

SIGNAL CLASSIFICATION: AI MODEL TRAINING & DEPLOYMENT

One key challenge highlighted by recent global events is the need for rapid adaptability in theater. With signals intelligence (SIGINT) continuing to play a crucial role in most conflicts, adaptability is crucial here, too. Unfortunately identifying new signals and updating platforms accordingly has been painfully slow. This is finally changing with the latest innovations in AI-enabled applications from DeepSig.

Figure 1 compares old and new processes. By starting with a comprehensive database of training data, then locally updating it based upon newly identified signal data, the AI model can be retrained in under a day by a non-programmer, and quickly deployed widely. The resulting models are small enough to be hosted on small form factor (SFF) or attritable platforms, and are particularly well suited to GPU-enabled software defined radios (SDRs) such as Epiq’s new X- and G-series radios. The update process is shown in more detail in **Figure 2**. OmniSIG Studio is a desktop or server application that is used in-theater and makes labeling and refactoring simple, removing 90% of the workload for an operator (screenshot in **Figure 3**). After processing, typically in less than a day, the new model is then transferred as a new OmniSIG detection model on the sensor and can be

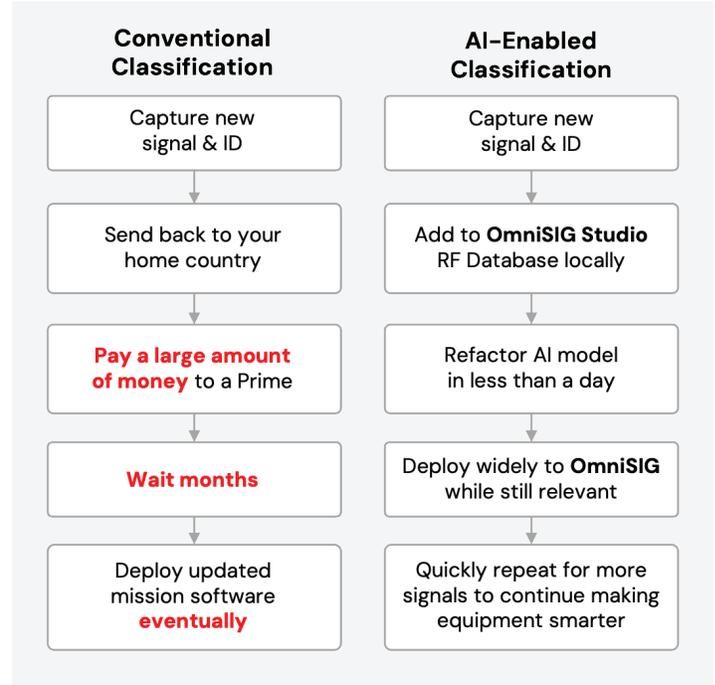


Figure 1: Comparing update processes.

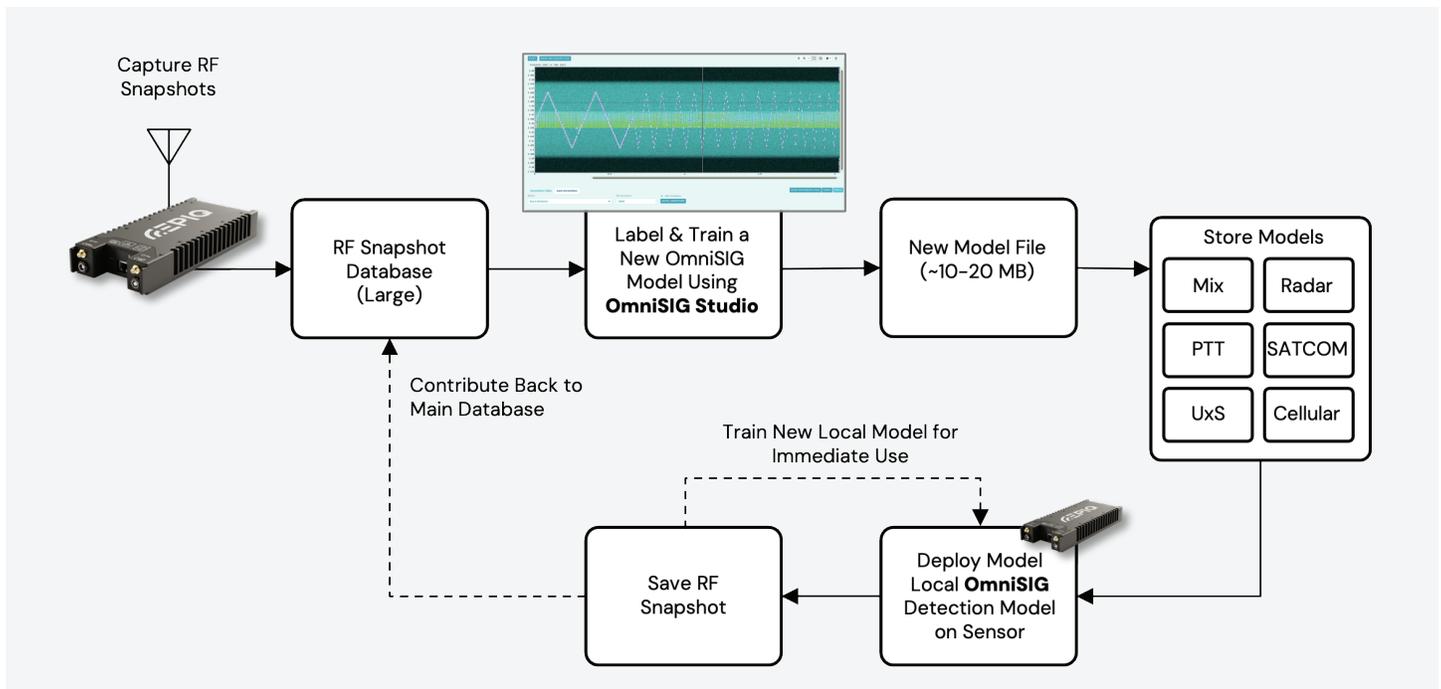


Figure 2: The DeepSig update process step-by-step.

deployed quickly and widely to operate disconnected at the tactical edge. The new Epiq X40 (**Figure 4**) is now supplied with an evaluation copy of OmniSIG that can run on the embedded GPU.

Contact us for more in-depth discussions of your unique needs, or visit [our website](#). For more in-depth information on DeepSig's capabilities [contact them](#), or visit [their website](#).

Applications

- Identification of fake base stations
- UAS datalinks and video feeds
- Bluetooth, Wi-Fi
- LMR, PTT radio traffic
- Transient/ frequency hopping signals

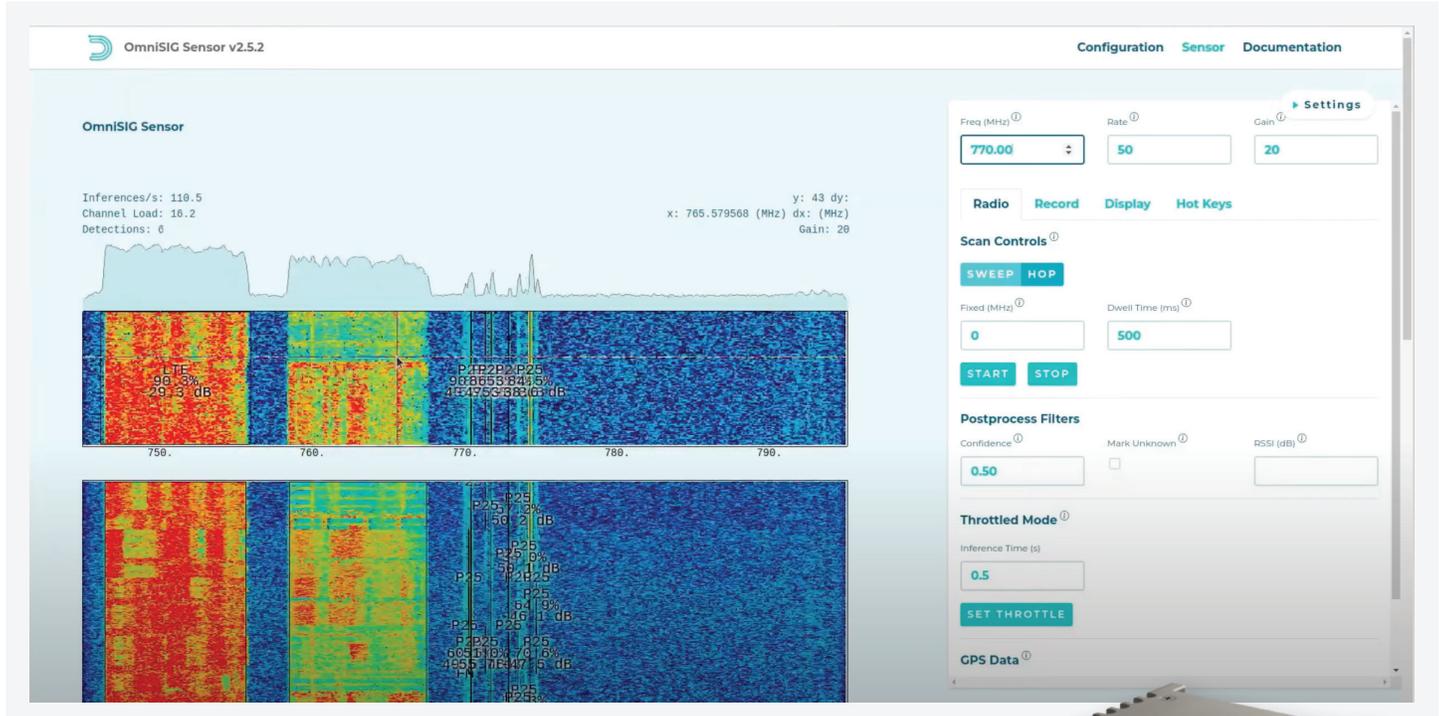


Figure 3: Example screenshot of OmniSIG showing the user-friendly interface.



Figure 4: New Epiq X40 software defined radio (SDR) with embedded GPU, now shipped with an evaluation copy of OmniSig.

Training Data Drives Performance

Sampling of signals DeepSig and their customers have trained.

- Wi-Fi
- Cellular Protocols
- ISM Band
- Cellular jamming/interference (5G)
- FHSS Signals
- Motion Sensors
- IoT
- VHF/UHF
- UAS

ABOUT EPIQ

Epiq Solutions develops cutting edge tools for engineering teams and government-focused organizations requiring situational awareness and detailed insight into their RF environments in order to identify and act against wireless threats.