key

- 1. From the **Remote Configuration** menu, **click** on the **Security Configuration** option.
- 2. The Security Configuration menu appears.
- 3. Click the Generate Key button to obtain a system generated Cipher Key number.

4. The Cipher Key Changed dialog box appears. Click "Yes" to send the new key information to the modem.



- 5. Click the "X" (close window) icon.
- 6. Click on the **Reboot** button located at the bottom of the **Remote Configuration** menu to save and initiate the change.

Enable/Disable Encryption

- 1. From the **Remote Configuration** menu, **click** on the **Security Configuration** option.
- 2. The Security Configuration menu appears.
- 3. From the **Security Configuration** menu, **click** on the box next to the **Enable Encryption** parameter to place a check mark in the box and enable the feature. Click on the box again to remove the check mark and disable the feature. **Click** the "**X**" (close window) icon.
- 4. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change.

Ignition Shutdown Delay

This option, available in the iR1600 Operating Mode Configuration menu, allows you to set the delay period (in seconds) that the modem will wait before shutting down. The delay timer will commence when an ignition sense is no longer detected (e.g., vehicle is turned off).

🛃 193600 Remote La Águsstari - No	Connection Selected	
tile finds fielp		
Serial Number Hantwore Part Number Hantwore Reasonn Application Part Number Application Revision Application Date	0800013408 4000-C5-RFM 1 RFM-6001-2014 1 7/2/04	
Application Info Anon Part Number Duol Revision I/O Expander Part Number I/O Expander Revision	Introduct Provided eLutions AVL version 1.2.1 7/2/04 RFM-6001-2014 1 RFM-6001-2014 1	
Operational Mode	Normal Vinde 💌	
Galeway/Aid Protocol Mode	TCP Client 👻	
TCP/UDP Configuration	DTE Port Configuration	
PAD Configuration	AVE Configuration	
Send Device ID	Remote Support Configur	
85AP Configuration	Security Configuration	
Ignition Shutdown Delay	0	
Allow Cateway Mode GPS Pol		
Rabert	Refresh	

The following steps describe how to set the Ignition Shutdown Delay parameter.

Set Ignition Shutdown Delay Parameter

- 1. From the **Remote Configuration** menu, click on the blank field next to the **Ignition Shutdown Delay** option.
- 2. Enter the number of seconds you want to set for the delay parameter (0-65534 seconds). For example, if you want the modem to wait for 5 minutes before shutdown, then you would enter "300" (5 times 60 seconds=300) as the parameter.
- 3. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change.

Allow Gateway Mode GPS Polling

When enabled, this option allows the modem to poll for GPS data when it is operating in Gateway mode. The interval for polling is set within the AVL Configuration menu.

🐣 400600 Remote Loringuistion - No	Connection Selected 📃 🔍 🗶		
title finals field			
Serial Number	0800013408		
Harrteare Pair, Number	4000-C5-RFM		
Hardware Resiston	1		
Application Part Number	RFM-6001-2014		
Application Revision	1		
Application Date	7/2/04		
Application info	eLutions AVL version 1.2.1 7/2/04		
Door Part Number	RFM-6001-2014		
Dout Revision	1		
1/O Expander Part Number	RFM-6001-2014		
100 Expander Revision	1		
Operational Mode	Normal Xinde 🔷 💌		
Gateway/Aul Protocol Mode	TCP Client 👻		
TCP/UDP Configuration	DTE Port Configuration		
PAD Configuration	AVE Configuration		
Send Device ID	Remote Support Configur		
BSAP Configuration	Security Configuration		
ignition Shutdown Dellay	0		
ignition Shutdown Delay	0		
Ignition Shutdown Delay T Allow Gateway Hode GPS Pol Reboot	0 Refresh		

Enable Set Ignition Shutdown Delay Parameter

- 1. From the **Remote Configuration** menu, **click** on box to the left of the **Allow Gateway Mode GPS Polling** parameter to place a check mark in the box and enable the feature. Clicking on the box again will remove the check mark and disable the feature.
- 2. Click on the Reboot button located at the bottom of the Remote Configuration menu to save and initiate the change.

Firmware Update

This option allows you to update the remote modem's firmware.

🌲 A I	COOReconite Cooliguratio	m - Mn	Connection	Relectori	
File	Tools Help				
	Finmware Update				
	1/O Legnander				
	Time Since Buot	5			
	Get Log				
	Application Part North				
	Application Revision				
	Application Date				
	Applo allo or Info				
	Boot Part Number				
	Baca Revision				
- 17	O Expander Part Num	uer			
	1/O Expander Revisio	n			
	Operational Node				-
Ga	кежау/Амі Ргатосаї И	ode			•
	CCYUDP Configeratio	л	UIL	fort Configure	Auvn 👘
	PAD Configuration		AV	i. Configurati	n
	E Sand Device ID		Remote	Suggert Con	ligur
	IPAP Configuration		Sec u	nty Lontogers	d uuru
1	gnations "shut down. Het	ey 👘	II		
e Al	low Gateway Mode CP	S Pol			
	Betweet			Refresh	

The following steps describe to how update a remote modem's firmware.

Update Remote Modem's Firmware

- 1. Connect to the desired remote modem (see detailed steps for connecting to a remote modem in this guide).
- 2. From the **Remote Configuration** menu bar, click on the **Tools** option.
- 3. Select the Firmware Update option from the Tools menu.

4. The **Firmware Update** screen appears. Select the file location and filename of the upgrade you want to send and click on **Send**.

	14.000			100000000	
CANAR BAL	iii Local De	MI (C3		14 đ	口题上
Bascan	d documen	4.64			
RESETL	DG.TRI				
Beach	within				
Bernah	nd.00km				
SCAND	SKLOG				
Serup	10.101				
•1				-	3
to Nator	Afred	erelt bis			
ites of jup	e All File	£			
				Scel	Cercit
		Pick the Brown	e brange to sore	0	

5. As the program sends the upgrade file to the remote modem, you will notice that the Send button is disabled. A message will appear, indicating that the send process is completed.

I/O Expander

This option allows you to view and manage the remote modem's input/output parameters and values.

🐣 ata	600 Remote Loninguratio	Connection	Selected		
lile	Tuois Help				
	Firmware Bydate				
	1/O Expander				
	Time Since (Âm	r –			
	Cel Log				
Application Part Number					
	Application Revision				
	Application Date				
	Application Info				
	Hout Ped Number				
	Baot Revision				
_ Q	O Pepander Part Num!	197			
	1/O Expander Revision				
	Operational Mode				-
Galeway//withrotocol Wode				-	
TCP/IIDP Configuration		DTF	Pam Caniligues	rinn	
	PAD Configuration		AV	L Configuratio	n I
	🗌 Semi Device (0)		Remute	Support Cost	ligini
	RSAP Configuration		Seru	rley Configura	rian
1	gairian Shurdowa Deia	w	Û.		
е Л	low Galeway Mode GIT				
	Reham			Berret	

The following steps describe to how to view and update the modem's I/O values.

View Input/Output values

1. From the **Remote Configuration** menu bar, click on the **Tools** option.

2. Select the I/O Expander option from the Tools menu. The I/O Expander Test window appears.



- 3. Select on the I/O value that you want to view then select the "**R**" button next to the value.
- 4. The modem's current value will display in the field.
- 5. Click the "X" (close window) button to return to the Remote Configuration window.

Update I/O Remote Values

- 1. From the **Remote Configuration** menu bar, click on the **Tools** option.
- 2. Select the I/O Expander option from the Tools menu. The I/O Expander Test window appears.
- 3. Double-click on the I/O value that you want to change. The field will turn blue.
- 4. Enter or change the I/O value then select the "W" button next to the value to save the change
- 5. Click the "X" (close window) button to return to the Remote Configuration window.

Time Since Boot

This option allows you to view the number of days that has lapsed since the modem was last booted.

🌲 🗷	1600 Remote Coolign stics - No	Connection Selected 📃 🔲 🗙		
File	Tools Help			
	Firmware Update			
	1/01 Expander			
	Time Since Boot :			
	Gettag 👌			
	Application Part Number			
	Application Revision			
	Application Date			
	Application Into			
	Boos Part Number			
	Boot Revision			
- 17	O Expander Peri Number			
	1/0 Expander Newson			
	One rational Mode			
-				
(0	deway/Act Postment Mede	-		
	TCP/HOP Co nfiguration	DTE Page Configuration		
	PAD Configuration	AVI. Configuration		
	🗌 Send Drefire ID	Remote Support Configur		
	BSAP Configuration	Security Configuration		
1	ignining Shurdown Delay	r		
vi Allow Gateway Hode GPS Pol				
	Rebout	Refresh		

View Time Since Boot

- 1. From the **Remote Configuration** menu bar, click on the **Tools** option.
- 2. Select the Time Since Boot option from the Tools menu.



- 3. The **Time Since Boot** window appears displaying a message that it is trying to acquire the information requested.
- 4. Once the information has been successfully acquired, the number of days will appear.
- 5. Click the "Exit" button to close the window and return to the Remote Configuration window.

Get Log

This option allows you to view a log of events for the remote modem. The application will store up to 32 entries (events).

Contractor of the second	overset an order to a
The TALK Loga	
I ITTAUS DOGUE	
full specific	
Inter Secondary 1	
Lat in the	
Augstein um 6. Mitter für	
Observator Rondau	
oppression reno	
Lett Letter	
Info Committee Beer sheeden.	
PO De auto Bres es	
Ocernel shell kinde	-
Terrory/and framework three	-
TOMOR Confusion	OTE for Carlingela
NE Can' Guis, as	AML Configurations
Sans Danka (D	Nervore Duppern Configuration
uska Consignments	second Lan gamper
125 YO S ABJORNE LEDGY	k
Alson Terrory Redected Fills	
14000	MITTUR

View Event Log

- 1. From the **Remote Configuration** menu bar, click on the **Tools** option.
- 2. Select the Get Log option from the Tools menu.
- 3. The **iR1600 Event Log** window appears displaying a message that it is trying to acquire the information requested.



- 4. Once the information has been successfully acquired, the logged events will appear.
- 5. Click the "Exit" button to close the window and return to the Remote Configuration window.

# #1600 Event Log	2
Connecting.	
Reading.	. 8
1 days 1E 42 35-Debug info-SignalEtat, Bignal OK	
1 days 1E 43 35 Debug info Regular Send	
1 days 1E 43 55 Debug info BighalBtat Bignal OK	
1 days 1E 43 55-Debug info Regular Send	1
1 days 1E 4415-Dablug info-SignalStat. Signal OK	
1 days 1E 44 15-Debug info-Regular Send	15
an analysis of a star share and	-
Esit	

SAFETY NOTICE

The following information is important for the safe and efficient operation of the iR1600 modem. Please read this safety notice before operating the modem.

Safe and Efficient Operation Guidelines

Your modem contains a transmitter and receiver. When it is ON, it receives and transmits radio frequency (RF) energy. The modem operates in the frequency range of 806 MHz to 870 MHz and utilizes the digital modulation techniques. This product is authorized by FCC Rule Part 47CFR2.989 (b) which states that it should be used in such a way that it maintains a distance of at least 8 inches (20 cms) between the human body and the radio's antenna or modem. When you use your modem, the system handling your call controls the power level at which your modem transmits. The output power level typically varies from 0 mW to 700 mW.

Exposure to Radio Frequency Energy

Your modem is designed to comply with the United States Federal Communications Commission, Code of Federal Regulations; FCC part 90-sub part S, and FCC-part 15, Class B. The modem complies with FCC's national standards and guidelines regarding exposure of human beings to radio frequency electromagnetic energy.

Medical and Personal Electronic Devices

Most electronic equipment is protected from RF energy. However, certain equipment may not be shielded against RF signals being emitted from your modem.

Pacemakers

Operators should not use the modem if individuals with pacemakers are within 6 inches (0.15 meters) of the antenna.

Hearing Aids

The modem may interfere with hearing aid devices. Individuals who experience such interference should consult the hearing aid manufacturer to discuss alternative solutions.

Other Medical Devices

Individuals who have other medical devices not specifically mentioned in this safety notice may want to consult their physician or the manufacturer of the device to determine if it is adequately protected from external RF energy.

Interference with Other Electronic Devices

RF energy may affect improperly installed or inadequately protected electronic operating and entertainment systems in motor vehicles. Check with the manufacturer or representative to determine if these systems are adequately shielded from external RF energy. It is recommended that you also check with the manufacturer of any equipment that has been added to the vehicle.

This page intentionally left blank.

APPENDIX A: GLOSSARY

This glossary contains terms and definitions used within this guide. It is by no means exhaustive of terms that you may come across.

ASCII

American Standard Code for Information Interchange. A standard set of 128 characters, symbols and control codes used for computer communications. ASCII characters require 7 bits of data to send, but are often sent 8 bits at a time with the extra bit being a zero.

Asynchronous Communication

A method of sending data in which the bits can be sent at random times. Data transmission is not synchronized to a clock. With asynchronous transmission, each character is transmitted one at a time with a "start" bit at the beginning and one or more "stop" bits at the end. Any amount of time can elapse before the next character can be sent.

AT Command

An order entered into the computer to request your modem to perform certain actions, such as dial a telemodem number. AT commands are Hayes-compatible modem commands.

Baud

The signaling rate of a line, which is the number of transitions (voltage or frequency changes) that are made per second.

Baud Rate

Signaling speed of the modem. Common baud rates are 2400, 4800, 9600, 19200, and 56k.

Byte

A data unit of eight bits.

Circuit Switched Data

A networking technology that provides a temporary, but dedicated, connection between two stations no matter how many switching devices the data is routed through. Circuit Switch was originally developed for the analog-based telephone system in order to guarantee steady, consistent service for two people engaged in a phone conversation.

Command Mode

The mode that accepts AT commands. Also known as Terminal Mode. When your modem is in this mode, it is waiting to receive AT commands that you type from your communication software.

Communication Software

A computer program designed to connect your computer to an external source, such as another computer or a fax machine.

Configuration

The term configuration defines the hardware components that comprise a subsystem and system. It is a set of conditions or parameters that define the structure of an item such as the GPS processing and characteristics of the RS-232 interface ports.

Data Services

One of the functions of your iDEN® modem. Data services uses both circuit-switched and packet data transmissions.

DCD

Data Carrier Detect. An acceptable carrier signal received by the modem over the modem line. Also known as Received Line Signal Indicator (RLSI).

DCE

Data Communication Equipment. The equipment that establishes, maintains, and terminates a connection. It converts data into units of sound and vice versa for communication over telemodem or cellular networks.

Default

A factory preset choice that, under normal circumstances, works best for your system. You can either accept the default or change it.

Differential Capable

A term used to describe a GPS receiver capable of receiving and applying differential GPS corrections.

Differential GPS

A procedure of correcting GPS solutions to achieve improved position accuracy. Differential GPS provides 2 to 5 meter position accuracy. Differential accuracy is obtained by applying corrections determined by the stationary Differential Reference Station to the GPS data collected by the RPU (receiver processing unit) on-board the vehicle.

DNS

Domain Name Server. This is what converts names of domains (ex.: <u>www.elutions.com</u>) into IP addresses (ex.: 64.31.159.2). The DNS server that you use is generally situated with your access provider.

DTE

Data Terminal Equipment. A computer or hand-held device that generates and receives data, and provides functions that control data communications through a device like the modem.

Dial Up Networking (DUN)

A component in Windows that enables you to connect your computer to a network via modem. If your computer is not connected to a LAN and you want to connect to the Internet, you need to configure Dial-Up-Networking (DUN) to dial a Point of Presence (POP) and log into your Internet Service Provider (ISP). Your ISP will need to provide certain information, such as the Gateway address and your computer's IP address.

Firmware

A set of software computer/processor instructions permanently or semi-permanently resident in read-only memory.

Frequency

The number of vibrations per second of an audio or radio signal. Measured in hertz (Hz), Kilohertz (kHz), or megahertz (MHz). GPS frequencies are L1= 1575.42 MHz or L2= 1227.60 MHz.

GPS

(Global Positioning System) is a "constellation" of 24 well-spaced satellites that orbit the Earth and make it possible for people with ground receivers to pinpoint their geographic location. The location accuracy is anywhere from 100 to 10 meters for most equipment. Accuracy can be pinpointed to within one (1) meter with special military-approved equipment. The GPS is owned and operated by the U.S. Department of Defense but is available for general use around the world.

GPS Antenna

An antenna designed to receive GPS radio navigation signals.

GPS Processor

An electronic device that interprets the GPS radio navigation signals (received by the GPS antenna) and determines a location solution. The GPS processor may also be able to apply (and determine) differential GPs corrections.

GPS Receiver

The combination of GPS antenna and GPS processor.

Hand-Held Devices

Small computing appliances, such as palmtops, personal digital assistants and pen-based computers.

Hertz (Hz)

A frequency unit equal to one cycle per second.

Home Agent

The carrier or router responsible for determining the next network point to which a packet (data) should be forwarded toward its destination.

Internet

A series of interconnected local, regional, national and international networks, linked using TCP/IP. The Internet links many government, university, research and commercial sites. It provides e-mail, Web browsing and file transfer services.

Internet Service Provider (ISP)

Provides your computer with Internet access. Also known as Service Provider.

Intranet

A network based on TCP/IP protocols (an internet) belonging to an organization, usually a corporation, accessible only by the organization's members, employees or others with authorization. An Intranet's Web sites look and act just like any other Web sites, but the firewall surrounding an intranet fends off unauthorized access.

Kbps

Kilobits per second. Generally represented at 1000 bits per second.

Laptops

Portable computers, such as notebooks and sub-notebooks.

Local Area Network (LAN)

A computer network that spans over a relatively small area. Most LANs are confined to a single building or group of buildings.

Mobile IP

An IP enhancement that provides forwarding of traffic to moving users. It uses agents in the user's home network and in all foreign networks. When logging on to a remote network, users register their presence with the foreign agent, and the home agent forwards the packets to the remote network. Mobile IP permits mobile devices to inform a "visited" network that it is present and then arrange to have its home network forward data to it automatically.

Modem

An electronic device enabling digital data to be sent over analog transmission facilities. Converts a digital signal to analog and back to digital again. Modem stands for Modulator/De-Modulator.

NMEA

National Marine Electronics Association. An association that defines marine electronic interface standards for the purpose of serving the public interest.

Non-Routable IP

A communications protocol that contains only a device address and not a network address. It does not incorporate an addressing scheme for sending data from one network to another. Examples of non-routable protocols are NetBIOS and DEC's LAT protocols. Also some TCP'IP addresses are considered non-routable.

Non-Volatile Memory

Memory that holds its content without power. Permanently stored information that is not lost when you power off. ROMs, PROMs, EPROMs and flash memory are examples.

Packet of Data

A bundle or block of data, organized in a specific way for transmission.
Parallel Port

A low speed port, usually located on the rear of a computer, which usually connects to printers. Parallel ports transmit data simultaneously over eight "parallel wires" one byte at a time (as opposed to a serial port, which transmits data one bit at a time).

Parity Bit

Parity is a process for detecting whether bits of data have been altered during transmission. A Parity Bit is a non-data bit that is added to a group of data bits to check for transmission errors. Parity Bits are used in Parity checking which is an error-checking method in asynchronous transmission. The parity bit tells the receiving end of a transmission whether there should be an even or odd number of bits contained in that transmission.

PIN

Personal Identification Number.

PING

(Packet INternet Groper) An Internet utility used to determine whether a particular IP address is online. It is used to test and debug a network by sending out a packet and waiting for a response. A program used to test whether or not a network component is available.

PPP

(Point-to-Point Protocol) The most common method for connecting to the Internet. PPP provides serial line (dial-up) connectivity, authentication, compression and encryption between two computers and can handle several protocols simultaneously.

Protocol

Hardware and software standards that govern transmission between two communications devices. There are several layers, or levels, of functionality in a protocol. Each layer may be available, as a separate software component, or several layers may be combined into one.

Public IP Address

See Routable IP Address.

RAM

Random Access Memory is the working memory of the computer where you can enter information and call up data.

Routable IP Address (Public IP Address)

A communications protocol that contains a network address as well as a device address, allowing data to be routed from one network to another. Examples of routable protocols are SNA, OSI, TCP/IP, XNS, IPX, AppleTalk and DECnet.

RS-232

A communication standard for digital data. Specifies a number of signal and control lines. RS-232 is often associated with a 25-pin connector called DB-25.

IR1600 Modem

Serial Port

An input/output (I/O) port transmits data one bit at a time, as opposed to a parallel port that transmits multiple (usually eight) bits simultaneously. RS232C is a common serial interface standard.

Service Specific Software

A program designed for a designated online service such as AOL.

Start Bit

A data bit used in asynchronous transmission to signal the beginning of the character.

Stop Bit

A data bit used in asynchronous transmission to signal the end of the character.

System Administrator

The person responsible for monitoring computer activity in a specified area, such as a company.

Synchronous Communication

A method of sending digital data in which the bits come at fixed, rather than random, times and are synchronized to a clock.

TCP/IP (Transmission Control Protocol/Internet Protocol)

The two best-know Internet protocols, often erroneously thought of as one protocol. TCP enables two hosts to establish a connection and exchange streams of data. TCP guarantees delivery of data and guarantees that packets will be delivered in the same order in which they were sent. IP acts as a postal system, allowing you to address a package and drop it in the system, but doesn't provide a direct link between you and the recipient. TCP/IP, on the other hand, establishes a connection between two hosts so that they can send messages back and forth for a period of time.

Terminal Mode

The mode that accepts AT commands. Also known as Command Mode. When your modem is in this mode, it is waiting to receive AT commands that you type from your communications software.

Transmission Rate

The rate at which data is transferred measured in bits per second. Common transfer rates are 9.6bps / 19200bps / 57600bps / 115200bps

UTC

Universal Time Coordinated. Uniform atomic time system/standard that is maintained by the US Naval Observatory. UTC defines the local solar mean time at the Greenwich Meridian.

UTC Offset

The difference between local time and UTC (Example: UTC - EST = 5 hours).

INDEX

A

AVL · 16, 17, 19, 20, 21, 23, 24, 25, 26, 29, 30, 39, 41, 43, 46

С

Coverage $\cdot 4$ Customer Care $\cdot 4$

D

DCD · 60 DCE · 60 **DTE** · *17*, *19*, *21*, *26*, *33*, *34*, *36*, 60

E

Electronic Devices \cdot 57 Encryption \cdot 17

G

Gateway · 16, 19, 21, 26, 29, 34, 46

H

Hayes · 21, 23, 24, 25, 30 **Hearing Aids** · 57

Ι

IP address · 17, 19, 23, 30, 41, 47

L

Local Port Number · 25

M

Mobile IP \cdot 62

\overline{N}

NMEA · 19, 40, 43, 44 Normal · 18, 19

0

Operating Mode \cdot 51, 52

P

Pacemakers · 57 **PAD** · 17, 26, 36, 38 PIN · 63 port number · 24, 25 PPP · 63 **Protocol** · 16, 22

R

Radio Frequency \cdot **Remote IP Address** \cdot 23, 29 Remote Over the Air (OTA) Configuration \cdot **Remote Port Number** \cdot **Restrict Pollers** \cdot

T

TCP · *17*, *19*, *20*, *21*, *23*, *24*, *25*, *26*, *27*, *28*, *30*, *41*, *46* TCP/IP · *19*

\boldsymbol{U}

UDP · 17, 21, 23, 24, 25, 26, 27, 30, 31, 41