

2.2 SUMMARY OF WAP MESSAGES

2.2.1 Messages sent to CVDM2000 Module from data center

Message Name	Primary Type	Secondary Type	Description
Idle	01	-	Idle frame
Message Error	02	see below	
	02	01	Unrecognized message type
Position	41	see below	
	41	05	Set Initial Position
	41	07	Set Position/Velocity Solution
	41	86	Query Long Navigation Message
	41	87	Query Position/Velocity Solution
Status	42	see below	
	42	81	Query Connection Status
	42	82	Query Signal Status
	42	83	Query GPS Module Status
	42	85	Query Version Number
	42	86	Query Extended Diagnostic
	42	87	Query Asset Data/Communication History
Configuration	43	see below	
	43	01	Set Dial String
	43	02	Set Vehicle ID
	43	03	Set Reporting Mode
	43	04	Set Check In Parameters
	43	05	Set Ears On Parameters
	43	06	Set External I/O Parameters
	43	07	Set Constraint Region (Out-of-box)
	43	08	Set Alarm Reporting Parameters
	43	81	Query Dial String
	43	82	Query Vehicle ID
	43	83	Query Reporting Mode
	43	84	Query Check In Parameters
	43	85	Query Ears On Parameters
	43	86	Query External I/O Parameters
	43	87	Query Constraint Region (Out-of-box)
	43	88	Query Alarm Reporting Parameters
Miscellaneous	44	see below	
	44	00	End of transmission
	44	01	Text message to local controller port
	44	02	User Password

2.2.2 Messages sent to data center from CVDM2000 Module

Message Name	Primary Type	Secondary Type	Description
Idle	01	-	Idle frame
Message Error	02	see below	
	02	01	Unrecognized message type
Alarm	40	-	Alarm Event
Position	41	see below	
	41	06	Report Long Navigation Message
	41	07	Report Position/Velocity Solution
Status	42	see below	
	42	01	Report Connection Status
	42	02	Report Signal Status
	42	03	Report GPS Module Status
	42	05	Report Version Number
	42	07	Report Asset Data/Communication History
Configuration	43	see below	
	43	01	Report Dial String
	43	02	Report Vehicle ID
	43	03	Report Reporting Mode
	43	04	Report Check In Parameters
	43	05	Report Ears On Parameters
	43	06	Report External I/O Parameters
	43	07	Report Constraint Region (Out-of-box)
	43	08	Report Alarm Reporting Parameters
Miscellaneous	44	see below	
	44	00	End of transmission
	44	01	Text message from local controller port

3.0 MESSAGE DESCRIPTIONS

NOTE: When any data is sent as more than 1 byte, the most significant byte is always sent first.

3.1 Message: Idle frame (01)

Primary Type: 01

Secondary Type: none

Description: The idle frame is transmitted when there are no messages to send. The function of the idle frame is to provide a feedback vehicle for the ack sequence number.

Data Format:

no data

3.2 Message: Unrecognized message type (02, 01)

Primary Type: 02

Secondary Type: 01

Description: Report when an unrecognized message type (primary or secondary) is received.

Data Format:

<u>Item</u>	<u>Type</u>	<u>UNITS</u>	<u>Byte</u>
msg type received	Byte	-	0-1

3.3 Message: Alarm event (40)

Primary Type: 40

Secondary Type: none

Description: Report when one or more of the enabled alarm events becomes active.

Data Format:

Item	Type	UNITS	Byte
External input events (event active when bit set to "1")	Byte	bit flags	0
	<u>bit</u>	<u>descr.</u>	
	0 (LSB)	input 0	
	1	input 1	
	2	input 2	
	3	input 3	
	4	input 4	
	5	input 5	
	6	input 6	
	7	input 7	
Auxiliary events (event active when bit set to "1")	Byte	bit flags	1
	<u>bit</u>	<u>descr.</u>	
	0 (LSB)	external power removed	
	1	out-of-box	

3.5 Message: Report Long Navigation Message (41, 06)

Primary Type: 41

Secondary Type: 06

Description: Position is in latitude (positive north) and longitude (positive east) WGS-84. The GPS time of day is the time of fix rounded to the nearest second.

Data Format:

<u>Item</u>	<u>Type</u>	<u>UNITS</u>	<u>Byte</u>
GPS Time of fix	Single	Sec	0-3
Latitude	Single	Radians, +north	5-7
Longitude	Single	Radians, +east	8-11
Altitude	Single	Meters	12-15
East Velocity	Single	Meters/sec, +east	16-19
North Velocity	Single	Meters/sec, +north	20-23
Up Velocity	Single	Meters/sec, +up	24-27
Fix Type	Byte	bit flags	28
	<u>bit</u>	<u>descr.</u>	
	0 (LSB)	(0 = Fix avail)	
		(1 = No fix avail)	
	1	(0 = Auto fix)	
		(1 = fix w/RTCM)	
	2	(0 = 3D fix)	
		(1 = 2D fix)	
	3-7	not used (always 0)	
Age of Data Indicator	1	n/a	29
	2	acquired within 30 sec.	
		of call	
	1	acquired more than 30 sec.	
		prior to current call	
	0	Not available	
Number of SVs used (n)	Byte	max. =16	30
SV PRN	Byte		30 + n

3.6 Message: Set or Report Position/Velocity Solution (41, 07)

Primary Type: 41

Secondary Type: 07

Description: Position is in latitude (positive north) and longitude (positive east) WGS-84. The GPS time of day is the time of fix rounded to the nearest second.

Data Format:

<u>Item</u>	<u>Type</u>	<u>UNITS</u>	<u>Byte</u>
GPS Time of fix	Single	Sec	0-3
Latitude	Single	Radians, +north	5-7
Longitude	Single	Radians, +east	8-11
Altitude	Single	Meters	12-15
East Velocity	Single	Meters/sec, +east	16-19
North Velocity	Single	Meters/sec, +north	20-23
Up Velocity	Single	Meters/sec, +up	24-27
Fix Type	Byte	bit flags	28
	<u>bit</u>	<u>descr.</u>	
	0 (LSB)	(0 = Fix avail) (1 = No fix avail)	
	1	(0 = Auto fix) (1 = fix w/RTCM)	
	2	(0 = 3D fix) (1 = 2D fix)	
	3-7	not used (always 0)	
Age of Data Indicator	1	n/a	29
	2	acquired within 30 sec. of call	
	1	acquired more than 30 sec. prior to current call	
	0	Not available	

3.8 Message: Query Long Navigation Message (41, 86)

Primary Type: 41

Secondary Type: 86

Description: Query the Long Navigation Message from the GPS receiver.
Response is (41, 06).

Data Format:
none

3.9 Message: Query Position/Velocity Solution (41, 87)

Primary Type: 41

Secondary Type: 87

Description: Query Position/Velocity Solution from GPS receiver. Response is
(41, 07).

Data Format:
none

3.10 Message: Report Connection Status (42, 01)

Primary Type: 42

Secondary Type: 01

Description: Provide cellular connection status for a check-in session. Reports the duration of a cellular connection, the number of times an attempt to originate a call failed with each system, and the number of times a data link failure occurred with each system.

Data Format:

Item	Type	UNITS	Byte
Call Duration	unsigned Integer	6 seconds	0-1
reserved			2-3
System A connect failures	byte	n/a	4
System B connect failures	byte	n/a	5
System A data link failures	byte	n/a	6
System B data link failures	byte	n/a	7

3.11 Message: Report Signal Status (42, 02)

Primary Type: 42

Secondary Type: 02

Description: Reports the status of the external I/O signals. The Register Status field indicates the direction of the I/O signal; a "1" in the corresponding bit field refers to an output, a "0" refers to an input. The Instantaneous Status is the current value of the signal when the report is generated. If the external I/O timer is enabled, the timer value is reported in the Timer field and is then reset to zero after receiving a frame ack.

Data Format:

Item	Type	UNITS	Byte
Register Status	Byte	bit flags	0
Instantaneous Status	Byte	bit flags	1
Timer	unsigned long	6 seconds	2-5

3.12 Message: Report CVDM2000 Module Status (42, 03)

Primary Type: 42

Secondary Type: 03

Description: This message provides information about the status of the CVDM2000 Module hardware in six status codes. The meaning of each status code is defined as follows:

Status Code 1 - CVDM2000 Module Status

<u>Bit Postion</u>	<u>Description</u>
0 (LSB)	External I/O fault - failure accessing the external I/O register
1	GPS receiver not detected
2	Hayes Modem not detected
3-7	not used

Status Code 2 - Battery and External Voltage

<u>Bit Postion</u>	<u>Description</u>
3-0 (LSB)	Battery Voltage, range 0 thru 15, 0.5 volt resolution: 0 <= 8 volts 15 >= 15.5 volts
7-4	External Voltage, range 0 thru 15, 0.5 volt resolution: 0 <= 8 volts 15 >= 15.5 volts

Status Code 3 - RSSI and Temperature Level

<u>Bit Postion</u>	<u>Description</u>
3-0 (LSB)	Receive Signal Strength Indicator (RSSI), -120 to -45 dBm, 5 dBm resolution; 0 = -120 dBm 15 = -45 dBm
7-4	CVDM Temperature, -20 ⁰ C to +60 ⁰ C, approx. 5 ⁰ C resolution; 0 = -20 ⁰ C 15 = +60 ⁰ C

Status Code 4 - GPS Receiver Status 1

<u>Value</u>	<u>Description</u>
0x00	Doing position fixes
0x01	Don't have GPS time yet
0x03	PDOP is too high
0x08	No usable satellites
0x09	Only 1 usable satellite
0x0A	Only 2 usable satellites
0x0B	Only 3 usable satellites
0x0C	The chosen satellite is unusable

Status Code 5 - GPS Receiver Errors

<u>Bit Postion</u>	<u>Description</u>
0 (LSB)	Battery back-up failed
1	Signal processor error
2	not used
3	not used
4	Antenna feed line fault (open or short)
5	Excessive reference frequency error
6	not used
7	not used

Status Code 6 - GPS Receiver Status 2

<u>Bit Postion</u>	<u>Description</u>
0 (LSB)	Synthesizer fault.
1	Battery powered time clock fault.
2	A-to-D converter fault.
3	The almanac stored in the receiver, is not complete and current.
4-7	not used

Data Format:

<u>Item</u>	<u>Type</u>	<u>UNITS</u>	<u>Byte</u>
CVDM2000 Module status	Byte	bit flags	0
Battery/External voltage	Byte	bit flags	1
RSSI/Temp level	Byte	bit flags	2
GPS receiver status 1	Byte	bit flags	3
GPS receiver errors	Byte	bit flags	4
GPS receiver status 2	Byte	bit flags	5

3.14 Message: Report Version Number (42, 05)

Primary Type: 42

Secondary Type: 05

Description: This packet provides information about the version of software in the Navigation and Signal Processors in the GPS receiver module and also the CVDM2000 Module System Control Processor. The first five items refer to the CVDM2000 Module System Control Processor, the next five refer to the GPS Navigation Processor, and the last five bytes refer to the GPS Signal Processor

Data Format:

<u>Item</u>	<u>Type</u>	<u>UNITS</u>	<u>Byte</u>
Major version number	Byte	n/a	0
Minor version number	Byte	n/a	1
Month	Byte	month	2
Day	Byte	day	3
Year (0-99)	Byte	year	4
Major version number	Byte	n/a	5
Minor version number	Byte	n/a	6
Month	Byte	month	7
Day	Byte	day	8

Year (0-99)	Byte	year	9
Major version number	Byte	n/a	10
Minor version number	Byte	n/a	11
Month	Byte	month	12
Day	Byte	day	13
Year (0-99)	Byte	year	14

3.16 Message: Report Asset Data/Communication History (42, 07)

Primary Type: 42

Secondary Type: 07

Description: Report the Asset Data and communication history. The Asset Data is 10 records of the most recent GPS fixes (time, latitude, longitude), external I/O inputs, and system BIT results.

Data Format:

<u>Item</u>	<u>Type</u>	<u>UNITS</u>	<u>Byte</u>
GPS Time of fix	Single	Sec	0-3
Latitude	Single	Radians, +north	5-7
Longitude	Single	Radians, +east	8-11
Altitude	Single	Meters	12-15
East Velocity	Single	Meters/sec, +east	16-19
North Velocity	Single	Meters/sec, +north	20-23
Up Velocity	Single	Meters/sec, +up	24-27
Fix Type	Byte	bit flags	28
	<u>bit</u>	<u>descr.</u>	
	0 (LSB)	(0 = Fix avail)	
		(1 = No fix avail)	
	1	(0 = Auto fix)	
		(1 = fix w/RTCM)	
	2	(0 = 3D fix)	
		(1 = 2D fix)	
	3-7	not used (always 0)	
Age of Data Indicator	1	n/a	29
	2 = acquired within 30 sec.		
	of call		
	1 = acquired more than 30 sec.		
	prior to current call		
	0 = Not available		
Number of SVs used (n)	Byte	max. =16	30

External input events (event active when bit set to "1")	Byte	bit flags	31
	<u>bit</u>	<u>descr.</u>	
	0 (LSB)	input 0	
	1	input 1	
	2	input 2	
	3	input 3	
	4	input 4	
	5	input 5	
	6	input 6	
	7	input 7	
Auxiliary events (event active when bit set to "1")	Byte	bit flags	32
	<u>bit</u>	<u>descr.</u>	
	0 (LSB)	external power removed	
	1	out-of-box	
System A connect failures	byte	n/a	33
System B connect failures	byte	n/a	34
System A data link failures	byte	n/a	35
System B data link failures	byte	n/a	36
Register Status	Byte	bit flags	37
Instantaneous Status	Byte	bit flags	38
Timer	unsigned long	6 seconds	39-42

3.17 Message: Query Connection Status (42, 81)

Primary Type: 42

Secondary Type: 81

Description: Query for the duration of a cellular connection. If the Termination Flag is set (any value other than zero), the CVDM2000 Module will hang-up after it receives a frame ack to the query response message (42, 01).

Data Format:

<u>Item</u>	<u>Type</u>	<u>UNITS</u>	<u>Byte</u>
Terminate Flag	Byte	0 = No	0

3.18 Message: Query Signal Status (42, 82)

Primary Type: 42

Secondary Type: 82

Description: Request the status of the external I/O signals. Returns message type (42, 02).

Data Format:
none

3.19 Message: Query CVDM2000 Module Status (42, 83)

Primary Type: 42

Secondary Type: 83

Description: Request status of the CVDM2000 Module hardware. Returns message type (42, 03).

Data Format:
none

3.21 Message: Query Version Number (42, 85)

Primary Type: 42

Secondary Type: 85

Description: Query the software version of the CVDM2000 Module System Controller, the GPS Navigation Processor, and the GPS Signal Processor.

Data Format:
none

3.23 Message: Query Asset Data/Communication History (42, 87)

Primary Type: 42
Secondary Type: 87

Description: Request Asset Data and communication history. The user password message (44, 02) must have been sent to the CVDM2000 Module during the same connection in order to receive the response to this query, message type (42, 07).

Data Format:
none

3.24 Message: Set or Report Dial String (43, 01)

Primary Type: 43
Secondary Type: 01

Description: Set the dial string in the CVDM2000 Module (the number the unit will dial when it needs to report), and to enable the discrete input lines. The format of the dial string is equivalent to that described in EIA/TIA-553, table 2.7.1-2, where 16 digits are packed into 8 bytes. The format is essentially packed BCD except the nibble '0' is the string termination character. To insert '0's in the dial string, use the hex character 'A' instead. The maximum size is 8 bytes, and the size of the string is determined by the EOP (end of packet). The previous dial string is stored in EEPROM and can be recalled using the "Use Previous Dial String (43,0A)" command. Example of the EIA/TIA-553 format:

dial string to format:
1 (408) 012-3456

formatted string (6 bytes shown in hexadecimal):
14, A8, A1, 23, 45, 60

Data Format:

Item	Type	UNITS	Byte
Dial String	EIA/TIA-553	na	0-7

3.25 Message: Set or Report Vehicle ID (43, 02)

Primary Type: 43

Secondary Type: 02

Description: This message is used to report or set the vehicle's (or sensor's) unique, three character user assigned ID. The default value is '000'.

Data Format:

Item	Type	UNITS	Byte
Vehicle ID	Byte	binary	0-2

3.26 Message: Set or Report Check In Parameters (43, 04)

Primary Type: 43

Secondary Type: 04

Description: Set or report the Check In Parameters. The units “HH:MM” refer to two bytes with the first byte in hours(HH), and the second in minutes (MM).

Data Format:

Item	Type	UNITS	Byte
Check In start time default = 20:00 (8:00 PM GMT)	Byte	HH:MM	0-1
Check In rep interval default = 24:00 (24 hours)	Byte	HH:MM	2-3

3.27 Message: Set or Report Ears On Parameters (43, 05)

Primary Type: 43

Secondary Type: 05

Description: Set or report the Ears On parameters. When the unit is in the “Ears On” mode, the cellular phone module is waiting for the data center to call in. If a call is received during Ears on mode, the CVDM2000 Module will immediately hang up and then call back the data center.

In the data format below, the units “HH:MM” refer to two bytes with the first byte in hours(HH), and the second in minutes (MM). Ears On mode will be continuous if asset power is applied and the “Ears On continuous flag” is non-zero.

Data Format:

Item	Type	UNITS	Byte
Ears On start time default = 00:00 (12:00 AM)	Byte	HH:MM	0-1
Ears On rep interval default = 01:00 (1 hour)	Byte	HH:MM	2-3
Ears On duration default = 5 (5 minutes)	Byte	minutes	4
Ears On continuous flag	Byte	0 = off	5

3.28 Message: Set or Report External I/O Parameters (43, 06)

Primary Type: 43

Secondary Type: 06

Description: The external I/O parameters

Ext. I/O Config	8-bit mask controlling the direction of the external I/O signals. The signal is an output when the bit is set (1) and an input when the bit is cleared (0). The LSB is External I/O signal 0.
Ext. I/O level	8-bit mask used to determine the active level of an external input. A signal is active high when the bit is set and active low when the bit is cleared.
Ext. I/O output	8-bit value used to determine the level of an external output.
Ext. I/O Alarm	8-bit mask used to enable/disable an alarm event for an individual I/O signal. If the I/O signal is configured as an input and the alarm bit is set and the signal is active, then an alarm event is generated.
External I/O Event Timer	External I/O event timer with a 6 second resolution and max value of 14,400 (24 hours). The timer starts whenever the conditions established by External I/O Timer Masks 1 is satisfied. The timer value can only be written to when the update timer flag (bit 0) in the External I/O Timer Flags register (see below) is set.

Ext. I/O Timer Mask 1	8-bit mask applied to the external I/O signals to start/stop the external I/O timer. The timer will start when one or more masked input signals is active.
Ext. I/O Timer Flags	When bit 0 is set, the External I/O Event Timer is updated with the value in the External I/O Event Timer field.

Data Format:

Item	Type	UNITS	Byte
I/O configuration Default = 0x00 (all signals are inputs)	Byte	bit fields	0
I/O active level Default = 0xFF (all input signals are active high)	Byte	bit fields	1
I/O output Default = 0x00	Byte	bit fields	2
I/O immediate alarm trigger Default = 0x00 (all I/O input alarm events disabled)	Byte	bit fields	3
timer reset (0) on power-up	Unsigned Long	6 seconds	4
timer mask 1 Default = 0x00 (all triggers disabled)	Byte	bit fields	5-8
timer mask 2 Default = 0x00 (all triggers disabled)	Byte	bit fields	9
			10

3.29 Message: Set or Report Constraint Region/Out-of-Box (43, 07)

Primary Type: 43

Secondary Type: 07

Description: Set or Report the Region Constraint parameters (Out-of-Box). These parameters define the dimensions and origin of a “Box” region that is used to generate one of the alarm events. The Box Mode field defines whether the alarm is active when the unit is inside the box, outside the box, or is disabled.

The Extent-1 and Extent-2 fields define the shape and size of the region. If Extent-2 is zero, then Extent-1 is the radius of a circular region with the center at Origin (lat-lon). If Extent-2 is a nonzero value, it is the North-South extent of a rectangular region whose SW (lower-left) corner is at Origin (lat-lon) and whose East-West extent is determined by Extent-1.

Data Format:

Item	Type	UNITS	Byte
Box Mode	Byte	(0 = disable)	0
Default = 0 (disable)		(1 = outside)	
		(2 = inside)	
Origin-Latitude	Single	Radians, +north	1-4
Origin-Longitude	Single	Radians, +east	5-8
Extent-1	Single	meters	9-12
Extent-2	Single	meters	13-16

3.30 Message: Set or Report Alarm Reporting Parameters (43, 08)

Primary Type: 43

Secondary Type: 08

Description: Set or Report the Alarm Reporting parameters that determine the CVDM2000 Module alarm mode behavior when an alarm event occurs. This message also includes the “Asset Power Removed” alarm flag. The possible alarm events are:

1. External input is active (see External I/O parameters below)
2. “Out of Box” condition (see Out-of-Box parameters below).
3. Asset power is disconnected

Asset Power Removed Flag If this flag is set (non-zero), an Alarm event will be generated if asset power is removed.

Base Interval Initial alarm “chirp” interval in hours and minutes (HH:MM).

Base Duration Initial alarm “chirp” duration of initial alarm base interval in hours.

Increase Factor Alarm Interval growth factor applied at each alarm duration to the alarm interval.

Change Rate Rate (in hours) at which the alarm interval increases.

Interval Max Longest alarm interval in hours.

Data Format:

Item	Type	UNITS	Byte
Base Interval	Byte	HH:MM	0-1
Default = 00:05 (5 minutes)			
Base Duration	Byte	hours	2
Default = 3 (3 hours)			
Increase Factor	Byte	n/a	3
Default = 2 (interval increased by 2 each duration)			

Change Rate	Byte	hours	4
Default = 1 (1 hour)			
Maximum interval	Byte	hours	5
Default = 24 (24 hours)			
Asset Power Alarm Flag	Byte	(0 = disabled)	6
Default = zero (no alarm event generated)			

3.30 Message: Set or Report CVDM2000 Module Time of Day (43, 09)

Primary Type: 43

Secondary Type: 09

Description: Set or Report the Real Time Clock (RTC) in the CVDM2000 Module. The seconds, minutes, hours, and day in week fields are automatically set to the GPS Week Time (GMT) whenever the GPS receiver has the current GPS time.

Data Format:

<u>Item</u>	<u>Type</u>	<u>UNITS</u>	<u>Byte</u>
seconds	Byte (BCD)	seconds, 0-59	0
minutes	Byte (BCD)	minutes, 0-59	1
hours	Byte (BCD)	hours, 0-23	2
day in month	Byte (BCD)	day, 1-31	3
month	Byte (BCD)	month, 1-12	4
day in week	Byte (BCD)	Sunday = 1 thru Saturday = 7	5
year	Byte (BCD)	year., 0-99	6

3.30 Message: Use Previous Dial String (43, 0A)

Primary Type: 43

Secondary Type: 0A

Description: The CVDM2000 Module stores the two most recent dial strings (refer to message type 43,01) in nonvolatile EEPROM. This command toggles between the two strings to select which one is actually used in the Check-In state. This command can be issued in the Ears-On state.

Data Format:

none

3.31 Message: Query Dial String (43, 81)

Primary Type: 43
Secondary Type: 81

Description: Query for dial string stored in CVDM2000 Module. Responds with message type (43, 01).

Data Format:
none

3.32 Message: Query Vehicle ID (43, 82)

Primary Type: 43
Secondary Type: 82

Description: Responds with message type (43, 02).

Data Format:
none

3.33 Message: Query Check In Parameters (43, 84)

Primary Type: 43
Secondary Type: 84

Description: Responds with message type (43, 04).

Data Format:
none

3.34 Message: Query Ears On Parameters (43, 85)

Primary Type: 43

Secondary Type: 85

Description: Responds with message type (43, 05).

Data Format:

none

3.35 Message: Query External I/O Parameters (43, 86)

Primary Type: 43

Secondary Type: 86

Description: Responds with message type (43, 06).

Data Format:

none

3.36 Message: Query Constraint Region/Out-of-Box (43, 87)

Primary Type: 43

Secondary Type: 87

Description: Responds with message type (43, 07).

Data Format:

none

3.37 Message: Query Alarm Reporting Parameters (43, 88)

Primary Type: 43

Secondary Type: 88

Description: Responds with message type (43, 08).

Data Format:

none

3.31 Message: Query CVDM2000 Module Time/Date (43,89)

Primary Type: 43

Secondary Type: 89

Description: Query for Time and Date of the RTC in the CVDM2000 Module.
Responds with message type (43, 09).

Data Format:

none

3.38 Message: End of Transmission (44, 00)

Primary Type: 44

Secondary Type: 00

Description: Last message sent by each party during a connection. When both parties have sent this message, the connection is properly terminated. If the connection terminates prior to both parties sending the “End of Transmission” message, the CVDM2000 Module will enter the “Reacquire Connection” state. When a connection between the data center and the CVDM2000 Module is reestablished, the both sides will resume at the point of last failure.

Data Format:none

3.39 Message: Send Text Message to/from Local Controller Port (44, 01)**Primary Type:** 44**Secondary Type:** 01

Description: Allows messages to be sent/received from the Local Controller Port on the CVDM2000 Module and a user level application at the data center. The size of the text message is determined by the EOP (end-of-packet) and is limited to 32 bytes maximum.

Data Format:

<u>Item</u>	<u>Type</u>	<u>UNITS</u>	<u>Byte</u>
Text message	Byte	n/a	0-31

3.40 Message: Send User Password (44, 02)**Primary Type:** 44**Secondary Type:** 02

Description: The user password must be sent to the CVDM2000 Module before attempting to access asset data during a connection. Refers to query message type (42, 87).

Data Format:

<u>Item</u>	<u>Type</u>	<u>UNITS</u>	<u>Byte</u>
User password	Byte	n/a	0-7