Programming Base and Rover Radios

In order for successful communications both transmitting and receiving radios must have the same wireless settings:

- **Frequency (MHz)**
- **Channel Spacing / Bandwidth (KHz):** 12.5 or 25kHz (note: most licenses in the United States are for 12.5kHz. 25kHz licensing is available but must be explicitly requested and granted by the FCC).
- **Compatibility (Protocol)**: Examples include Satelline-3AS, PacCrest 4FSK, PacCrest GMSK, or Trimtalk 450s.
- **FEC (Forward Error Correction)**: The FEC setting on Satel radios only applies to Satel 3AS mode.

  On older Satel radios such as EASy Pro and EASy, Pacific Crest/Trimble compatibility modes such as PacCrest-4FSK and PacCrest-GMSK always used FEC. Newer Satel radios such as EASy Pro+ and EASy+ have the option to use these compatibility modes with or without FEC (Fon=FEC on and Foff=FEC off).
- **Scrambling**: The Scrambling setting on Satel radios only applies to Satel 3AS mode (3AS mode isnt typically used with scrambling).

  On older Satel radios such as EASy Pro and EASy, Pacific Crest/Trimble compatibility modes such as PacCrest-4FSK and PacCrest-GMSK always used scrambling. Newer Satel radios such as EASy Pro+ and EASy+ have the option to use these compatibility modes with or without scrambling (Son=scrambling on and Soff=scrambling off).

Another important setting is the Serial port setting, but this doesn't need to match on all radios:

- **Baud Rate (serial port speed)**: This must match the port setting on the radio with the connected equipment on the other side of the cable. This is different from the over-the-air rate, though may be configured the same. The serial port speed should always be set to the same or higher than the over the air rate to avoid data being dropped.

  Note: Serial ports can be configured at different rates on each end of the link. For example, an RTK base might connect to its external radio at 38400bps, and the RTK rover might connect to its radio at 115200bps. This is OK because the serial port baud rate does not affect the over the air communications.

Matching Compatibility Settings

Radios from different vendors often use different naming for the compatibility modes. Below is a guide to interpreting these.

Satel Naming: Alternate Naming

Satel 3AS: Satel, 3AS, Satel 4FSK

PacCrest-4FSK: Transparent EOT or PCC EOT in 4FSK mode

PacCrest-GMSK: Transparent EOT or PCC EOT in GMSK mode

PacCrest-FST: Transparent FST, PCC FST

TrimTalk450: Trimtalk V1

Over The Data Rates

Channel Bandwidth →	12.5 kHz					25 kHz					
Air Interface Speed/bps / Compatibility Mode	4800	7200	8000	9600	14400	4800	9600	14400	16000	19200	28800
SATELLINE-3AS FEC OFF				x						x	
SATELLINE-3AS FEC ON		x						x			
SATEL-8FSK-1 (FEC OFF)					x						x
SATEL-8FSK-2 (FEC ON)				x						x	
SATEL-16FSK-1 (FEC ON)					x						x
TrimTalk450s	x		x			x	x		x		
PacCrest-GMSK	x					x	x				
PacCrest-FST (4FSK)				x						x	
PacCrest-4FSK				x						x	