Programming Enfora GPRS modem to work with the DataNet System (Version 18)

The events listed below (using AT$EVENT command) are for general usage, and can be removed or edited as required for custom applications. Please read the Enfora event programming guide for more information on event reporting.

Replace the settings in ***red bold italics*** with appropriate strings or numbers. Important notes are shown in blue underlined text.

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1) Connect PC to Enfora serial port. Baud rate is 115200 bps, unless it has been changed from its default. Use a terminal program (such as HyperTerminal in Windows) to enter the following commands, or use the Enfora Programming utility to send the commands as a script file. Use the AT$EVENT? command to read back the current script settings at any time.
2) AT$AREG=1. Force modem to deactivate network connection.
3) AT&F – Reset modem to factory default settings. Note that this also forces modem serial port to 115200 bps, and resets event list to default.
4) AT+CGDCONT=1,"IP","***apn***" – Enter the GPRS APN required by the GSM service provider. If you get an ERROR response to this command, the modem may already be online. In that case, issue the AT$AREG=1 command to go offline, and then try this command again.
5) AT$MDMID="***ID***" – Enter a modem ID (1-20 characters). This must match the ID configured in the DataNet server. If this command is not entered, the modem will use its IMEI ID (programmed in the factory). When sending advanced packets, there is an option to use an 8 charr ID to reduce packet size.
6) AT$UDPAPI="",***port*** – Modem API port. Enter the UDP port number configured in the DataGate server. If this command is not entered, the default port (1720) will be used.
7) AT$APIPWD="***password***" – Enter a password to prevent unauthorized users accessing the modem remotely – **must be 8 characters** (A-Z, 0-9). This password must also be entered into the DataGate to allow remote control, such as modifying scripts or polling (requires DataGate version 3.8.3 or later). Use AT$APIPWD="" to clear the password.
8) AT$ACKTM=***2***,***30***,***0*** – Modem will retry each packet 2 times, at an interval of 30 seconds if server does not send ack. You may change these values to suit your application. If you want the modem to reselect its IP address if ack is not received, change the last parameter to 1, although this may increase network costs.
9) AT$AREG=2 – Automatic network connection.
10) AT$NETMON=***10***,***1***,***0*** – Modem will release connection if network is unavailable for 10 minutes. After 1 release, network info will be erased. Change the last value to enable network pings every x minutes. Note: releasing the network connection may result in increased data usage counts.
11) AT$EVTIM1=***x*** – Timer 1 will trigger every x seconds. In this sample script, Timer 1 and Timer 2 are used to trigger GPS position reports. Using two timers allows two reporting rates based on vehicle motion, IGN status, etc.
12) AT$EVTIM2=***y*** – Timer 2 will trigger every y seconds.
13) AT$EVTIM3=1 – Timer 3 is used to update user parameters every second.

14) Default Events

a. AT$EVDEL=3A – Remove default event 3. Default events 3 to 6 are used by certain Enfora modems to indicate GSM status on the USR1 LED. This and the following 7 commands modify these events to show GPRS status instead.

b. AT$EVDEL=4A – Remove default event 4.

c. AT$EVDEL=5A – Remove default event 5.

d. AT$EVDEL=6A – Remove default event 6.

e. AT$EVENT=3,0,10,2,4 – GPRS Searching

f. AT$EVENT=4,0,10,5,5 – GPRS Roaming

g. AT$EVENT=5,0,10,0,0 – GPRS Not registered

h. AT$EVENT=6,0,10,1,1 – GPRS Registered

15) AT$WAKEUP=2,***x*** – Modem will send keep-alive messages when its IP address changes (based on ACKTM setting), and every x minutes (set to zero to disable). Note that this setting will add an event (ID=0), and change the value of Timer 4 if x is non-zero.

16) AT$EVENT=10,0,30,***x***,1000000 – Vehicle Idle for x seconds. This event generates a "stopped" condition, which is useful for generating trip reports. Note that the first parameter in the AT$EVENT command (10 in this case) indicates the Event Group ID, which is used to identify events. This Group ID can be set to any number from 7 to 99, but each group must use a unique number.

17) AT$EVENT=10,3,41,***id***,***format*** – Send position. See note at end of document for calculation of format field. If acks are not required, change the 41 (the third parameter) to 40 in this and all other send events.

18) AT$EVENT=10,3,43,1,0 – Reset Timer 1. Reset the timers as this event will send a position report.

19) AT$EVENT=10,3,43,2,0 – Reset Timer 2

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20) AT$EVENT=11,1,12,1,1 – Timer 1 Expired

21) AT$EVENT=11,2,62,0,0 – (OPTIONAL) only send position while stationary.

22) AT$EVENT=11,2,7,0,0 – (OPTIONAL) only send position when IGN off.

23) AT$EVENT=11,2,27,1,1 – (OPTIONAL) only send position when GPS valid.

24) AT$EVENT=11,3,43,2,0 – Reset Timer 2

25) AT$EVENT=11,3,41,***id***,***format*** – Send standard position

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26) AT$EVENT=12,1,13,1,1 – Timer 2 Expired. This will be triggered when a poll request is sent from the server, so it should not have any conditional inputs.

27) AT$EVENT=12,3,41,***id***,***format*** – Send position

28) AT$EVENT=12,3,43,1,0 – Reset Timer 1

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29) AT$EVENT=13,0,16,***x***,1000000 – Vehicle moved x metres.

30) AT$EVENT=13,3,41,***id***,***format*** – Send position

31) AT$EVENT=13,3,43,1,0 – Reset Timer 1

32) AT$EVENT=13,3,43,2,0 – Reset Timer 2

33) AT$EVENT=14,0,17,***x***,250 – Vehicle speed exceeds x knots.

34) AT$EVENT=14,3,41,***id***,***format*** – Send position

35) AT$EVENT=15,0,8,1,1 – Modem power up.

36) AT$EVENT=15,3,41,***id***,***format*** – Send position

37) AT$EVENT=16,0,0,1,1 – IO1 high

38) AT$EVENT=16,3,41,***id***,***format*** – Send position

39) AT$EVENT=17,0,0,0,0 – IO1 low

40) AT$EVENT=17,3,41,***id***,***format*** – Send position

41) AT$EVENT=18,0,1,1,1 – IO2 high

42) AT$EVENT=18,3,41,***id***,***format*** – Send position

43) AT$EVENT=19,0,1,0,0 – IO2 low

44) AT$EVENT=19,3,41,***id***,***format*** – Send position

45) AT$EVENT=20,0,2,1,1 – OUT high

46) AT$EVENT=20,3,41,***id***,***format*** – Send position

47) AT$EVENT=21,0,2,0,0 – OUT low

48) AT$EVENT=21,3,41,***id***,***format*** – Send position

49) AT$EVENT=22,0,7,1,1 – IGN high. Note that the modem is automatically reset when the IGN pin goes high.

50) AT$EVENT=22,3,41,***id***,***format*** – Send position

51) AT$EVENT=23,0,7,0,0 – IGN low

52) AT$EVENT=23,3,41,***id***,***format*** – Send position

53) AT$EVENT=24,0,29,***x***,1000000 – No GPS signal for x seconds.

54) AT$EVENT=24,3,41,***id***,***format*** – Send position

55) AT$EVENT=24,3,43,1,0 – Reset Timer 1

56) AT$EVENT=24,3,43,2,0 – Reset Timer 2

57) AT$EVENT=25,1,14,1,1 – Timer 3 Expired

58) AT$EVENT=25,3,***128***,0,-403 – Parameter 0 = Serving Cell ID. Important: replace the 128 in this and the following lines with 64 for Mini-MT modems.

59) AT$EVENT=25,3,***128***,1,-402 – Parameter 1 = Serving Cell LAC

60) AT$EVENT=25,3,***128***,2,-405 – Parameter 2 = Serving Cell RSSI

61) AT$EVENT=25,3,***128***,3,-200 – Parameter 3 = Battery Level %

62) AT$EVENT=25,3,***128***,4,-107 – Parameter 4 = GPS Heading

63) AT$EVENT=25,3,***128***,5,-105 – Parameter 5 = Speed

64) AT$EVENT=25,3,***128***,6,-104 – Parameter 6 = Altitude

65) AT$EVENT=25,3,***128***,7,-103 – Parameter 7 = Longitude

66) AT$EVENT=25,3,***128***,8,-102 – Parameter 8 = Latitude

67) AT$EVENT=25,3,***128***,9,27 – Parameter 9 = GPS Status

68) AT$EVENT=26,1,62,1,1 – Motion detected. Motion with IGN off can be used to generate a towing alert.

69) AT$EVENT=26,2,7,0,0 – IGN off.

70) AT$EVENT=26,3,43,1,0 – Reset Timer 1

71) AT$EVENT=26,3,43,2,0 – Reset Timer 2

72) AT$EVENT=26,3,41,***id***,***format*** – Send standard position

73) AT$EVENT=27,1,71,2,3 – GPS Antenna open or short

74) AT$EVENT=27,3,41,***id***,***format*** – Send standard position

75) AT$EVENT=28,1,111,1,1 – GSM Jamming

76) AT$EVENT=28,3,41,***id***,***format*** – Send standard position

Mini-MT Events:

77) AT$EVDEL=1 – (OPTIONAL) remove geofence event from Mini-MT. This allows the geofence button to be used in the script without it setting Geofence 1 active.

78) AT$EVENT=40,0,59,0, ***x*** – Low Battery (x percent remaining)

79) AT$EVENT=40,3,41,***id***,***format*** – Send position

80) AT$EVENT=41,1,58,2,2 – PTC button pushed

81) AT$EVENT=41,3,44,1,0 – Stored AT command 1

82) AT$STOATEV=1,at$vibnow=1 – Vibrate for 1 sec

83) AT$EVENT=41,3,41,***id***,***format*** – Send position

84) AT$EVENT=42,1,73,2,2 – PTC button released

85) AT$EVENT=42,3,41,***id***,***format*** – Send position

86) AT$EVENT=43,1,58,1,1 – User Defined Key pushed

87) AT$EVENT=43,3,41,***id***,***format*** – Send position

88) AT$EVENT=44,1,73,1,1 – User Defined Key released

89) AT$EVENT=44,3,41,***id***,***format*** – Send position

90) AT$EVENT=45,1,58,0,0 – Geofence Key pushed

91) AT$EVENT=45,3,41,***id***,***format*** – Send position

92) AT$EVENT=46,1,73,0,0 – Geofence Key released

93) AT$EVENT=46,3,41,***id***,***format*** – Send position

94) AT$EVENT=47,0,7,0,0 – Leaving Geofence 1

95) AT$EVENT=47,3,41,***id***,***format*** – Send position

MT2500 Events:

96) AT$EVENT=50,0,148,1,1 – Accelerometer filter X1 exceeded

97) AT$EVENT=50,3,41,***id***,***format*** – Send position

98) AT$EVENT=51,0,149,1,1 – Accelerometer filter X2 exceeded

99) AT$EVENT=51,3,41,***id***,***format*** – Send position

100) AT$EVENT=52,0,150,1,1 – Motion Detected

101) AT$EVENT=52,3,41,***id***,***format*** – Send position

102) AT$EVENT=53,0,151,1,1 – Accelerometer filter Y1 exceeded

103) AT$EVENT=53,3,41,***id***,***format*** – Send position

104) AT$EVENT=54,0,152,1,1 – Accelerometer filter Y2 exceeded

105) AT$EVENT=54,3,41,***id***,***format*** – Send position

106) AT$EVENT=55,0,153,1,1 – Accelerometer filter Z1 exceeded

107) AT$EVENT=55,3,41,***id***,***format*** – Send position

108) AT$EVENT=56,0,154,1,1 – Accelerometer filter Z2 exceeded

109) AT$EVENT=56,3,41,***id***,***format*** – Send position

MT3000 Events:

110) AT$EVENT=60,0,160,1,1 – Accelerometer calibrated

111) AT$EVENT=60,3,41,***id***,***format*** – Send position

112) AT$EVENT=61,0,161,1,1 – Motion Detected

113) AT$EVENT=61,3,41,***id***,***format*** – Send position

114) AT$EVENT=62,0,162,1,1 – OBD High Acceleration

115) AT$EVENT=62,3,41,***id***,***format*** – Send position

116) AT$EVENT=63,0,165,1,1 – OBD Heavy Braking

117) AT$EVENT=63,3,41,***id***,***format*** – Send position

118) AT$EVENT=64,0,167,1,1 – OBD High RPM

119) AT$EVENT=64,3,41,***id***,***format*** – Send position

120) AT$EVENT=65,0,170,1,1 – OBD Low Fuel

121) AT$EVENT=65,3,41,***id***,***format*** – Send position

122) AT$EVENT=66,0,171,1,1 – OBD Idling Alert

123) AT$EVENT=66,3,41,***id***,***format*** – Send position

124) AT$EVENT=67,0,172,1,1 – OBD Speeding

125) AT$EVENT=67,3,41,***id***,***format*** – Send position

126) AT$EVENT=68,0,175,1,1 – OBD Low Battery

127) AT$EVENT=68,3,41,***id***,***format*** – Send position

128) AT$EVENT=69,0,176,1,1 – OBD Error Code

129) AT$EVENT=69,3,41,***id***,***format*** – Send position

130) AT$EVENT=70,0,178,1,1 – OBD IGN

131) AT$EVENT=70,3,41,***id***,***format*** – Send position

132) AT$EVENT=71,0,185,1,1 – OBD Protocol Discovered

133) AT$EVENT=71,3,41,***id***,***format*** – Send position

134) AT$FRIEND=1,1,"***a.b.c.d***" – Enter IP address of DataGate server.

135) AT$FRIEND=2,0,"0.0.0.0" – Clear FRIEND address. It is important to manually clear all unused friend addresses, as they are not reset by the AT&F command.

136) AT$FRIEND=3,0,"0.0.0.0"

137) AT$FRIEND=4,0,"0.0.0.0"

138) AT$FRIEND=5,0,"0.0.0.0"

139) AT$FRIEND=6,0,"0.0.0.0"

140) AT$FRIEND=7,0,"0.0.0.0"

141) AT$FRIEND=8,0,"0.0.0.0"

142) AT$FRIEND=9,0,"0.0.0.0"

143) AT$FRIEND=10,0,"0.0.0.0"

Mini-MT Commands:

144) AT$WAKEENBL=***x*** – Set wake up events. Add one or more states as follows: 1=Start Event 2=Stop Event 4=Moving 8=Stopped 16=Push-to-Call (PTC) button pushed (or set to zero to disable wakeup events).

145) AT$WAKEINTVL=***x*** – Wake up the modem every x minutes (set to zero to disable periodic wakeup).

146) AT$WAKETIME=***x*** – Time in seconds to stay awake before going to sleep (set to zero to disable sleep).

147) AT$MOTTRANS=***x*** – Number of seconds (5 - 65535) to wait before changing from moving to stopped state when no motion is detected.

148) AT$KEYFNC=***x*** – Control external keys. Use 0 to enable all keys, 1 to disable all keys, or add one or more of the following to disable individual keys: 2=Vol Up 4=Vol Down 8=Push-to-Call Dialling 16=GeoFence Tones.

149) AT$KEYSND=***x*** – Control key press sounds, where x=0 (enable sounds) or 1 (disable sounds).

150) AT$KEYDLY=***x,y*** – Delay before key presses will be acted upon, in increments of approximately 1/10 sec. If value y is present, it is used to set the PTC delay, otherwise the PTC delay is set the same as other keys.

151) AT$VLVL=0 – Mute speaker.

MT2500 Commands:

152) AT$ACCFLT=***a,b,c,d,e*** – Set accelerometer filter, where a is filter number (1-6), b is threshold (milli G), c is duration (samples), d is hysteresis (milli G), and e is coefficient (1-20).

153) AT$ACCAM=***a,b,c,d*** – Set Any Motion event parameters, where a is 0 (disable event) or 1 (enable event), b is threshold (milli G), c is count (0-3), and d is clear time (sec).

MT3000 Commands:

154) AT$OBDACL=1,***x,y,z*** – Set acceleration limit, where x is acceleration (milli G), y is time to trigger alert (sec), and z is time to clear alert (sec). Set x=0 to disable.

155) AT$OBDDCL=1,***x,y,z*** – Set deceleration limit, where x is deceleration (milli G), y is time to trigger alert (sec), and z is time to clear alert (sec). Set x=0 to disable.

156) AT$OBDEES=1,***x,y,z*** – Set RPM limit, where x is engine speed (1/4 RPM, e.g. x=20000 sets limit to 5000 RPM), y is time to trigger alert (sec), and z is time to clear alert (sec). Set x=0 to disable.

157) AT$OBDIDL=***x,y,z*** – Set idling limit, where x is idle speed (kph), y is time to trigger alert (sec), and z is time to clear alert (sec). Set x=0 to disable.

158) AT$OBDLBL=***x,y,z*** – Set low battery level, where x is voltage (mV), y is time to trigger alert (sec), and z is time to clear alert (sec). Set x=0 to disable.

159) AT$OBDLFL=***x,y,z*** – Set low fuel level, where x is fuel level (%), y is time to trigger alert (sec), and z is time to clear alert (sec). Set x=0 to disable.

160) AT$OBDSPD=1,***x,y,z*** – Set speed limit, where x is vehicle speed (kph), y is time to trigger alert (sec), and z is speed to clear alert (kph). Set x=0 and z=0 to disable.

161) AT$OBDGSP=***x*** – Set source of speed data in output messages. 0=Use GPS speed 1=Use OBD speed.

162) AT$OBDAM=***a,b,c,d*** – Set Any Motion event parameters, where a is 0 (disable event) or 1 (enable event), b is threshold (milli G), c is count (0-3), and d is clear time (sec).

163) AT$OBDSAV – Save thresholds to flash memory

Save Changes:

164) AT&W – Write settings to memory.

165) AT$RESET – Reset modem.

ID and Format field calculation

The modem sends data packets using a programmable format. This format must be configured correctly so that the DataNet server can understand the data.

The supported ID and Format values are:

ID	Format	Type
163839	163839	Standard format
196607	196607	Standard with altitude
134381567	134381567	Standard with OBDII status

268599295	268599295	Standard with OBDII error codes
1	-2141192049	Advanced format (8 character MDMID)
2	-2145386353	Advanced format (20 character MDMID)

The standard format includes MDMID, Event Type, GPS data, and I/O states.
The advanced format contains specific values from the Enfora CPU, providing access to detailed modem information.

Example Script

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AT&F
AT+CGDCONT=1,"IP","vpn.com"
AT$MDMID="Unit1"
AT$UDPAPI="",1720
AT$APIPWD="KG8SG12L"
AT$ACKTM=2,30,0
AT$AREG=2
AT$NETMON=10,1,0
AT$EVTIM1=600
AT$EVTIM2=120
AT$EVTIM3=1
AT$WAKEUP=2,0
AT$EVDEL=3A
AT$EVDEL=4A
AT$EVDEL=5A
AT$EVDEL=6A
AT$EVENT=3,0,10,2,4
AT$EVENT=4,0,10,5,5
AT$EVENT=5,0,10,0,0
AT$EVENT=6,0,10,1,1
AT$EVENT=10,0,30,120,1000000
AT$EVENT=10,3,41,163839,163839
AT$EVENT=10,3,43,1,0
AT$EVENT=10,3,43,2,0
AT$EVENT=11,1,12,1,1
AT$EVENT=11,2,62,0,0
AT$EVENT=11,3,42,2,0
AT$EVENT=11,3,41,163839,163839
AT$EVENT=12,1,13,1,1
AT$EVENT=12,2,62,1,1
AT$EVENT=12,3,41,163839,163839
AT$EVENT=12,3,43,1,0
AT$EVENT=13,0,16,1000,1000000
AT$EVENT=13,3,41,163839,163839
AT$EVENT=13,3,43,1,0
AT$EVENT=13,3,43,2,0
AT$EVENT=14,0,17,60,250
AT$EVENT=14,3,41,163839,163839
AT$EVENT=15,0,8,1,1
AT$EVENT=15,3,41,163839,163839
AT$EVENT=16,0,0,1,1
AT$EVENT=16,3,41,163839,163839
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AT$EVENT=17,0,0,0,0
AT$EVENT=17,3,41,163839,163839
AT$EVENT=18,0,1,1,1
AT$EVENT=18,3,41,163839,163839
AT$EVENT=19,0,1,0,0
AT$EVENT=19,3,41,163839,163839
AT$EVENT=20,0,2,1,1
AT$EVENT=20,3,41,163839,163839
AT$EVENT=21,0,2,0,0
AT$EVENT=21,3,41,163839,163839
AT$EVENT=22,0,7,1,1
AT$EVENT=22,3,41,163839,163839
AT$EVENT=23,0,7,0,0
AT$EVENT=23,3,41,163839,163839
AT$EVENT=24,0,29,600,1000000
AT$EVENT=24,3,43,1,0
AT$EVENT=24,3,43,2,0
AT$EVENT=24,3,41,1,-2141192049
AT$EVENT=25,1,14,1,1
AT$EVENT=25,3,128,0,-403
AT$EVENT=25,3,128,1,-402
AT$EVENT=25,3,128,2,-405
AT$EVENT=25,3,128,3,-200
AT$EVENT=25,3,128,4,-107
AT$EVENT=25,3,128,5,-105
AT$EVENT=25,3,128,6,-104
AT$EVENT=25,3,128,7,-103
AT$EVENT=25,3,128,8,-102
AT$EVENT=25,3,128,9,27
AT$FRIEND=1,1,"192.168.0.1"
AT$FRIEND=2,0,"0.0.0.0"
AT$FRIEND=3,0,"0.0.0.0"
AT$FRIEND=4,0,"0.0.0.0"
AT$FRIEND=5,0,"0.0.0.0"
AT$FRIEND=6,0,"0.0.0.0"
AT$FRIEND=7,0,"0.0.0.0"
AT$FRIEND=8,0,"0.0.0.0"
AT$FRIEND=9,0,"0.0.0.0"
AT$FRIEND=10,0,"0.0.0.0"
AT&W
AT$RESET
```