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Instruction Guide for Terminus GPS Demonstration

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Terminus GPS Demonstration

This document includes all information needed to successfully alter, compile, download and run the Terminus GPS demonstration. The guidelines established in this document are based on mainstream programs and equipment. You may need to alter the demonstration, as well as configure your server to match your specific settings.

Relevant Telit Documentation for the application includes:

- Telit AT Commands Reference Guide
- Telit Easy Script in Python
- Telit GC864 Software User Guide

All can be accessed via Telit's website at www.telit.com

Terminus GPS demonstration contents:

1. Terminus GPS Demo.zip
 - 1.1. Python Scripts
 - 1.1.1. TerminusGPS.py
 - 1.1.2. GSM864QP_SER.py
 - 1.1.3. ATC.py
 - 1.1.4. CW20.py
 - 1.1.5. DEBUG.py
 - 1.1.6. timers.py
 - 1.1.7. exceptions.py
 - 1.2. Terminus GPS Demonstration Guide.doc
 - 1.3. Netcat application

Terminus GPS demonstration requirements:

1. Personal Computer (**The Development Computer**)
 - 1.1. Windows OS (WINXP, 2000)
 - 1.2. Download and install Pythonwin IDE
 - 1.3. Internal Serial Port (DB9 Connector)
2. Personal Computer (**The Customer Server**)
 - 2.1. Windows OS (WINXP, 2000 or NT4)
 - 2.2. Connected to Internet
 - 2.3. Firewall to allow TCP/IP socket connections to PORT 5556
 - 2.4. Netcat installed

1 Getting Started – The Development Computer

1.1 Installing Terminus GPS Demonstration

- Unzip the contents of the Terminus GPS Demo.zip file to a local drive on the Development Computer.

1.2 Installing Pythonwin IDE

- Install the Pythonwin IDE per the instructions in the GSM864 Terminus User guide.
- Once the IDE is installed and configured, open the TerminusGPS.py script.

1.3 Customizing Demonstration Properties

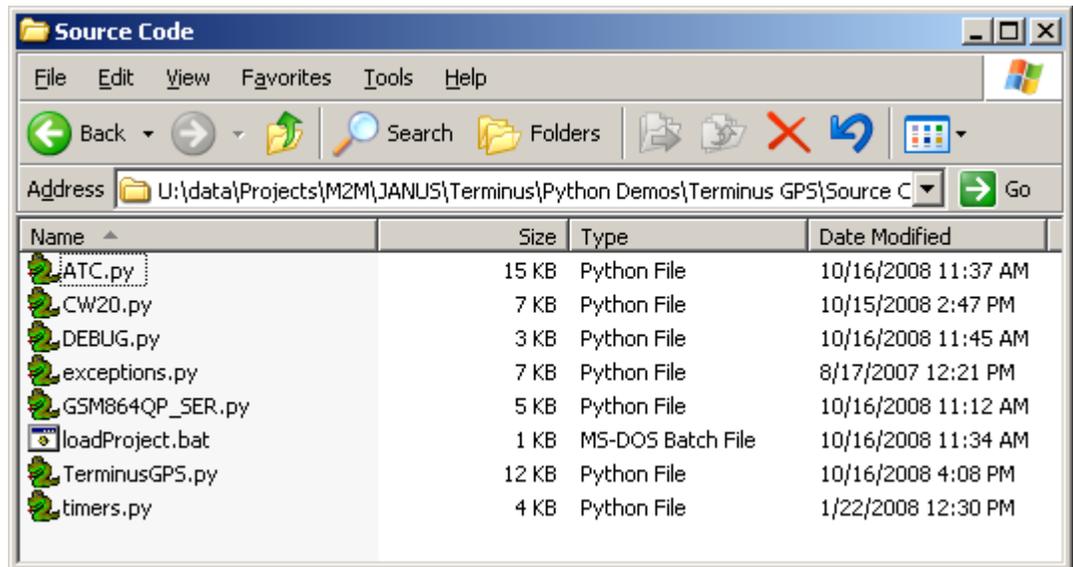
In order to evaluate the Terminus GPS demonstration, the customer *must* customize the following properties in the TerminusGPS.py file.

▶ Python Script

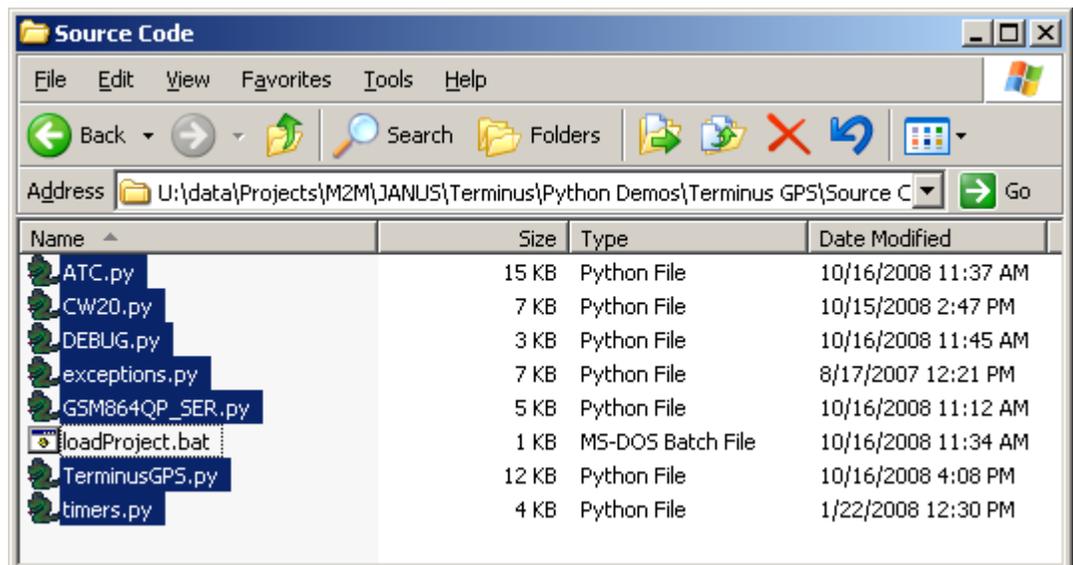
```
##-----  
## Application Specific Configuration  
##-----  
  
## BAND  
## Please refer to AT Command guide for AT#BND  
## If Terminal used in North America (BAND = '3')  
myApp.BAND = '3'  
  
## NETWORK  
## If Terminal used on ATT / Cingular in North America (NETWORK = 'ATT')  
## Else (NETWORK = 'GSM')  
myApp.NETWORK = 'ATT'  
  
## APN  
## Gateway Address for GPRS traffic  
## This setting is GSM Provider and possible customer specific when a VPN is used  
## This demo is defaulted with proxy that is used for ATT wireless settings from pre-Cingular days  
## You MUST obtain the APN setting for your GSM account. Please call GSM provider!  
MyApp.APN = 'proxy'  
  
## IP  
## IP address of server on the Internet which Terminus will connect to send GPS information  
## Address in this example is not operational for customer evaluation. Customer must have their own server  
## setup to interact with this demo.  
myApp.IP = '69.211.178.145'  
  
## PORT  
## PORT number of server on the Internet which Terminus will connect to send GPS information  
## PORT number in this example is not operational for customer evaluation. Customer must have their own server  
## setup to interact with this demo.  
myApp.PORT = '5556'  
  
## PROTOCOL  
## If customer is using TCP/IP (PROTOCOL = 'TCP/IP')  
## Else leave blank (PROTOCOL = '')  
myApp.PROTOCOL = 'TCP/IP'  
  
## SMS  
## SMS Designation phone number (SMS = '+16305551212')  
myApp.SMS = '+16305551212'  
  
## INTERVAL  
## How many seconds the demo will wait before sending new GPS data to server.  
## In this demo, GPS data will be sent every 60 seconds (INTERVAL = '60')  
myApp.INTERVAL = '60'
```

1.4 Compiling Python Scripts

- ▶ Open the directory that contains the Terminus GPS demonstration scripts with explorer.exe.



- ▶ Right click on all the python scripts and select compile.

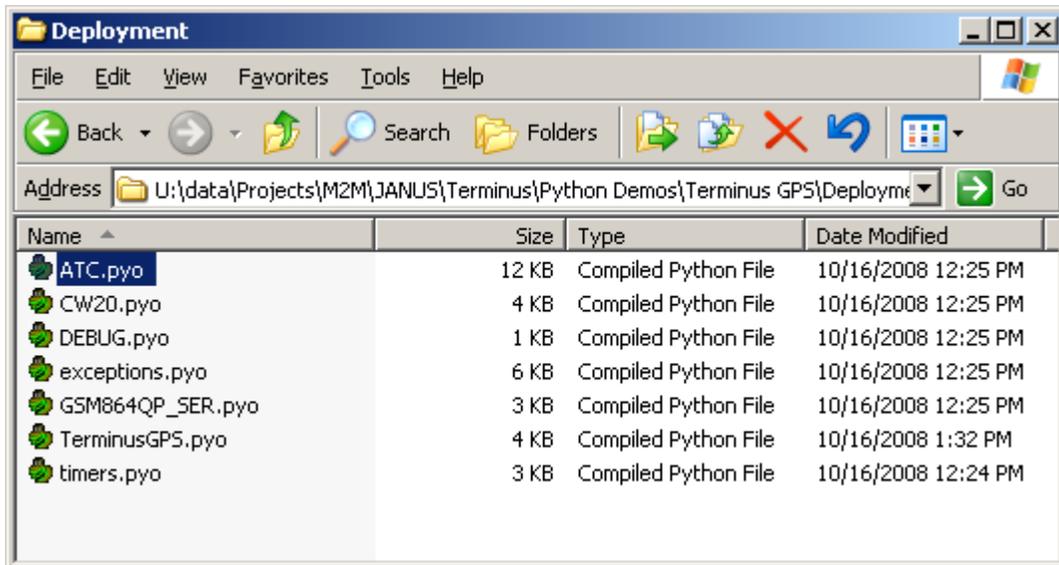


- ▶ All files should compile and additional files should exist with *.pyo extension.
- ▶ Move these files to the directory named Deployment.

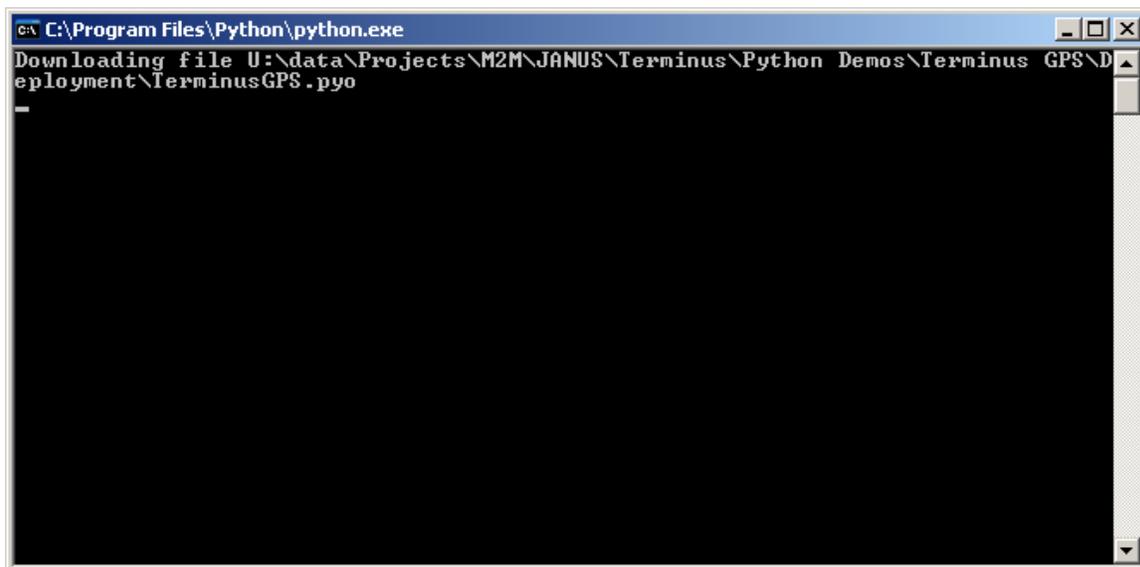
1.5 Downloading Python Scripts to Terminus

► Connect the Terminus serial port (DB9 connector) to the development computer serial port. The serial port of the development computer should be the serial port configured as the MDM interface in the Telit COM Port Selection Tool. Refer to the Terminus User Manual under Installing Pythonwin IDE for more information.

► Open the directory that contains the Terminus GPS demonstration compiled scripts with explorer.exe.

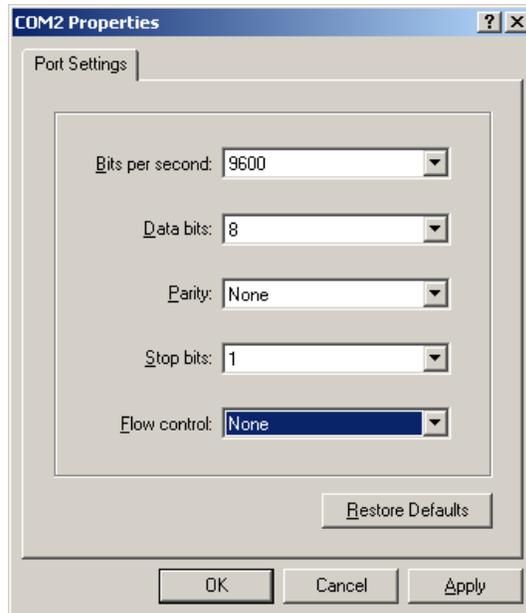


► Right click download for each file in the Deployment directory.

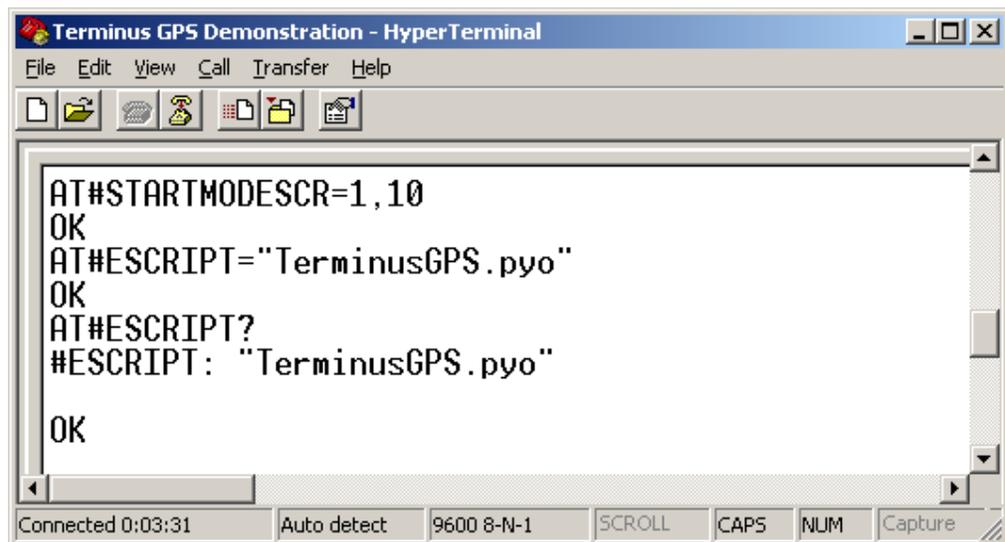


1.6 Enable Terminus GPS Demonstration to Execute on Power On

► Disconnect power from the Terminus. Open Windows HyperTerminal and create a new connection. Select the serial port of the development computer that has been selected as the MDM interface in the Telit COM Port Selection Tool. Refer to the Terminus User Manual under Installing Pythonwin IDE for more information. Configure the serial port as follows.



- Apply power to the Terminus.
- Open the serial port and send the following commands.

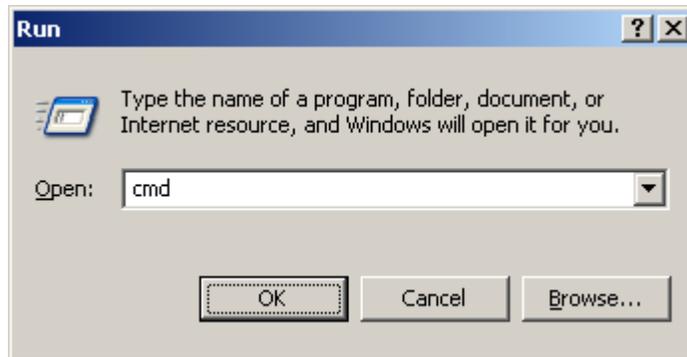


2 Getting Started – The Server Computer

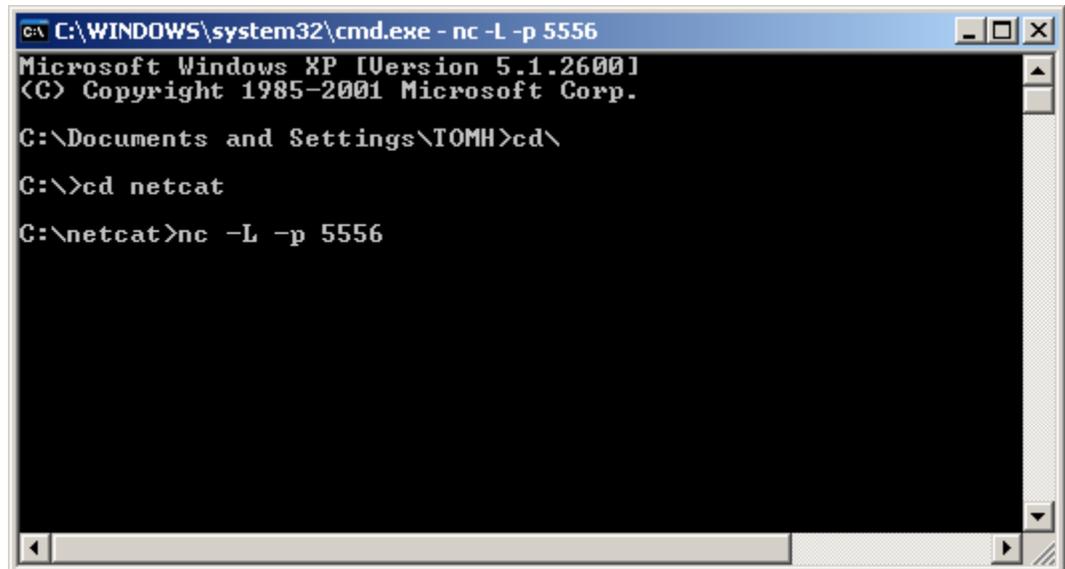
2.1 Installing Netcat on the Server Computer

▶ Copy the directory netcat and all files to the following directory on the Server Computer. C:\netcat.

▶ Open the command prompt.



▶ Execute the following commands.

A screenshot of a Windows command prompt window. The title bar shows the path 'C:\WINDOWS\system32\cmd.exe - nc -L -p 5556'. The window contains the following text:

```
C:\WINDOWS\system32\cmd.exe - nc -L -p 5556
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

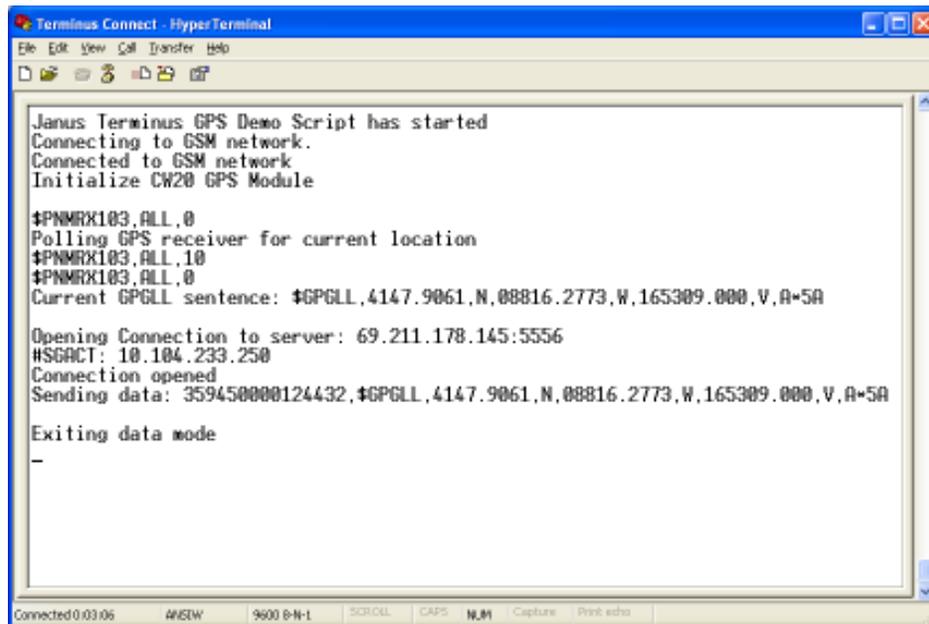
C:\Documents and Settings\TOMH>cd\
C:\>cd netcat
C:\netcat>nc -L -p 5556
```

Note: The Server Computer must be connected to the Internet and able to except TCP/IP socket connections to the PORT defined in the TerminusGPS.py script. Please make sure the firewall is configured to allow this type of network traffic. If behind a wireless router you will need to specify routes to the Server Computer. Please call your IT professional to make sure your computer and network has the correct configuration for this. Janus cannot help you with your network settings.

3 Getting Started –

Running the Demonstration

- ▶ Remove power from the Terminus.
- ▶ Install 2 pin jumpers connecting pins 49 & 47 and pins 45 & 43 on 50-pin GP header.
- ▶ Connect GSM antenna to SMA connector of the Terminus.
- ▶ Connect GPS antenna to MCX connector of the Terminus.
- ▶ Reapply power to the Terminus.
- ▶ After approximately ten seconds data should start to appear in Hyper Terminal.

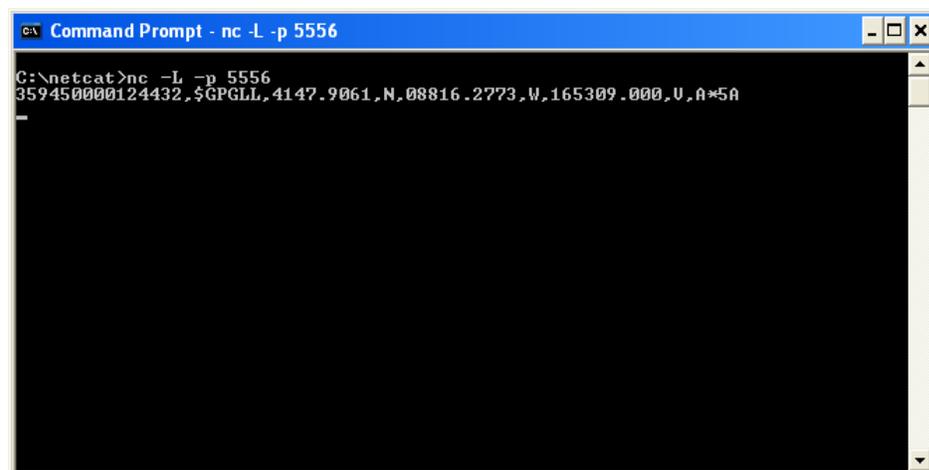


```
Janus Terminus GPS Demo Script has started
Connecting to GSM network.
Connected to GSM network
Initialize CW20 GPS Module
$PNMRX103,ALL,0
Polling GPS receiver for current location
$PNMRX103,ALL,10
$PNMRX103,ALL,0
Current GPGLL sentence: $GPGLL,4147.9061,N,08816.2773,W,165309.000,V,A*5A

Opening Connection to server: 69.211.178.145:5556
#SGACT: 10.104.233.250
Connection opened
Sending data: 359450000124432,$GPGLL,4147.9061,N,08816.2773,W,165309.000,V,A*5A

Exiting data mode
-
```

- ▶ On the Server Computer you should see data appear in netcat session.



```
C:\netcat>nc -L -p 5556
359450000124432,$GPGLL,4147.9061,N,08816.2773,W,165309.000,V,A*5A
-
```

4 Getting Started – Debugging Demonstration

The following causes of the Terminus GPS demonstration not transmitting TCP/IP socket data to Server Computer are as follows.

Cause	Resolution
SIM card not provisioned for GPRS services.	Call your GSM provider and ask for this service.
APN not configured for your GSM provider and or account type	Call your GSM provider and ask for APN settings for your account type.
Server not connected to Internet	Call your IT professional. Janus is unable to help configure your network settings
Server firewall blocking TCP/IP traffic at configured PORT. See TerminusGPS.py file.	Call your IT professional. Janus is unable to help configure your network settings
Server computer behind a router that doesn't have routes setup to the server.	Call your IT professional. Janus is unable to help configure your network settings

Appendix A – Terminus GPS Demonstration Python Scripts

Python Scripts included in the Terminus GPS demonstration

Script File Name	Script Description	Script Author
TerminusGPS.py	Main script that will need to be enabled to run on power-on.	Janus RC
GSM864QP_SER.py	Script contains methods to send and receive data from the Terminus serial port (DB9 or 50pin Header).	Janus RC
ATC.py	Script contains methods and properties that relate to the sending and receiving of AT commands.	Janus RC
CW20.py	Script contains methods and properties that relate to the sending and receiving of commands to the internal CW20 GPS module.	Janus RC
DEBUG.py	Script contains a method to send debug messages to DB9 serial port.	Janus RC
timers.py	Script contains methods and properties to implement timer routine.	Telit
exceptions.py	Script contains exception handling methods	Telit