SatStation EdgeMate User's Guide



Welcome to the SatStation EdgeMate, your gateway to monitoring, configuring, and logging high performance DC changing systems. EdgeMate is a small appliance that once installed can be used to:

- Combine 2 independent CAN bus networks allowing all or selected data to transfer between them.
- Sample, display, and log NMEA 0183 and NMEA 2000.
- Provide Internet connectivity to many devices on a vessel with flexible routing and firewall filtering capabilities. Internet connections supported are USB connected Android or iOS devices, Wi-Fi bridge to an internet connected hotspot such as a Netgear Aircard or Verizon JetPack, or an Ethernet connection to an Internet connected satellite terminal or vessel router.
- Allow remote support connectivity to experts and technicians for analysis, diagnostics, and configuration of DC changing systems.

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Powering the EdgeMate

The EdgeMate can be powered with either the supplied AC/DC power supply or directly from the vessel's house battery bank. The unit requires 9-60 VDC and is reverse polarity protected. The center pin of the power connector is positive.

To wire the EdgeMate directly to the vessel's house battery, start by cutting the power lead off of the supplied AC/DC adapter. Connect a 1 amp fuse to the positive power lead (The Black wire is Positive, the wire with a White stripe is Negative) and wire to the vessel's switch panel. Before powering the EdgeMate, use a voltmeter to ascertain that the center pin in the connector has positive current. Reversing the polarity on the connector will not damage the EdgeMate, but it will prevent it from powering on.

You will notice a blue status LED on the top of the unit illuminates when the unit is correctly powered on.

Accessing the Web User Interface

Once powered on, the EdgeMate needs to be configured to select the GPS data source, establish an Internet connection, to enable and set the tracking interval, and to password secure it's Wi-Fi.

Before you can start the configuration process, you must first establish a connection either via Ethernet or Wi-Fi to login to its web administrative interface.

The EdgeMate web interface is mobile friendly and supports all popular web browsers.

Access via Wi-Fi

The EdgeMate advertises itself via Wi-Fi with an SSID "OPE-Tether-XXXX" where XXXX is an alphanumeric sequence specific to the device. By default, the EdgeMate Wi-Fi is unprotected. As part of the configuration process, you may change the SSID of the unit and encrypt and password protect the unit. Procedures for assigning a password are discussed later on in the "Securing EdgeMate" section of this document.

To Wi-Fi connect to the EdgeMate, scan for available access point SSIDs and select the one that corresponds to your unit. The following image depicts the process for Mac OS X. Other OS's use a similar process.



Access via Ethernet

To access the unit via a wired connection, run an Ethernet cable between the RJ45 port on your laptop computer and the LAN port on the EdgeMate. The LAN port is the RJ45 port closest to the power connector labeled as LAN.

Accessing the Web UI

To login to EdgeMate's administrative web page, open a web browser and browse to http://10.10.10.1

You should see a login page pop up in your browser. Login with the default username: "admin" and password: "admin". Then push the "Login" button to access the administration pages.

Authorization Required Please enter your username and password. Username admin Password

Configuring the EdgeMate

A GPS feed, an Internet connection, and tracking at a minimum need to be configured to allow the tracking of your vessel on your personal tracking and blogging page at OPE.

Configuring the GPS feed

Once logged into EdgeMate's administrative website, browse to "Services->NMEA" to configure the GPS feed. On a mobile device you do this by clicking on the "Hamburger" icon on the top left of the page and under "services" selecting "NMEA". On a laptop with a larger display area, you will see the "Services" menu on the left.

SATSTATION		
Services	^	
Remote Access		
NMEA		
Tracking		
Network Shares		
Settings		
€ Logout		

Using the built-in GPS

Use the "Source" pull down menu to select the GPS source. If using the built-in GPS, make sure that the EdgeMate is installed with the supplied GPS antenna and with good access to the GPS signal.

E	dge-N	Mate							
S	ettings	Tools	GPS	Navigation	Environmental	DC	Engine		
	NM	EA S	ettir	ngs					
	NM	EA Da	ata So	ource					
				Source	Built in GPS			~	
		Select NMEA Inpu Built in GPS	it Source	e					
					NMEA0183 via UE NMEA0183 via Re	DP Broa emote H	dcast ost		
	Ger	neral S	ettin	gs	NMEA2000 on CA NMEA2000 on CA	N0 N1			

Using NMEA 2000 for GPS

If using your vessel's NMEA 2000 network, then connect the optional device cable from the M12 connector on the back of the EdgeMate to a tee on your NMEA 2000 backbone. NMEA 2000 device cables and tees can be purchased directly from SatStation with your EdgeMate order.

Once connected to the NME2000 network, select "NMEA2000 on CAN0" as the GPS source.

Verifying your GPS data feed

Selecting the "Status" tab in the NMEA section will display live GPS data as it streams into the device.

Edge-Mate		
Settings Tools GPS Navigation	Environmental	DC Engine
GPS NMEA Status		
	Status	ACTIVE GPS Status.
	Date	12/09/2022 GMT date.
	Time	16:48:44 GMT time.
	GPS Time	1663001324 GPS time in seconds since Jan 1, 1970.
	Latitude	25.798618 Latitude in degrees and decimal degrees.
	Longitude	-80.25224 Longitude in degrees and decimal degrees.
	SOG	0.167387 Speed over ground in knots.
	COG	0 Course over ground degrees true.
	Altitude	0.1 Altitude in meters.

"ACTIVE" under "Status" means that you have valid GPS data. A "Status" of "VOID" indicates that NO or invalid GPS data is being received.

Please confirm that you are indeed getting valid GPS data before proceeding.

NMEA status tabs can be used for more than just verifying GPS data. Tabs are included to display GPS, Navigation, Environmental, DC Alternator and Battery, and Engine NMEA data if available. Click on the tabs to view available data on the NMEA 2000 bus.

Edge-Mate	
Settings Tools GPS Navigation Environmental	DC Engine
NMEA Environmental Status	
Pressure	NA Atmospheric pressure in millibars.
Variation	NA Compas magenetic variation in degrees.
Deviation	NA Compas magenetic deviation in degrees.
Heave	NA Vessel motion in vertical direction.
Yaw	NA Vessel motion side to side.
Roll	NA Vessel roll.
Pitch	NA Vessel pitch.

Edge-Mate	
Settings Tools GPS Navigation Environmental	DC Engine
NMEA Navigation Status	
HDG	NA Heading degrees true.
AWS	NA Apparent wind speed in knots.
AWA	NA Apparent wind angle in degrees. Minus values to port. Plus values for starboard
TWS	NA True wind speed.
TWD	NA True wind direction in degrees true.
SOW	NA Speed over water in knots.
тнш	NA True heading through water in degrees true.

NMEA2000 to NMEA183 Repeater via Wi-Fi

One of the nice features of the EdgeMate is that it will broadcast NMEA 0183 data via Wi-Fi regardless of the GPS input source. This Wi-Fi broadcast allows external navigation applications such as Aquamap, GPS Nav X, Navionics Boating App, etc. to use your vessel's GPS for navigation. This results in much more accurate GPS data with the addition of other NMEA 2000 data such as wind speed and direction, depth, etc.

NMEA 0183 data is broadcast by default via UDP (User Datagram Protocol) on port 11101 and TCP (Transmission Control Protocol) on port 11102. The ports are user selectable and can be changed under "Settings" in the NMEA configuration section.

SATSTATION	Edge-Mate
Services ^ Remote Access NMEA Tracking	Settings Tools GPS Navigation Environmental DC Engine
Network Shares Settings	NMEA Data Source
ච Logout	Source Built in GPS
	Enable Sample Averaging Enable sliding window averaging of data used for tracking.
	UDP Broadcast Port 11101
	TCP Broadcast Port 11102 Broadcast NMEA0183 data via UDP through this port.

To configure your charting application to use EdgeMate generated data, please refer to the software documentation for the software. You will need to configure the following

- Host: 10.10.10.1
- Protocol: UDP or TCP
- Port number: 11101 (for UDP) or 11102 (for TCP)
- Wi-Fi connection between mobile or laptop and EdgeMate.

Following are the configuration settings for the iOS version of Navionics Boating and Acquamap apps.

11:27 ◀	11:24 イ
Back Connection Settings Edit	K Back Add device Save
	Name
Select device	DataHub
Data format NMEA SignalK NMEA sentences supported: RMC, GGA, GLL, HDG, DPT, MWV, MWD, VDM	Host 10.10.10.1
Wi-Fi protocol TCP UDP	
IP address Port N° 10.10.10.1 : 11102	Port Number 11102
NMEA checksum	
	TCP UDP
Status NOT active >	
	1 2 3 4 5 6 7 8 9 0
	- / : ; () \$ & @ "
	#+= . , ? ! ′ 🗵
	ABC space return
► Ū	<u> </u>
Aqua Map	Navionics Boating

EdgeMate Tracking

Enabling Tracking

Navigate to Services->Tracking, click on Enable Tracking and then click SAVE & APPLY on the bottom of the page to enable tracking for the unit.

Edge-Mate - Settings - LuCl 🗙	+		~	-	o ×
← → C ▲ Not secure 10	10.10.1/cgi-bin/luci/admin/services/tracking		ß	A 1	a 🔹 :
EAISTATION	Edge-Mate			RE	FRESHING
Services ^	Settings Tools Sys Log				
Remote Access NMEA	Tracking General Settings				
Tracking Network Shares Settings	General Settings				
Đ Logout	Enable Tracking				
	Log Settings				
	Init SD Disk	NTIOLOCE An SD Card is required for logging. Please insert a blank disk and then press the "initialize" button to format and mount the volume.			
		SAVE & APPLY	SAVE		RESET
		Powered by RDS (Copyright © Remote Data Sensing (http://RDSensing.com), LLC 2021 - All Rights R	leserved)	/ MAT	E-32m v3.27

After enabling tracking, click on Initialize. This will format and initialize the pre-installed SD card for EdgeMate.

Edge-Mate - Settings - LuCI	× +		× - ¤ ×			
← → C ▲ Not secu	re 10.10.1/.cgi-bin/luci/admin/services/tracking		Q 🖻 🖈 🖬 😩 i			
Firstanon	Edge-Mate		REFRESHING			
Services ^	Settings Tools Sys Log					
Remote Access NMEA Zention	Tracking General Settings					
Network Shares Sattings	General Settings					
-	Serial Number	101376186841 Ums servin number required by some tracking services.				
⊉ Logout	Network Spool	0				
	Enable Tracking					
	Purge					
	On startup, purps position reports in pending queue that have not been sent yet.					
	Init Temp Spool	IN TALKE An SD card is required to preserve accomulated tracks between reboots. Plasse insert a blank disk and then press the "Initialize" button to format and mount the volume.				
	Provider	EitemeTradPlus				
		Provider of fracting service.				
	Transport	Internet/Network Connection(NET)				
		Position report transport method.				
	Interval	15				
		Sauling internal in minutes				
	Log Settings					
	Init SD Disk	ennaution An 10 Cord is required for logging. Please insert a blank disk and then press the "Initialize" botton to format and resourt the volume.				
			SAVE & APPLY SAVE RESET			
		Powered by RDS (Capyright © Remote Data Sensing Ontp://RDSensing.com/, U	LC 2021 - All Rights Reserved) / MATE-32rs v3.27			

Select your preferred Tracking Provider and click Save & Apply.

Tracking Tools

Navigating to Tools in the tabbed menu above brings you to the Tracking Tools. The different options do the following:

- Position Sends a position report immediately if able.
- Purge Removes all recorded position reports that are stored on the device but have not been transmitted yet (does not apply to Logs being stored on the device).
- Restart Starts or Restarts your tracking service.

• Stop – Immediately stops your tracking service.

Edge-Mate - Tools - LuC	× +			~	/	-	٥	×
← → C ▲ Not	secure 10.10.10.1/cgi-bin/luci/admin/servic	es/tracking/tools		QĿ	ê 1	☆ □		÷
SATSTATION	Edge-Mate					UNSAV	ED CHANG	iES: 1
Services A Ramote Access NARA Network Shares Settings D Logout	Setting <u>toot</u> System Logs	Exciting Exact a particular recorded position reports currently spooled but not yet transmitter Remore all reviewouthy recorded position reports currently spooled but not yet transmitter Cost or overall stacking service.	L Powered by RDS (Copyright © Remote Data Sensing Ortp://RDSensing.com): LLC	: 2021 - All	I Rights	Reserved) /	MATE-324	n v3.27

Sys Log

The Sys Log tab gives access to a live log where every action EdgeMate takes is shown in real time.

📕 Edge-Mate - Sys Log -	LuCi × +	~ - 6 ×
\leftrightarrow \rightarrow C \blacktriangle Not	secure 10.10.10.1/cgi-bin/luci/admin/services/tracking/log	९ 🖻 🖈 🔲 😩 :
SAT STATION	Edge-Mate	UNSAVED GHANGES: 1
Services ^	Settings Tools Sys Log Logs	
Remote Access NMEA	Tracking Log	
Tracking Network Shares	Sat Nov 6 13:12:04 2021 user.info tracking[1436]: Sleeping for 15 min	
Settings		
Ð Logout		
		Powered by RDS (Copyright @ Remote Data Sensing (http://RDSensing.com), LLC 2021 - All Rights Reserved) / MATE-32m v3.27

Logging

EdgeMate can log position reports and store it in its internal non-volatile storage for later analysis. Logged data can be viewed, downloaded, and deleted.

Logging is enabled by checking the "Enable Logging" checkbox at the bottom of the "Tracking" page after initializing the SD Card. Check the box followed by pushing the "Save & Apply" button to enable logging.

Edge-Mate - Settings -	uCI × +		``	/	-	٥	×
\leftrightarrow \rightarrow C \blacktriangle Not	secure 10.10.10.1/cgi-bin/luci/admin/services/tra	icking/general design of the second	a L	2	☆) E
	Edge-Mate					REF	ESHING
Services ^	General Settings						
Remote Access NMEA	Serial Number 10137 Unit s	616561 arial number required by some tracking services.					
Network Shares	Network Spool UNUMB	per of position reports pending to be sent but not trasmitted yet.					
Settings	Enable Tracking 🗹						
➔ Logout	Purge D	artup, purge position reports in pending queue that have not been sent yet.					
	Provider Extrem	ma TrackPlus 🗸					
	Provid Transport Intern	er of trading service. etNetwork Connector(NET)					
	Positic Interval 15 Tracki	on report transport method.					
	Log Settings Enable Logging 2 Log Rotation delly Log ro Number Logs 4 Number Logs 4						
		E	AVE & AF	PLY	SAV	RE	SET
		Powered by RDS (Copyright @ Remote Data Sensing (http://RDSensing.com), LLC 20	21 - All	Rights I	Reserved	/ MATE-3	2m v3.27

Manage Tracking Logs

The EdgeMate is supplied with non-volatile memory. Log rotation prevents the log data from growing forever and filling up available storage space. This is done by storing the logs in individual files and then periodically deleting the older data sets.

A log rotation scheduling dialog appears when logging is enabled.

Enable Loggin	g 🔽		
Log Rotatio	n daily	~	
	Log rotation scheudle.		
Number Log	s <u>4</u>	~	
	Number of log files to "weekly" and number will be maintained.	keep. If, for example, log of logs is set to 4 then 4 v	rotation is set to weeks worth of logs

In the above screen shot we have selected the logs to be rotated daily with a maximum of 5 log files (4 days worth) to be stored. File names are logged by name followed by a '.' and a number. The larger the number the older the data set.

Logs can be rotated on a "daily", "weekly", or "monthly" schedule. A maximum of 10 log files can be stored in EdgeMate's internal memory.

If Tracking and Logs are both enabled the Logs tab will grant access to logs stored directly on EdgeMate.

🙎 Edge-Mate - Logs - Lu	uci × +						∨ – ⊡ ×
\leftrightarrow \rightarrow C \blacktriangle No	ot secure 10.10.10.1/c	gi-bin/luci/admin/services/t	acking/logs				Q @ ☆ □ ≗ :
SATSTATION	Edge-Mate						UNSAVED CHANGES: 1
Services ^	Settings Tools Sys Log	Logs					
Remote Access NMEA Tracking Network Shares	Logs Manage Tracking Logs						
Settings		Select All Files S Un-Select All Files U Download All Selected E Delete All Selected E Rotate Logs F	BLECT INSELECT OWNLOAD BLETE INTE				
	Select	Filename track.log	Date Nov 6 13:12	Size 153	Download DOWNLOAD	View	Delete DELETE
					Powered by RDS (Copyright © F	Remote Data Sensing (http://RDSensing.com), LLC 2021 - All Rights Reserved) / MATE-32m v3.27

Configuring Internet Access

Access to the Internet is required to allow SatStation specialists to access your system for monitoring, diagnosis, and configuration of your DC charging systems. Although a dedicated Internet connection is desired it is not required.

EdgeMate provides four different ways to connect to the Internet. These include:

- USB Connected iOS devices
- USB Connected Android Devices
- Ethernet connected router with Internet access such as a broadband satellite device (Iridium Certus, Inmarsat Fleet Broadband, KVH Vsat, etc.) or an LTE enabled router such as a Pepwave.
- Wi-Fi bridge to MyFi devices such as a Netgear Aircard, Cricket wireless router, Verizon Jetpack and others.

Multiple Internet connections can be configured at the same time. For example, users could use a USB connected Android phone as well as an Ethernet connected satellite terminal. When the satellite phone is on, then data is routed through it. If the satellite phone is off, then data is routed through the Android connected device. If neither of the two are available, then the position reports are stored internally in non-volatile memory until an Internet connection is available.

Internet via USB connected iOS device

Use a standard lightning iOS USB charging cable to connect your iPhone or iPad to the USB port on the EdgeMate.

Once connected, iOS will prompt you whether the EdgeMate should be trusted or not. Select "Trust".

On the iOS device, navigate to "Settings->Personal hotspot" and enable it as depicted below.



The EdgeMate should now be connected to the Internet if your iOS device has Internet connectivity. See section below called "Verifying Internet Connectivity" to confirm that the device is connected to the Internet.

Internet via Android

To establish an Internet connection via Android, connect the devices USB charging cable to EdgeMate's USB connection.

On the Android device now navigate to "Settings->Network & Internet->Hotspot & tethering" and enable USB tethering.

The EdgeMate should now be connected to the Internet. See section below called "Verifying Internet Connectivity" to confirm that the device is connected to the Internet.

You will need to repeat the process every time you disconnect and reconnect the Android device to EdgeMate's USB port. However, there is a good trick that allows you to automate this process so that the phone enters USB tethering mode automatically when you plug it in. Detailed instructions on configuring automatic USB tethering are beyond the scope of this guide, but are described in detail in the <u>following article</u>.

Internet via Ethernet WAN port

This is the simplest of all methods. Run an Ethernet cable from your vessel's router LAN port to the port labeled WAN on the EdgeMate. EdgeMate's WAN port is the RJ-45 jack furthest away from the power connector.

The EdgeMate should now be connected to the Internet. See section below called "Verifying Internet Connectivity" to confirm that the device is connected to the Internet.

Internet connection via Wi-Fi Tethering

Although Wi-Fi tethering is the most complex of all Internet connectivity methods, it is quite effective and once configured very convenient to use. The EdgeMate will persistently search for the remote access point and once found will automatically connect to it. No buttons or settings need to be changed between power up/down. The Hub searches and automatically connects.

Access points can be your phone in mobile hotspot mode or a dedicated Wi-Fi access point. When using your phone, enable hotspot mode and the EdgeMate will automatically connect to it. This for many is more convenient than plugging the phone into the USB port on the EdgeMate since the EdgeMate connects to the phone wirelessly. If you have your EdgeMate installed in a cabinet, then you will probably want to use this method for Internet connectivity.

To configure Wi-Fi tethering, login into the web administrator and browse to "Settings" under "Services" and navigate to the Wi-Fi tab.

SATSTATION	Edge-Mate				REFRESHING
Services ^	WFI CAN Bus Internet Status Diagnostic	s LTE Password Firmware			
Remote Access NMEA Tracking Network Shares	WiFi Overview				
Settings	Note: The "Save & Apply" button must be p	oushed for WiFi changes to take effect.			
Đ Logout	π		WiFi Network to Internet MediaTek MT7620 802.11bgn Device is not active		DISABLE
	is disabled		SSID: WiFi Client Mode: Client Wireless is disabled		
			WiFi Access Point Hotspot MediaTek.MT76x2E 802:11acn Channel: 36 (5:180 GHz) Bitrate: ? Mbit/s		
	dBm dBm		SSID: Edge-Mate-f194 Mode: Master BSSID: 00:0A:52:06:F1:95 Encryption: None		EDIT
	Associated Stations and Con	nected Devices			
	Network	MAC-Address	Host	Signal / Noise	RX Rate / TX Rate
			No information ava	ilable	
					SAVE & APRLY + SAVE RESET

Under "Wi-Fi Overview" you will see two Wi-Fi transmitters listed. The first called "Wi-Fi Network to Internet" is used to establish a Wi-Fi link to a remote hotspot that provides Internet access. This transmitter in essence can be used to connect the EdgeMate to the Internet via a Wi-Fi link.

The second transmitter called "Wi-Fi Access Point Hotspot" is the transmitter used by the EdgeMate to provide Wi-Fi connectivity to devices on the vessel wishing to access the web administrator and the Internet. Notice the SSID for this transmitter is listed as "SSID" PW-Hub-XXXX" where the Xs represent alphanumeric digits unique to the unit. This is the SSID that clients use to Wi-Fi connect to the EdgeMate. We will return to this transmitter later in the guide when we discuss how to password protect the Wi-Fi connection to your EdgeMate and change its broadcast Wi-Fi name or SSID.

Push the "SCAN" button to list all the available Wi-Fi access points near you. Select the one you desire to connect to and tap "JOIN NETWORK". In this example I am selecting my iPhone in hotspot mode. Next enter the passphrase for the Wi-Fi access point then tap "SUBMIT" at the bottom of the page. Note the "WPA passphrase" field will not be present for open Wi-Fi networks without passwords.

- Es	TSTATION	Edge-Mate							REFRESHING
Services		CAN Bus	Internet Status Diagnostics LTE Password Firmwa	re					
Remote Acc NMEA Tracking	Join Netv	vork: Wireless Scan	1						
Network Sh		Signal	SSID	Channel	Mode	BSSID	Encryption		
Settings		🚄 -52 dBm	AtlanticRT	1	Master	78:8A:20:57:DC:EF	WPA2 PSK (CCMP)	JOIN NETWORK	
E Logou		🚄 -52 dBm	AtlanticRT-Guest	1	Master	7A:8A:20:67:DC:EF	None	JOIN NETWORK	CAN
E cogou		🚄 -52 dBm	hidden	1	Master	8A:8A:20:67:DC:EF	WPA2 PSK (CCMP)	JOIN NETWORK	
		🚄 -60 dBm	AtlanticRT	6	Master	78:8A:20:67:DE:0A	WPA2 PSK (CCMP)	JOIN NETWORK	
		🚄 -60 dBm	AtlanticRT-Guest	6	Master	7A:8A:20:67:DE:0A	None	JOIN NETWORK	
		🚄 -62 dBm	hidden	6	Master	8A:8A:20:67:DE:0A	WPA2 PSK (CCMP)	JOIN NETWORK	
		📣 -82 dBm	AtlanticRT-Guest	11	Master	7A:8A:20:67:DC:F0	None	JOIN NETWORK	
		🛋 -84 dBm	AtlanticRT	11	Master	78:8A:20:67:DC:F0	WPA2 PSK (CCMP)	JOIN NETWORK	
		🛋 -84 dBm	hidden	11	Master	8A:8A:20:67:DC:F0	WPA2 PSK (CCMP)	JOIN NETWORK	
		📣 -92 dBm	ngHub_319468N1029DB	11	Master	10:DA:43:3A:9A:07	WPA2 PSK (CCMP)	JOIN NETWORK	
		剑 -94 dBm	K4-YTKX	1	Master	40:1C:83:7F:D8:89	WPA2 PSK (CCMP)	JOIN NETWORK	DESET
								STOP REFRESH DISMISS	ANTE STORES 77

On the following page, review and hit "SAVE" at the bottom of the page. Back on the wireless overview page, scroll to the bottom and push "SAVE & APPLY" to confirm your settings and activate them. You can push the "UNSAVED CHANGES" button at the top right of the page if you want to discard the session without connecting.

R	ATSTATION	Edge-Mate		REFRESHING	INSAVED CHANGES: 9
Services		WIFI CAN Bus Internet Status	Diagnostics LTE Password Firmware		
Remote Acc NMEA Tracking Network Sh	Wireless N	twork: Client "AtlanticRT" (radic	0.network1)		
Settings	General Set	ib.			
🖸 Logou		Status Operating frequency	Mode: Clamit (SSID: Atlanticit)		CAN
		Maria			
		Maximum transmit power	urrer demain Societies the maximum transmit cover the wireless radio may us. Comerce power requirements and wireless usage, the actual transmit power may be reduced by the driver,		
					-
	General Set	Wireless Security			100
		Mode	Client 🗸		
		ESSID	AllanticRT		
		Network	wwan		
				DISMISS	AVE
				SAVE & APPLY +	SAVE RESET

You know if you have successfully Wi-Fi tethered to the remote access point by looking at the status in "Associated Stations and Connected Devices".

Network	MAC-Address	Host	Signal / Noise	RX Rate / TX Rate	
Client "Forest Bliss" (wlan1)	00:0A:52:06:0E:F4	fe80::20a:52ff:fe06:ef4	📶 -58 dBm	14.4 Mbit/s, 20 MHz, MCS 8, Short GI 39.0 Mbit/s, 20 MHz, MCS 4	
Master "OPE- Tether-2099" (wlan0)	9A:BF:AA:56:3B:2A	10.10.10.146	<u> -</u> 56 dBm	24.0 Mbit/s, 20 MHz 780.0 Mbit/s, 80 MHz, VHT-MCS 9, VHT-NSS 2	DISCONNECT
				SAVE & APPLY 👻	AVE

You will see the SSID of the remote station listed with signal strength and a transmit (TX) and receive (RX) rate. You will know that the station is not available, or you were not successful (if say you entered the password incorrectly) when the signal bounces between 0 and some value and the RX/TX rates drop to zero.

But... note there are easier and better ways to know if you are connected to the internet as described in the "Verifying Internet Connectivity" section.

SBD

Connecting the Iridium Edge to EdgeMate allows EdgeMate to send information over satellite via Iridium Short Burst Data (SBD).

Enabling SBD

Navigate to Iridium SBD, click enable and hit Save & Apply.

SBD Settings

SATSTATION		Edge-Mate
Services	^	Repeater Parameters
Remote Access		General USB Feed SBD Tunnel
NMEA		Enable 🗹
Iridium SBD		Enable SBD montioring and repeating
Tracking Network Shares		Interface System Default
Settings		Select COM port assigned to Iridium device. System default will probably work.
➔ Logout		Iridium Baud Rate 19200 V
		Max SBD Size 340 ~
		Maximum SBD message size in bytes. 340 bytes for for Iridium 9602/9603 and 1960 byte for Iridium 9522B/9523 based systems.
		Max Payload Size 1024
		Maximum amount of data allowed in bytes to be trasmitted over SBD in one session. Payloads larger than "Max SBD Size" and smaller than "Max Payload Size" will be split up in multiples messages of "Max SBD Size" before transmission. This value applies to any data received via TCP, UDP, File Upload, SMB Network Shares, or submission via "tools->Miport form Input Form". Payloads larger than "Max File Size" will silently be deleted and not transmitted. CAUTION: Setting large "Max File Size" may result in large and unpexpect airtime costs. Caution should be used when modifying this field since users are responsible for data chargers.
		Clean on boot
		Remove queued SBD messages from in/outbox on startup.
		Mailbox check interval 0
		Interval in minutes used to force a mailbox check in the event of a lost RING alert. Note that mailbox checks may incur airtime costs. Use 0 minutes to disable.

- Interface is the device being interfaced by the Edge. By default, the EdgeMate
 automatically recognizes when an Iridium Edge is connected to it, making "system
 default" point to the Edge. This will also show interfaces which are connected to the USB
 port, including Irdium SBD modems, or satellite phones such as the 9555 and/or 9575.
 So the unit is not limited only to the Edge, it'll work on any Iridium system that supports
 SBD, and those systems would have to be connected through the USB port.
- **Baud rate** is the serial port baud rate between the Mate and the Edge, or whatever Iridium device you're connected to. The default is 19200.
- **SBD Max packet size** allows you to change the max allowed SBD packet size. Now this is important because 9523 devices, or LBTs, have the ability to send much larger SBD

messages, as large as 1960 bytes. Whereas the Edge, which is based on a 9602, is limited to a maximum of 340 bytes.

- **Maximum payload size** it's just a way for you to prevent bill shock. In other words the Mate will take a file of any size, and once transferred to the Mate, will split it up into messages that are 340 bytes or less, and transmit those over SBD.
- **Clean on boot** as we send messages to the unit, or files to the unit, it'll split them up and put them in a spool to be sent out. And as messages arrive they'll be stored in an inbox until they are transmitted via one of the several different mechanisms that we have to share SBD data that arrives. So if you wanted to have the outbox and the inbox cleaned out when you reboot the unit, you just put a checkmark there.
- **Mailbox Check Interval** is an interval that is used to tell the Mate to just every once in a while during that interval to just check to see if there's anything on the server. So you can set this for example to 60 minutes. And then every 60 minutes, regardless of whether a ring alert has arrived or not, it will log into the server to say, hey, do you have any messages, and if you do then download them and then distribute them to the app. So the mailbox check is kind of a safety thing.

Network Shares

Now, a very convenient way if you're doing this from the PC or from a Mac, is to actually use network folders. We can create network folders that receive SBD messages or send SBD messages. These are network folders where I drag a file into the network folder. It will send an SBD message. And SBD messages that come into the Mate will magically appear in the network folder, which is assigned to be the in folder.

Services NMEA Indium 3BD Tracking Ceneral Settings Edit Template General Settings Edit Share and Edit Share and Edit Share and Edit Share and Edit Settings Edit Settings Edit Settings Edit Settings Edit Settings Edit Share and Edit Settings Edit Share and Edit Settings Ed	CATSTATION	Edge-Mate					
Indium SBD Tacking Settings	Services . Remote Access NMEA	^ Network S	Shares				
Netwog Shares Settings Logout General Settings Edit Template Description Edge-Mate Workgroup ART_WORKGROUP Listen interfaces LAN - 10.10.1 WAN - 10.10.77.168 Bind shares to the following interfaces Shared Directories Name Path Allowed users Read-only Share name Relative directory path A comma separated list This section contains no values yet	Iridium SBD Tracking	Samba					
Settings Hostname Edge-Mate Description Edge-Mate Description Workgroup ART_WORKGROUP Description Listen interfaces LAN - 10.10.10.1 WAN - 10.10.77.168 Bind shares to the following interfaces Bind shares to the following interfaces Name Path Allowed users Read-only Allow guests Share name Relative directory path A comma separated list This section contains no values yet	Network Shares	General Settings	Edit Template				
Logout Description Edge-Mate Shares Workgroup ART_WORKGROUP Listen interfaces LAN - 10.10.10 WAN - 10.10.77.168 Bind shares to the following interfaces Shared Directories Name Path Allowed users Read-only Allow guests Share name Relative directory path A comma separated list	Settings		Hostname	Edge-Mate			
Workgroup ART_WORKGROUP Listen interfaces LAN - 10.10.10 Bind shares to the following interfaces Shared Directories Name Path Allowed users Read-only Share name Relative directory path A comma separated list This section contains no values yet	→ Logout		Description	Edge-Mate Shares			
Listen interfaces LAN - 10.10.10.1 WAN - 10.10.77.168 Bind shares to the following interfaces Shared Directories Name Path Allowed users Read-only Allow guests Share name Relative directory path A comma separated list This section contains no values yet			Workgroup	ART_WORKGROUP			
Bind shares to the following interfaces Shared Directories Name Path Allowed users Read-only Allow guests Share name Relative directory path A comma separated list This section contains no values yet			Listen interfaces	LAN - 10.10.10.1	WAN - 10.10.77.168		
Name Path Allowed users Read-only Allow guests Share name Relative directory path A comma separated list Image: Comma separated list This section contains no values yet				Bind shares to the follow	wing interfaces		
Share name Relative directory path A comma separated list This section contains no values yet This section contains no values yet		Shared Dir	ectories Path		Allowed users	Read-only	Allow guests
This section contains no values yet		Share name	Relative direct	ory path	A comma separated list		
				This section	o contains no values yet		

Once you click ADD, you will be able to add a Shared Directory to your EdgeMate.

- Share Name is the name you will see on your network.
- **Relative Directory Path** is the actual internal path on EdgeMate, where the files will be stored. This is not something you will see on your PC, only the Share Name.
- Allowed Users allows you to add Users access to these network shares.
- Allow Guests allow guests to read and write files in network shares. You do not need an account on EdgeMate to do this. But if you're in a secure install you can actually add a user name and password.

Users

EdgeMate allows you to add multiple Users with access to EdgeMate network share folders.

SATSTATION		Edge-Mate					UNSAVED CHANG
Services	^		Listen interfaces Z LAN - 10.10.10	.1 WAN - 10.10.77.168			
Remote Access			Bind shares to the	e following interfaces			
NMEA			Sind dialog to the	following interfaces			
Iridium SBD							
Tracking	_						
Network Shares		Shared Directorie	es				
Settings		Nama	Dath	Allowed users	Bood only		
		Name	Faul	Allowed users	Read-only	Allow guests	
➔ Logout		Share name	Relative directory path	A comma separated list			
		xferout	xferout			 ✓ 	DELETE
		ADD					
		1. La com					
		Users					
		User	name	Password			
		test	test	23456		_	DELETE
						_	
		ADD					
						SAVE & APPLY	SAVE

Bind Network Shares to SBD Subsystem

After creating the Network Shares navigate back to Iridium SBD in the Services menu on the left. Scroll to the bottom to the Shares section.

SATSTATION		Edge-Mate					UNSAVED CHANGES: 1
Services Remote Access	^		RAW AT port	12099		-	
NMEA Iridium SBD Tracking			UDP listener port	Direct in	terface to modem serial port available throu	gh this port. -	
Network Shares Settings			UDP port	Listen or 12101	UDP port number and rebroadcast.	-	
➔ Logout			TCP port	Broadca	st to UDP port number.		
				Broadca	st and/or listen on TCP port number.		
		Shares					
			Network Folder		Direction	Commer	ıt
		xferin		~	Internet to Device (MT)	<u> </u>	DELETE
		ADD					
						SAVE & APPL	Y SAVE RESET
			Powered by RD	S (Copyrig	ght © Remote Data Sensing (http://RDSensir	ng.com), LLC 2021 - All Right	s Reserved) / MATE-32m v3.43

- **Network Folder** allows you to select from the Network Shares you created in the previous section.
- Direction select which way you want to route traffic to this Network Folder.
- **Comment** creates an internal comment only visible on the EdgeMate.

Please note if the file is larger than 1000 bytes, it's going to ignore it. So if you're going to send large files you'll need to change that. Also if it's larger than 340 bytes it's going to split it up into messages and send them off in first-come-first-serve type order.

In the example in the screenshot above, any inbound SBD messages will show up in the xferin folder. It won't recombine those for you, so those will be all a maximum of 340 bytes long. But they'll be there and then your application can read them out of there and then recombine them if it needs to do that.

USB-to-Serial SBD Connection

You can have a USB serial port connected to the EdgeMate. And you can read data from the serial port, and you can send data through the serial port. So if you've got some device, some log, or something that is actually generating serial data, you can have it automatically packetize that and send it.

First we need to enable this option by going to the USB Feed tab in the Iridium SBD menu and check "Data feed from USB"

SATSTATION		Edge-Mate		
Services Remote Access NMEA Indium SBD	^	SBD Repeater Settings Receive data via TCP and/or UDP and/or USB serial port port.	t and transmit via SBD. Receive data via	ISBD and trasnmit over TCP and UDP and/or USB serial
Tracking Network Shares Settings		Repeater Parameters General USB Feed SBD Tunnel		
➔ Logout		Data feed from USB	B connected data feed as source.	
		Shares		
		Network Folder	Direction	Comment
		xferin ~	Internet to Device (MT)	V Inbound SBD goes her DELETE
		xferout ~	Device to Insternet(MO)	✓ Outbound SBD goes h DELETE
		ADD		

This will unlock the rest of the menu for you to add your local SBD device.

SATSTATION		Edge-Mate
Services Remote Access NMEA Iridium SBD	^	SBD Repeater Settings Receive data via TCP and/or UDP and/or USB serial port and transmit via SBD. Receive data via SBD and trasnmit over TCP and UDP and/or USB serial port.
Tracking Network Shares Settings		Repeater Parameters
➔ Logout		Data feed from USB 🖉 Use USB connected data feed as source.
		USB Interface System Default ~ Select COM port assigned to USB device.
		USB Baud Rate 4800 ~ EOP value 10
		end-of-packet (EOP) delimiter (in decimal) is required when communicating over USB. e.g. 10 for NL
		Require ESC Require escape (ESC) delimiter when communicating over USB
		Repeat SBD data Repeat SBD data to USB serial port.

- **USB Interface** when you plug a USB-to-serial adapter into a Mate you will see it show up here. Note your USB interface for your logger might be called ACM0. It might be called USB5. It'll have some specific name that'll show up in this list and you can select it.
- USB Baud Rate can set the baud rate for the interface.
- **ECP Value** is an end-of-packet delimiter. And the end-of-packet delimiter means that you receive the data coming in through the serial port, and as soon as you see the end-of-packet delimiter, which in this case is defined as a new line, the SBD, it'll packet ties that data and send it over SBD.
- **Require ESC** allows you to require an escape sequence. That just means that if you've got an escape character, like for example you're sending binary data and that binary data has new lines in it, you will want to escape the new lines so that it doesn't terminate that particular thing. Because we know that the new lines are defined to be the end-of-packet terminator. So we want to escape those if they happen to be in the middle of the message. So you can do that by requiring the escape, and then specifying the escape character that you want to use to do the escaping.
- **Repeat SBD Data r**epeats SBD data back onto the serial port. That means that any inbound data coming in through SBD will be written to the serial port.

SBD Tunnel

Finally, the most complex method is an SBD tunnel. An SBD tunnel allows you to connect a device to EdgeMate via IP. Navigate to the SBD Tab in the Iridium SBD settings to enable SBD tunneling.

SATISTATION		Edge-Mate
ervices Remote Access	^	Receive data via TCP and/or UDP and/or USB serial port and transmit via SBD. Receive data via SBD and trasnmit over TCP and UDP and/or USB serial port.
NMEA		Repeater Parameters
Iridium SBD		
Tracking		General USB Feed SBD Tunnel Packet Processing
Network Shares		Enable SBD tunnel
Settings		SBD tunnel disables UDP and serial broadcast.
		Queuing mode FIFO
Logout		
		Packet processing order. First in first out or last in first out.
		Tunnel IP 10.255.1.1 I
		Tunnel netmask 24
		SBD tunnel netmask in CIDR format.
		IP protocol 50
		IP protocol to tunnel, e.g. 1 == ICMP.
		Shares
		Network Folder Direction Comment
		xferin v Internet to Device (MT) v Inbound SBD goes her DELETE

- Queuing Mode means that as data comes in to the tunnel, it's transmitted and first come first serve. So first in first out. That's the queuing methodology. You can also do last in first out. So as data is being streamed into this thing, you can always send, oh, the latest data that came in goes out, and it transmits it in reverse order. So you get to specify the order in which the data gets transferred.
- **Tunnel IP** can be made anything, but needs to be a different IP address than the network address of the EdgeMate.
- **Tunnel Netmask** the tunnel mask is just going to be 24, so that's going to be a class C type network.
- **IP Protocol** is the IP Protocol that you want to capture, in this case, 50. ICMP is one. This means that any data that's in the network that matches that protocol number will be sent through the tunnel.

EdgeMate Status LEDs

EdgeMate provides a status LED on its top cover that rapidly allows you to know the status of the GPS feed, Internet connectivity, and if you have position reports stored on the device that have not yet been sent to OPE.

There are a total of 4 LEDs, Blue, Orange, Red, and Green.

The blue LED is illuminated when power is supplied to the EdgeMate.

The red LED indicates system processing.

The orange and green LEDs serve multiple purposes to display both GPS status and Internet connectivity.

Invalid GPS

The orange and green LED will blink very rapidly in alternating succession when there is invalid or NO GPS data. Read the section "Configuring the GPS Feed" to address this problem.

No Internet

With valid GPS positions, a NO Internet connectivity issue is displayed by a slow blinking orange LED. The orange LED blinks once every 3 seconds when there is no active Internet connection.

We suggest you print and attach the following legend to your unit.

LED Lights Pattern



PENDING REPORTS – Slowly flashing green light

POWER - Solid blue light

INTERNAL DATA PROCESSING - Intermittent Red Light

Verifying Internet Connectivity

The EdgeMate provides several methods to determine if you are Internet connected. The simplest way to know if you are connected to the Internet is to Wi-Fi connect to the unit and try to browse pages online. Try Google.com. If the page shows up, then you are Internet connected.

Alternatively a solid orange LED on the top of the EdgeMate indicates a valid Internet connection.

There is a detailed Internet status page found under "Services->Settings" under the "Internet Status" tab. A green square represents an active Internet connection. In the image displayed below, we see that "wwan" or wireless wan (wide area network) is active as well as wan (the Ethernet WAN connection). The squares indicate that the interfaces are online and the uptime for the connection. A red box means that the interface is available, but there is no internet

connection through it. In other words, the interface exists, but it's offline. A yellow box indicates that there is no interface. In this case an Android phone or USB LTE modem has been detected by the EdgeMate.

SATSTATION		Edg	e-Mate					REFRESHING
Services Remote Access NMEA	^	WiFi	CAN Bus Internet Statu WAN Interfaces	s Diagnostics LTE F	assword Firmware			
Tracking Network Shares Settings Logout			Interface: iOS Status: Disabled	Interface: wwan Status: Offline Downtime: Oh:0m:31s	Interface: android Status: Disabled	Interface: wan Status: Online Uptime: 0h:1m:45s	Interface: Ite Status: Online Uptima: Oh:35m:52s	
								Powered by RD5 (Capyright © Remote Data Sensing (http://RD5ensing.com), LLC 2021 - All Rights Reserved) / MAIT-32m v3.27

More advanced users can use the tools under the "Diagnostics" tab under "Services->Settings" to diagnose Internet connectivity problems.

CAN Bus Configurator

By default EdgeMate comes configured with two fully functional and independent CAN buses configured to operate at 250000 bits per second. The CAN buses are identical and either can be used to supply NMEA2000 and/or R-VC to EdgeMate. The EdgeMate can be configured to accept data on either CAN Bus port. You could, for example, have NMEA2000 and RV-C data connected to CAN0 on EdgeMate and have an app read data from that connector.

Altering CAN Bus Speed

On occasion, although very rare, it might be necessary to change the default speed on one of the can connectors. This happens for some batteries manufactured in China where the CAN bus operates at 500000 bps. To change the speed of one of the CAN connectors navigate to "settings->CAN Bus", set the appropriate speed from the pull down menu, and then press "Save & Apply". Note that a custom speed can be entered by typing the appropriate value at the bottom of the speed pull down where it says "--custom–".

Joining CAN Bus Networks

At times it may be desirable to join two separate CAN bus networks so that data may be shared between them. This can be accomplished in either one of two ways, using a CAN bus bridge or alternately a CAN bus gateway. In both cases the two CAN buses are logically connected so that they look and act as a single physical network. Data can flow from the bus on CAN0 to the one on CAN1 and vice versa much as if the two networks were physically joined with a connector albeit with some restrictions.

CAN Bus Bridge

A bridge network has unified addressing which limits the total number of devices across both networks to 250 units. Data is allowed to pass unobstructed between the networks allowing devices on one CAN network to directly communicate with a device on a different network. Electrically the two networks are distinct and separate but logically they act as if they were joined together with a connector.

By default all traffic is passed between the CAN interfaces when in bridge mode which could result in a considerable increase in traffic across both networks. EdgeMate offers an optional bridge filtering mode which reduces traffic. With bridge filtering enabled, you can dramatically reduce traffic. Following is a list of PGNs passed through the bridge when filtering is enabled:

// EEFF RVC Address Claim ACK
// EF00 J1939 Proprietary message
// F003 J1939 load
// F004 J1939 speed
// F094 J1939 High voltage energy storage system
// F0A0 J1939 High voltage energy starage system
// FD14 J1939 Battery Charger 2
// FD15 J1939 Battery Charger 1
// FED5 J9139 Alternator
// SO Commanded Address
// FEDA J1939 Software ID
// FEEB J1939 Component ID

65360L, // FF50 J1939 Proprietary see J1939-21 for PG details 97792L, // 17E00,&RVCTerminal 126208L, // NMEA - Request group function 126464L, // PGN List - Transmit PGNs group function 126720L, // 1EF00 RVC Proprietary message 126977L, 126979L. 126993L, // Heartbeat 126996L, // Product Information 126998L, // Configuration Information 127488L, // Engine Parameters, Rapid Update 127489L, // Engine Parameters, Dynamic 127501L, // Binary Status Report 127506L, // DC Detailed Status 127507L, // Charger Status 127508L, // Battery Status 127510L, // Charger Configuration Status 127513L, // Battery Configuration Status 127750L, // Converter (Inverter/Charger) Status 130512L, // 1FDD0 DC source connection status 130688L, // 1FE80 Solar controller battery status 130720L, // 1FEA0,&RVCDateTime 130723L, // 1FEA3,&RVCChrgStat2 130725L, // 1FEA5,&RVCDCStatus11 130739L, // 1FEB3 Solar controller status 130751L, // 1FEBF,&RVCChargerConfigStat4 130759L, // 1FEC7,&RVCDCStatus6 130760L, // 1FEC8,&RVCDCStatus5 130761L, // 1FEC9,&RVCDCStatus4 130762L, // 1FECA.&ISODiagnostics 130764L, // 1FECC Charger configuration status 3 130767L, // 1FECF DC disconnect command 130768L, // 1FED0 DC disconnect staus 130795L, // 1FEEB,&RVCProdID 130966L, // 1FF96,&RVCChargerConfigStat2 130968L, // 1FF98,&RVCChargerEqualConfigStat 130969L, // 1FF99,&RVCChargerEqualStat 131014L, // 1FFC6,&RVCChargerConfigStat 131015L, // 1FFC7,&RVCChrgStat 131020L, // 1FFCC,&RVCChargerConfigStat3 131034L, // 1FFDA Generator command 131067L, // 1FFFB,&RVCDCStatus3 131068L, // 1FFFC,&RVCDCStatus2 131069L, // 1FFFD,&RVCDCStatus1 131070L, // 1FFFE,&RVCDateTime 131071L, // 1FFFF,&RVCDateTime

Bridge mode and optional filtering are enabled under the Settings->CAN Bus dialog.

Bridging and Gateway Se	ttings			
A bridged network has unified ad bridge filtering option, all traffic is battery, alternator, and NMEA 20	A bridged network has unified addressing. This limits the total number of devices distributed across the networks to 250 devices. Without a bridge filtering option, all traffic is passed unobstructed between the CAN networks. The bridge filtering option limits traffic to the engine, battery, alternator, and NMEA 2000 data required for DC charging and monitoring.			
A CAN gateway allows multiple ir independent. Each CAN network devices. The gateway transfers d	A CAN gateway allows multiple independent CAN networks or segments to transmit selected data between them while remaining separate and independent. Each CAN network has its own addressing, allowing up to 250 devices per network. With two networks, this gives us up to 500 devices. The gateway transfers data between the networks with the source address of the data being converted to the gateway's address.			
Note: The CAN Gateway will tran	sfer NMEA2000 messages only, while the Brdige will mange J1939, RC-V, and NMEA2000 data.			
Enable Bridge 🗾 🗾				
	Transfer all CAN data (CAN0<>CAN1) from one bus to the other even if running at different speeds			
Filter				
	Limit traffic to data that will permit Wakepseed regulators to communicate with batteries, shunts, enagine, and NMEA2000 devices			

NMEA 2000 CAN Bus Gateway

A CAN gateway allows multiple independent CAN networks or segments to transmit selected data between them while remaining separate and independent. Unlike a bridge, each CAN network has its own addressing allowing up to 250 devices per network for a total of 500 devices connected to EdgeMate. EdgeMate registers itself with each network substituting the source device's address with its own when transferring data between the CAN interfaces. This means that devices on separate networks can not communicate directly between each other. They do so through an intermediary.

By default all NMEA2000 data is transferred through the gateway, although EdgeMate does support a filtering option to reduce traffic. Traffic can be forced to flow in one direction (from CAN0 to CAN1 or vice versa) or uniformly across both CAN interfaces. Filters that limit traffic to DC subsystems (batteries and alternators) and/or engine data can be selected. Although more limited than a CAN bridge, EdgeMate's gateway mode is much more effective at reducing traffic between CAN networks.

The following NMEA2000 PGNs are allowed through the gateway with filtering enabled:

NMEA2000 DC Filter

127506L // DC Detailed Status 127507L // Charger Status 127508L // Battery Status 127510L // Charger Configuration Status 127513L // Battery Configuration Status 127750L // Converter (Inverter/Charger) Status

NMEA2000 Engine Filter 127488L // Engine Parameters, Rapid Update 127489L // Engine Parameters, Dynamic 127497L // Trip Fuel Consumption, Engine 127498L // Engine Parameter, Static

NMEA 2000 gateway mode with optional filtering enabled under the "Status->CANBus" dialog:

Bridging and Gateway Se	attings				
A bridged network has unified ad bridge filtering option, all traffic is battery, alternator, and NMEA 20	A bridged network has unified addressing. This limits the total number of devices distributed across the networks to 250 devices. Without a bridge filtering option, all traffic is passed unobstructed between the CAN networks. The bridge filtering option limits traffic to the engine, battery, alternator, and NMEA 2000 data required for DC charging and monitoring.				
A CAN gateway allows multiple i independent. Each CAN network devices. The gateway transfers of	ndependent CAN networks or segments to transmit selected data between them while remaining separate and has its own addressing, allowing up to 250 devices per network. With two networks, this gives us up to 500 lata between the networks with the source address of the data being converted to the gateway's address.				
Note: The CAN Gateway will tran	sfer NMEA2000 messages only, while the Brdige will mange J1939, RC-V, and NMEA2000 data.				
Enable Bridge					
	Transfer all CAN data (CAN0<->CAN1) from one bus to the other even if running at different speeds				
Enable Gateway					
	Transfer all or select NMEA2000 sentences between CAN networks				
Direction	CANO -> CAN1 ~				
DC Filter					
	Limit data to DC charger and battery status PGNs				
Engine Filter					
	Limit data to engine status information including RPM and load				

Remote Support

The remote support feature allows technicians on shore to access the EdgeMate and vessels network over the Internet. This is a very powerful feature that allows not only the ability of support personnel to aid you in solving problems with your EdgeMate but also remote access to real time logs for viewing and analysis as you sail along.

To use remote support your EdgeMate must have access to the Internet (see section "Configuring Internet Access"). EdgeMate will only make the feature available if it detects a good Internet connection.

To enable remote support, browse to the "Remote Access" menu entry under "Services" and push the "Enable Remote Support" button. As an option, a short description of a problem can be entered before pushing the "Enable Remote Support" button. This information is sent via EMail to SatStation support personnel.

SATISTATION	Edge-Mate						
Services ^	Remote Access Diagnostics Internet Status LTE						
Remote Access NMEA Tracking	Remote Support						
Network Shares Settings	Remote access unit: http://vemote.demning.com/T645 sch//vemote.referening.com/T645 DSVALE.REMOTE SUPPORT Terminate remote support						
	Possend by RDS (Copyright © Remote Data Sensing http://RDSensing.com), LLC 2021 - All Hights Reserved) / MART-32m v3.						

This action results in the creation of 3 URLs allowing HTTP, HTTPS, and SSH access to your unit. These URLs are randomly unique and only exist until either the "Disable Remote Support" button is pressed or Internet connectivity is lost. In this example we generated 3 URLs that look like

Remote access urls:

- https://remote.rdsensing.com:7647
- http://remote.rdsensing.com:7646
- ssh://remote.rdsensing.com:7645

The EdgeMate is accessible via these URLs in "exactly" the same way as over Wi-Fi on your vessel. Remote service personnel will have access to all the features and services of EdgeMate that you do on your vessel.

Remote Support User

EdgeMate provides a restricted account to enable remote access if for some reason the admin or superadmin user password is lost. Logging into the unit with username "support" with password "support" allows access to only the "Remote Access" menus. No configuration changes to EdgeMate can be made when logged in as the support user, only enabling remote access is permitted.

vices	Remote Access Diagnostics Internet Status LTE	
Rende Access NNEA Tracking Network Shares Settings Logout	Remote Support	
	Infe:	Enter something meaningful here. e.g. John Doe, FV Hiss Janey, 888-111-2222x33
		Libror optional information such such as name, phone number, vessel name, problem description, etc. or anything else that might be useful to support personnel.

Securing EdgeMate

By default, EdgeMate's Wi-Fi is open and unencrypted and the administrator username and password is well known. Since the EdgeMate can provide Internet access to any Wi-Fi client connected to it, it is best to secure the Wi-Fi connection to prevent unintended network access.

Changing the Wi-Fi SSID and Securing with a Password

Wi-Fi connect to the EdgeMate and browse to "Services->Settings" and select "Wi-Fi". Scroll down towards the bottom of the page and push the "EDIT" button for the "Wi-Fi Access Point Hotspot". Under the "General" tab in the next page, scroll towards the button and find the ESSID entry. The ESSID is the SSID that is broadcast by the EdgeMate. My vessel is called 'Bliss' so I want my EdgeMate to advertise itself as "Bliss". Change the ESSID entry to the desired broadcast name.

Esat	STATION	Edge-Mate	
Services	^ -	WiFi CAN Bus Internet Status D	lagnostics LTE Password Firmware
Remote Acc NMEA Tracking Network Sh	Wireless Netw	ork: Master "Edge-Mate-f194"	(wlan0)
Settings	General Setup		
Ð Logou		Status	Mode: Master SID: Edge-Mate-1194 sell. SSID: 00.4A:2.067:169 Encryption: Koine Channet: 36 (1.18 Oct) Tr. Power: 20 dem in Signat: 0. dem Naise Scunttry: 00
			Mode Channel Width
		Operating frequency	AC v 38 (5180 Mirz) v 80 Mirz v
		Maximum transmit power	driver default • Current power: 20 dBm
			Specifies the maximum transmit power the wireless radio may use. Depending on regulatory requirements and wireless usage, the actual transmit power may be reduced by the driver.
	General Setup	Wireless Security	
		Mode	Access Point
		Note:	You will be disconnected from the WiFi on "Save & Apply" after modifying the ESSID and/or Egy. A count down timer will display on the screen when this happens. You have 90 seconds to reconnect to the WiFi after which changes
			will be made permanent. Previous WiFi settings will be restored if you fail to reconnect during the count down period.
		ESSID	Edge-Mate-f194
		Network	lan
		Hide ESSID	
		WMM Mode	8
			DISMISS SAVE

Next, click on the "Wireless Security" tab and select "WPA2-PSK (strong security)", leave "cipher" on "auto", and finally enter a password for Wi-Fi. Scroll to the bottom of the page and push "SAVE". Back on the "Wireless Overview" scroll down to the bottom and push "SAVE & APPLY" to activate the changes. You will be momentarily disconnected from the Wi-Fi and then when you reconnect you will be prompted for the new password.

SATSTATION		Edge-Mate		REFRESHING
Service	s ^	WiFi CAN Bus	nternet Status Diagnostics LTE Password Firmware	
NMEA Trackin Networ	Wireless Net	work: Master "Edg	e-Mate-f194" (wlan0)	
Setting	General Setup			
Ð Log		Status	Mode: Master SSID: Edge-Mate-f194	
		operating frequency		
		Maximum transmit power	driver default • Current power: 20 dBm Specifies the maximum transmit power the wireless radio may use. Depending on regulatory requirements and wireless usage, the actual transmit power may be reduced by the driver.	
	General Setup	Wireless Security		
		Encryption	No Encryption (open network)	
			VPA-2PSK (strong security) DISMISS SA VPA-PSK (medium security) WPA-PSK (medium security) DISMISS SA VPA-PSK (medium security) WEP Open System (weak security) SAME & APPLY +* SAME WEP Open System (weak security) WEP Open System (weak security) SAME & APPLY +* SAME WEP Open System (weak security) SAME & APPLY +* SAME SAME	RESET

Important: When changing the SSID and password on the EdgeMate you will be disconnected from the unit if you are Wi-Fi connected to it. You are making changes to the same Wi-Fi that you are connected to. Once the changes are made you will be forced off of the Wi-Fi. You have 90 seconds to connect to the new Wi-Fi SSID using the password you entered to complete the process. Failing to reconnect to the new Wi-Fi SSID during this period will result in the EdgeMate restoring the original SSID and password (which by default is none). This is done as a safety precaution in the event you misstyped in the password. The EdgeMate reminds you of this in the notice displayed right about the "SAVE" button.

Note below that "Bliss" now shows up in a Wi-Fi scan as encrypted when scanning on my Mac.



Changing the Password for Admin

Connect to the EdgeMate via Wi-Fi and login with username "admin" using the default password ("admin").

To change the admin password, browse to the "Password" tab and enter the new password twice.

Now logout from the EdgeMate by selecting the "Logout" menu entry under "Settings".

Log back into the router using username "superadmin" with password "superadmin" and repeat the process.

Although we have not discussed "superadmin" this login provides advanced features. Advanced users may enjoy exploring the advanced features of the EdgeMate, but most users will not require these. Nonetheless, the superadmin account should be secured.

Firmware Updates

On occasion SatStation may provide updates to the EdgeMate software that includes enhancements and bug fixes. Users wishing to update their devices should download the latest version of the firmware from SatStation and store it on their computer.

To upgrade the firmware, login to the EdgeMate via Wi-Fi (or Ethernet/WAN), login as admin, and browse to "Services->Settings". Select the "Firmware" tab and select "FLASH IMAGE..." at the bottom of the page and follow the prompts. You will need to browse for the software image you downloaded to your computer, upload it to the EdgeMate, and then confirm that you wish to update the firmware.

You have the option of keeping the current configuration. Normally you would want to check this option, otherwise you would need to go through the full setup of the unit as described in this document.

The following screen will pop up once you confirm to proceed with the update.



Firmware update is complete. The firmware update takes about 5 minutes to complete. Note that you will be disconnected from Wi-Fi during the update period since the unit will be off-line. On completion of the software update, you will need to reconnect to the device using your computer's Wi-Fi or network settings.

The LEDs will blink during the update process in the following sequence. First the lights will stop blinking. After a few minutes all the LEDs, except the blue one, will go off as the unit reboots. The blue power LED remains on during the reboot. After a few additional minutes the LEDs will resume their normal blinking pattern. The software update is complete once the orange LED comes on.

Reconnect to the unit as usual and verify the new software version by examining the page footer in any view.

Factory Reset

The EdgeMate can be returned to its original factory defaults (i.e., the way you originally received it) by one of two methods.

Software

If you are able to Wi-Fi or Ethernet connect to the unit and can login to the web admin UI, browse to "Services->Settings" and select the "Firmware" tab. Push the "PERFORM RESET" button to restore the factory default settings.

Note that it takes 5-10 minutes for the process to complete. Do not interrupt the EdgeMate during the reset process.

Hardware Reset Switch

A hardware reset is in order if you have either lost the Wi-Fi password or admin password, or are unable to otherwise access the web admin UI for the EdgeMate.

To perform a hardware reset, locate the reset button next to the power inlet for the unit. You will find it through a small pin hole through the enclosure. Use a paper clip or other small object to depress the button for 15 seconds while the unit is powered on. After 15 seconds, release the button. The unit will then perform a factory reset. Note that a quick push of the button will reboot the unit, but not reset it to its defaults. The button must be held for more than 10 seconds and less than 30 for the reset action to occur.

Legal

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- . Reorient or relocate the receiving antenna.
- . Increase the separation between the equipment and receiver.
- . Connect the equipment into an outlet on a circuit different from that to which the
- receiver is connected.
- . Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

FCC Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

FCC ID: 2A23ZEdgeMate Model: EdgeMate

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.