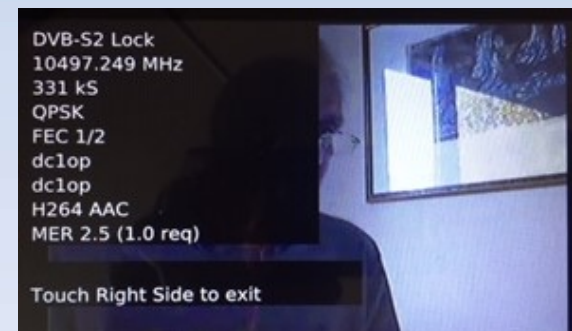
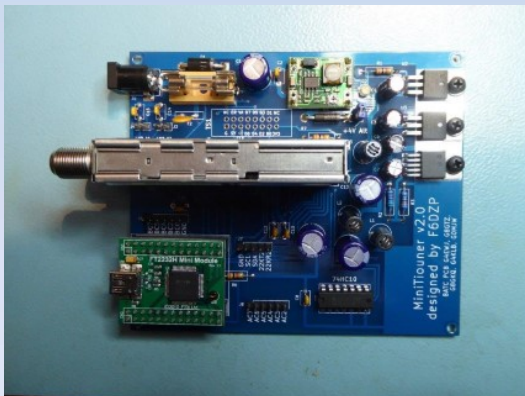








Portsdown 2019 Update








Dave G8GKQ



Topics

-  Recent Changes
-  The LongMynd Receiver
-  The Raspberry Pi 4
-  What next for Portsdown?
-  Beyond Portsdown as we know it
-  Q & A

Review and Recent Changes

-  Now over 400 Users
-  LimeSDR Improvements
-  Video out with 7 inch Screen
-  LimeNET Micro support
-  LongMynd Receiver
-  Experimental Jetson Control
-  (moved house!)



Attenuator Level on Menu 1

BATC Portsdown Transmitter Main Menu

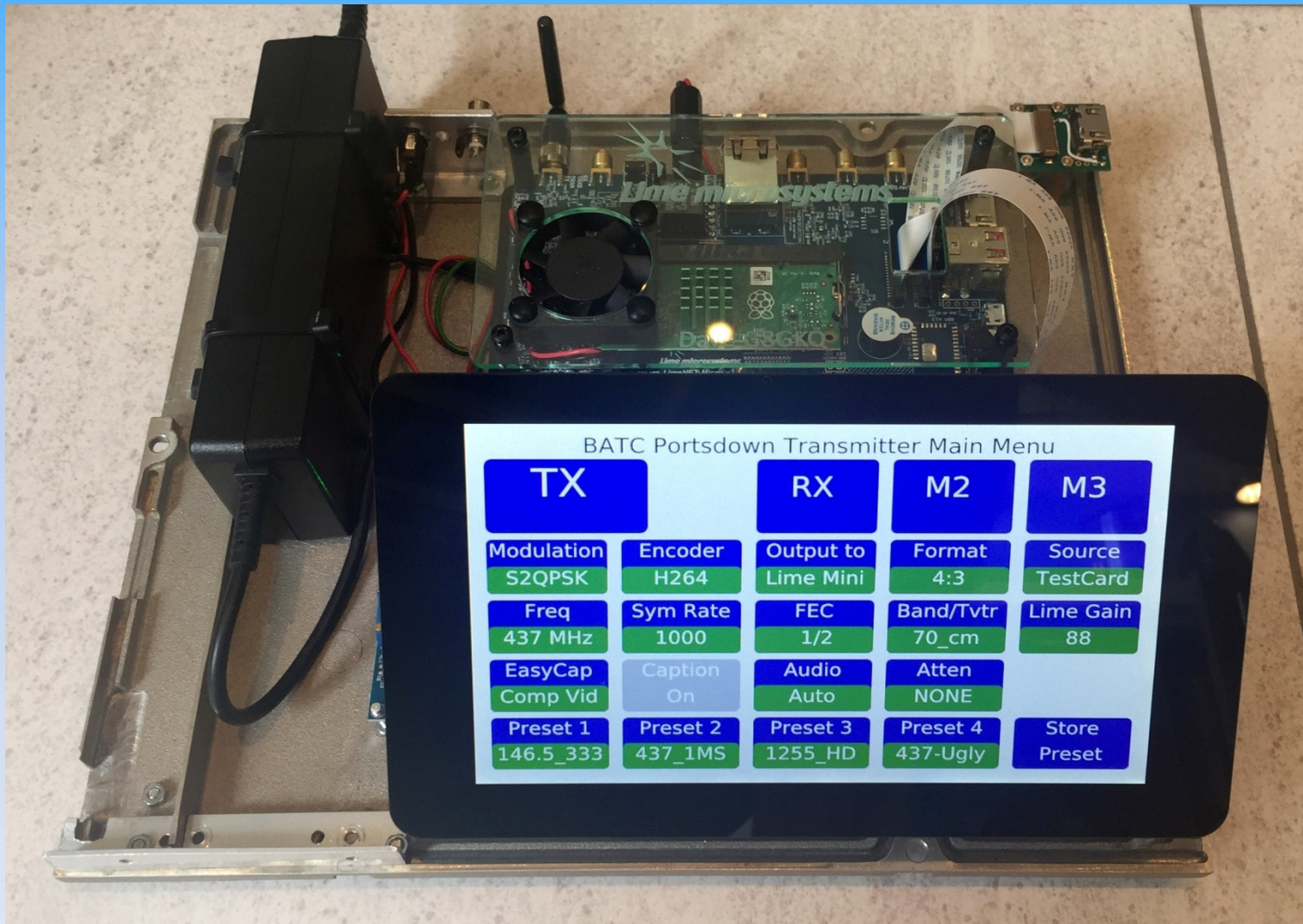
TX		RX	M2	M3
Modulation	Encoder	Output to	Format	Source
S2QPSK	H264	Lime Mini	4:3	CompVid
Freq	Sym Rate	FEC	Band/Tvtr	Lime Gain
1255 MHz	1000	2/3	23_cm	88
EasyCap	Caption	Audio	Atten	Att Level
Comp Vid	On	Auto	PE43713	-10.00
Preset 1	Preset 2	Preset 3	Preset 4	Store
146.5_333	437_1MS	1255_HD	437-Ugly	Preset

Video out with 7 inch Screen






System Configuration Menu (43)

			force pwm open = 1	Invert 7 inch
Unmount (Eject) USB	Back-up to USB	Back-up to /boot	7 inch vid Disabled	SD Button Disabled
Restore Factory	Restore from USB	Restore from /boot	Restart Touch	Exit






LimeNET Micro Support



The LongMynd Receiver

-  Linux receiver to go with MiniTiouner
-  Developed by Heather MOHMO
-  Will run on most Linux platforms
 - Ubuntu Desktops and Laptops
 - Raspberry Pi
-  Does not include a video player
-  Command Line in, TS and status out

LongMynd in Portsdown

-  Frequency and SR selection Buttons
-  Choice of video player
 - Simple MPEG-2 or H264 (no audio)
 - OMX Player for H264 with Audio
 - UDP to another player
-  Sat/terr modes
-  Status Display
-  QO-100 Beacon MER
-  Configuration

Portsdown Receiver Menu (8)

QO-100 (a)	EXIT		Config		
SR 2000	SR 1000	SR 500	SR 333	SR 250	SR 125
FREQ 10492500	FREQ 10494750	FREQ 10495500	FREQ 10496250	FREQ 10497250	
FREQ 10497375	FREQ 10497625	FREQ 10497750	FREQ 10498250	Keyboard 10498750	
Simple MPEG-2	Simple H264	OMX Player	UDP Output	Beacon MER	

Status Display

DVB-S2 Lock
10490.702 MHz
1998 kS
QPSK
FEC 2/3
A71A
QARS
H264 MPA
MER 8.4 (3.1 req)



Touch Left to hide data, Right to exit







QO-100 Beacon MER

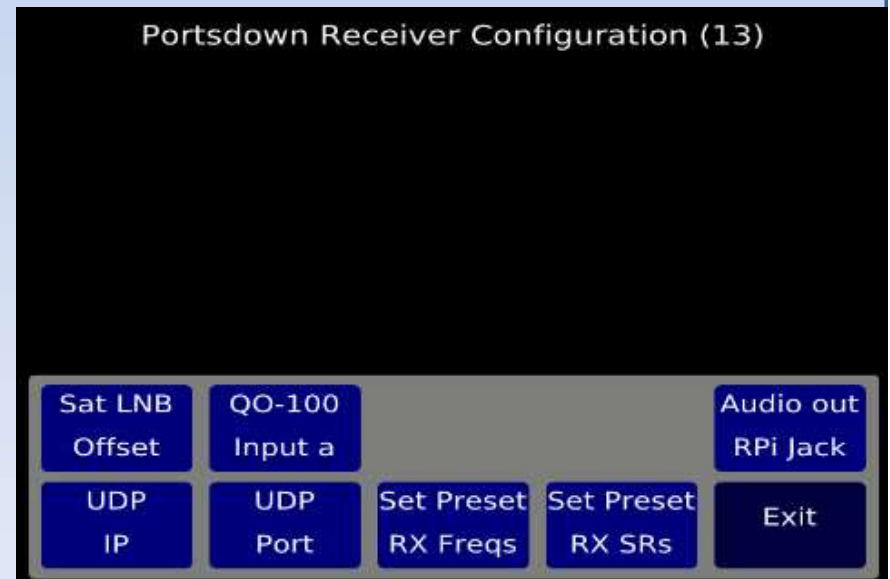
DVB-S2 Lock. MER:

8.3




Touch screen to exit

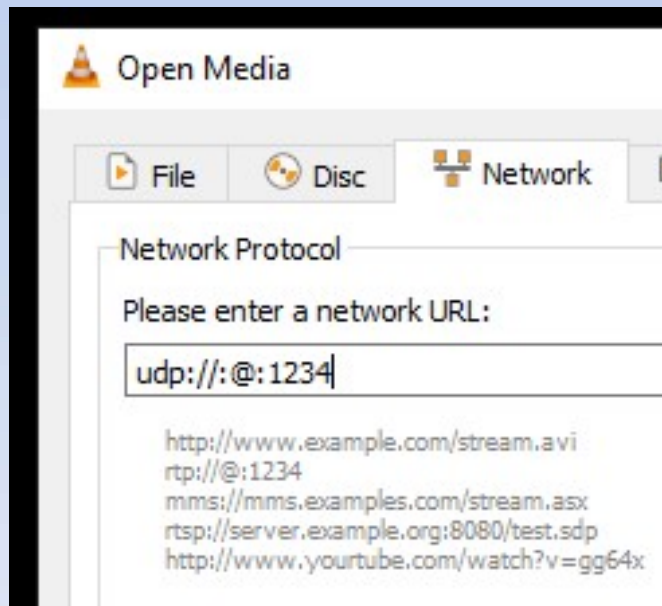
Configuration

-  Sat LNB Offset (default 9750000 kHz)
-  Audio output port
-  UDP IP and Port
-  Sat or Terrestrial from main menu:
-  Input Socket
-  Preset Freqs and SRs









UDP Settings

-  Set IP Address of viewing device
-  On viewer, set `udp://:@:1234`
-  String is not always displayed correctly






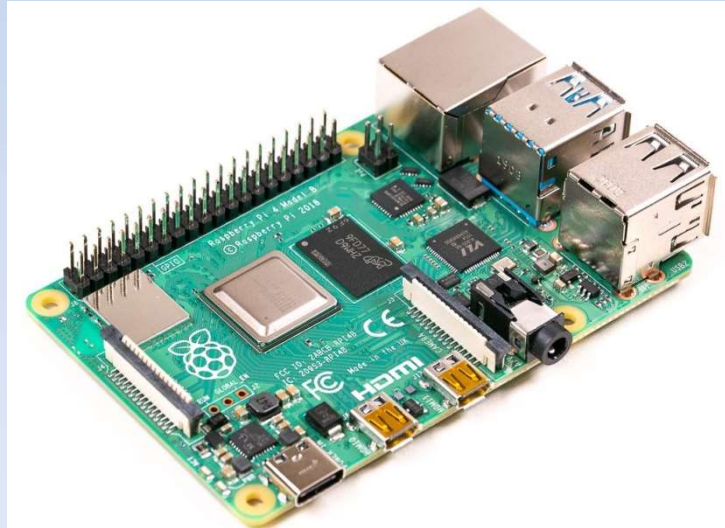
Portsdown LongMynd Limitations

-  Will not play anything over 720p
-  Will not play H265
-  MPEG-2 playback requires licence
-  Use UDP and VLC for all these!
-  Does not control LNB voltage






-  But a great capability!!

Raspberry Pi 4






-  Step change in capability
-  New graphics hardware:
 - Includes H265 decoder
 - Does not support OpenVG (Portdown Menus)
-  Requires Raspbian Buster or LibreELEC



Portsdown RPi 4 Migration





-  Migrate Portsdown to Buster on RPi3
-  Use RPi 4 to display UDP from LongMynd
-  Build Python menu for LongMynd on RPi4
-  Migrate Portsdown TX features to RPi4
-  Rebuild Portsdown Menu in Python

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-  Rebuild Portsdown Menu in Python

18000 lines of code!






What next for Portsdown?

-  Migrate Portsdown to Buster on RPi3
-  Update to F50EO's latest Code
-  Use the custom Lime DVB Firmware
-  Turn this matrix green





LimeSDR Mini with Portsdown

SR	FEC	Pi Cam	EasyCap	Test Card	TCAnim	C920 Webcam
1000	1/4					
	1/2					
	3/4					
	9/10					
500	1/4					
	1/2					
	3/4					
	9/10					
333	1/4					
	1/2					
	3/4					
	9/10					
250	1/4					
	1/2					
	3/4					
	9/10					

What next for Portsdown?

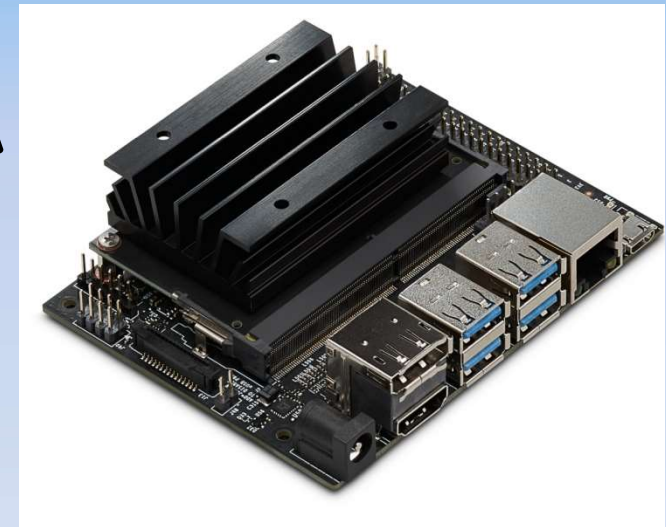
-  Migrate Portsdown to Buster on RPi3
-  Update to F50EO's latest Code
-  Use the custom Lime DVB Firmware
-  Turn this matrix green
-  Repeater TX solution
 - Stable DVB-S2 QPSK 1MS FEC 2/3
 - Bandwidth efficient
 - Compatible with Sat RX

Beyond Portsdown as we know it





-  QO-100 has driven the need to reduce bandwidth (less power required)
-  H265 is the next video encoding standard
-  RPi3 can't handle H265. RPi4 can decode ONLY
-  Off-board encoding:
 - Jetson Nano
 - PC CPU or Graphics Cards
 - HDMI to H265 Converters

Jetson Nano

- Similar to a Raspberry Pi, but
- NVIDIA H264 and H265 graphics engines
- Good at low SRs
- Input from Pi Cam or LKV373A
- £100

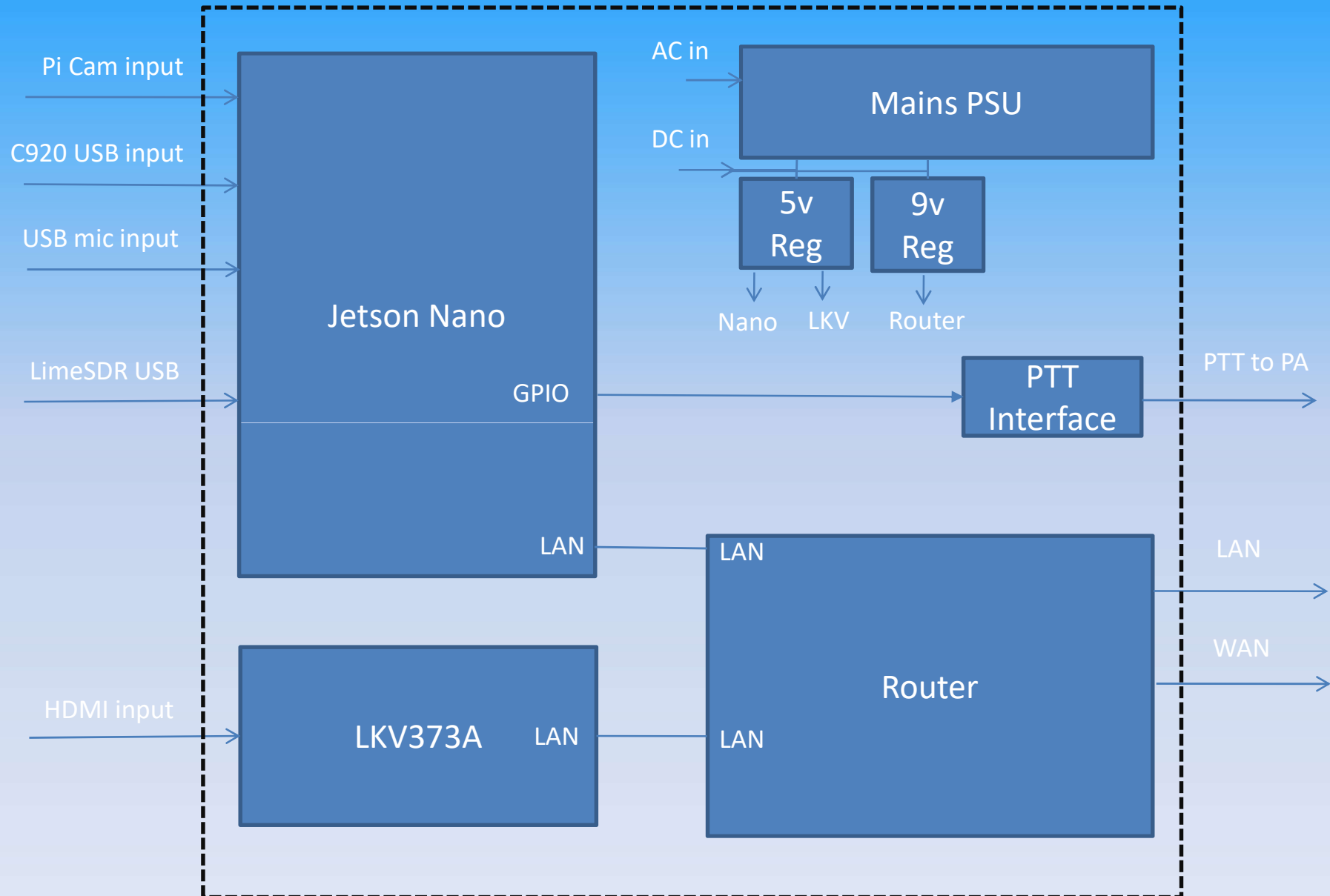


Jetson Nano

-  Some support in current Portsdown build
-  Better support and write-up in next CQ-TV
-  Requires its own network with LKV373A
-  Hence the NanoBox



NanoBox



PC-based H265 Encoding

-  Some NVIDIA graphics cards can encode
-  Powerful PCs can also do it in the CPU
-  Very hardware-specific and not cheap







TECHPOWERUP

Stand-alone H265 Encoding

- Stand-alone H265 encoders available on eBay
- About £65
- Future Support?



So, What Next?

-  A solution based on the Jetson?
-  Controlled by an existing Portsdown?
-  Exact architecture to be decided
-  Priorities:
 - Simplicity
 - Cost
 - Continued availability
 - Future software support
 - Backward Compatibility

Available Today

-  Portsdown and MiniTiouner Test and Fix-it
-  Development Portsdown Repeater Black Box
-  Jetson Demo
-  As much advice as we have
-  Full BATC Shop stock

Questions?