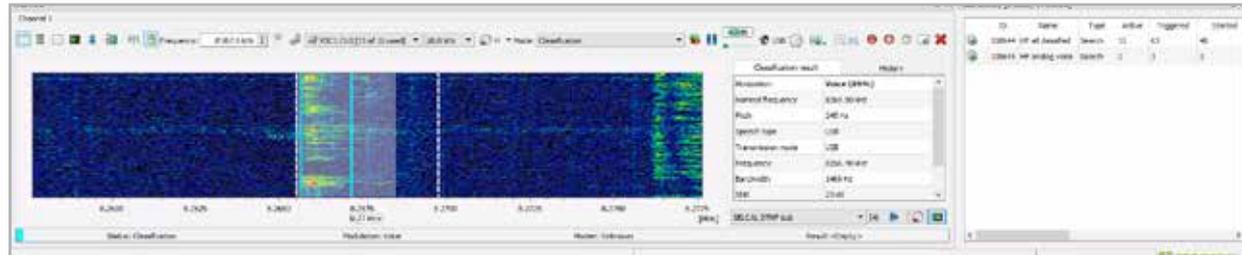


Automatic and manual monitoring in parallel

Automatic Monitoring supports the operator's prosecution of full frequency bands by automatic collection and processing of Signals-Of-Interest, even if those signals are seldom on-air. The functionality is task controlled; the tasking parameters define how the system will process (classify, demodulate, decode, record, etc.) specific signal-types in specific frequency bands at specific times, and when at specific system locations (during mobile usage).

Working with manual channels and automatic tasks in parallel is now possible. The operator can still prosecute specific SOIs manually, while the automatic monitoring capability runs in the background processing the rest. Therefore, the available channels are shared between manual and automatic usage.



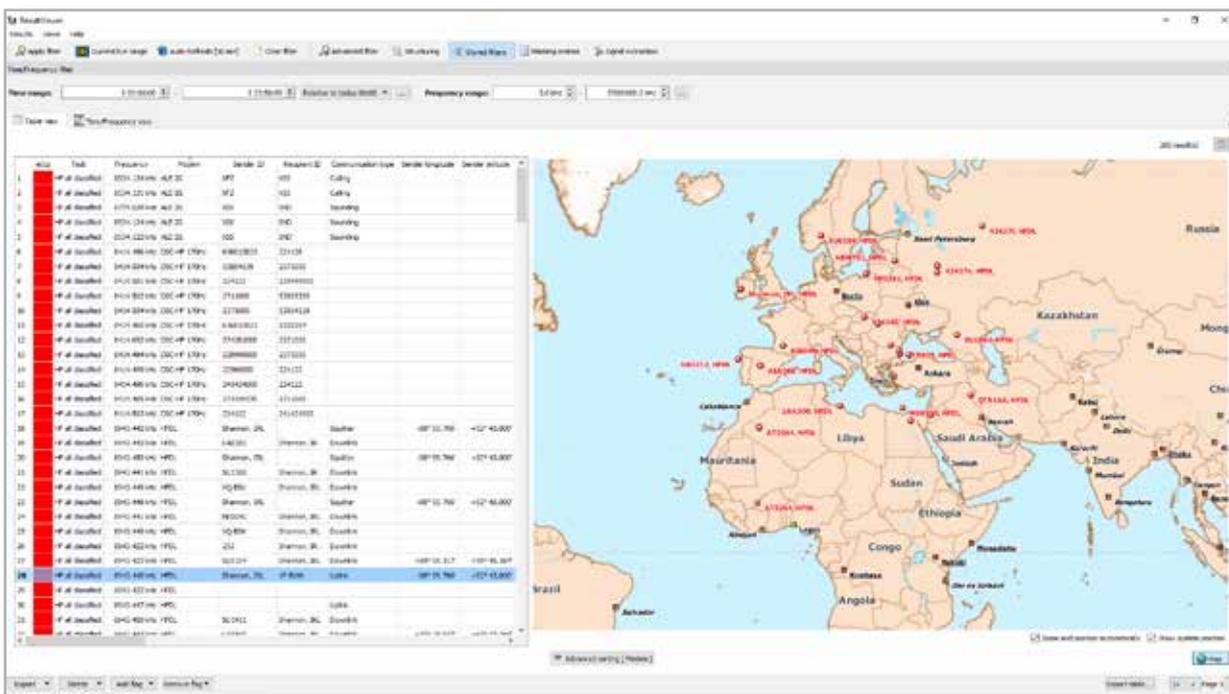
Operational example: live, manual monitoring of a voice (HF USB) transmission while automatic monitoring still runs in the background. The right window shows the current state of the automatic tasks.

Automatic extraction of decoder metadata

Depending on the signal type (e.g. HF DL, ALE-2G, ACARS, VDL2, etc.), decoded text will include interesting metadata such as sender and/or recipient identification, callsigns, aircraft locations or ship positions, types of communication, etc. This new go2SIGNALS function automatically extracts decoded metadata and stores it in new database fields for use during results analysis and reporting tasks such as filtering and sorting, or showing platforms' geographic locations and positions on the map.

DSC-HF 170Hz	273429570	2711000			
DSC-HF 170Hz	224122	241424000			
HF DL	Shannon, IRL		Squitter	+08° 55.766'	+52° 43.800'
HF DL	UAE201	Shannon, IR	Downlink		
HF DL	Shannon, IRL		Squitter	+08° 55.766'	+52° 43.800'
HF DL	SU1368	Shannon, IR	Downlink		
HF DL	VQ-85U	Shannon, IRL	Downlink		
HF DL	Shannon, IRL		Squitter	+08° 55.766'	+52° 43.800'
HF DL	ME0241	Shannon, IRL	Downlink		

Examples of extracted metadata from DSC-HF and HF DL communication links

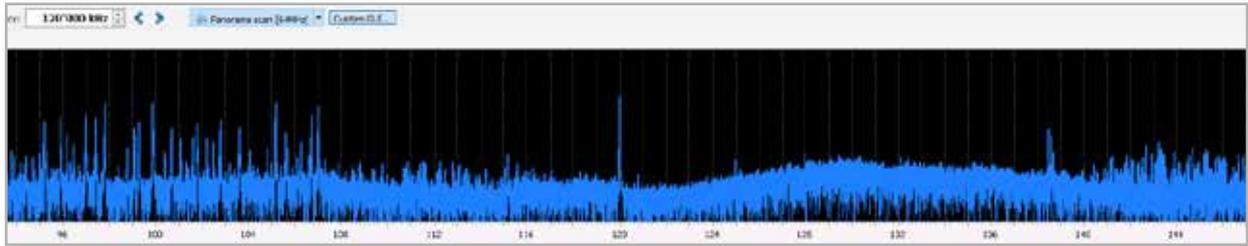


ResultViewer showing metadata extracted and decoded transmission locations plotted to map

Scan simulation for ExtIO based receivers

ExtIO is a generic receiver interface delivered by certain manufacturers for use with their receivers (such as RTLStick, SDRPlay, AirSpy, etc). go2SIGNALS software

supports the ExtIO interface for easy receiver integration. As an experimental function, a generic scan simulation is now available.

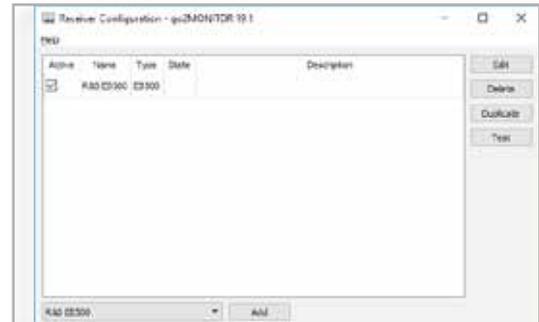


Scanning the FM Commercial Broadcast, VHF Air, & '2-Metre' bands with an SDRPlay RSP2 receiver.

R&S EB 500 is now supported

With every new release we increase the number of digital receiver models directly supported by go2SIGNALS software. A newly supported digital receiver model for this go2SIGNALS release is the EB 500 Monitoring Receiver from Rohde and Schwarz.

Support for R&S EB 500 Monitoring Receiver is now integrated

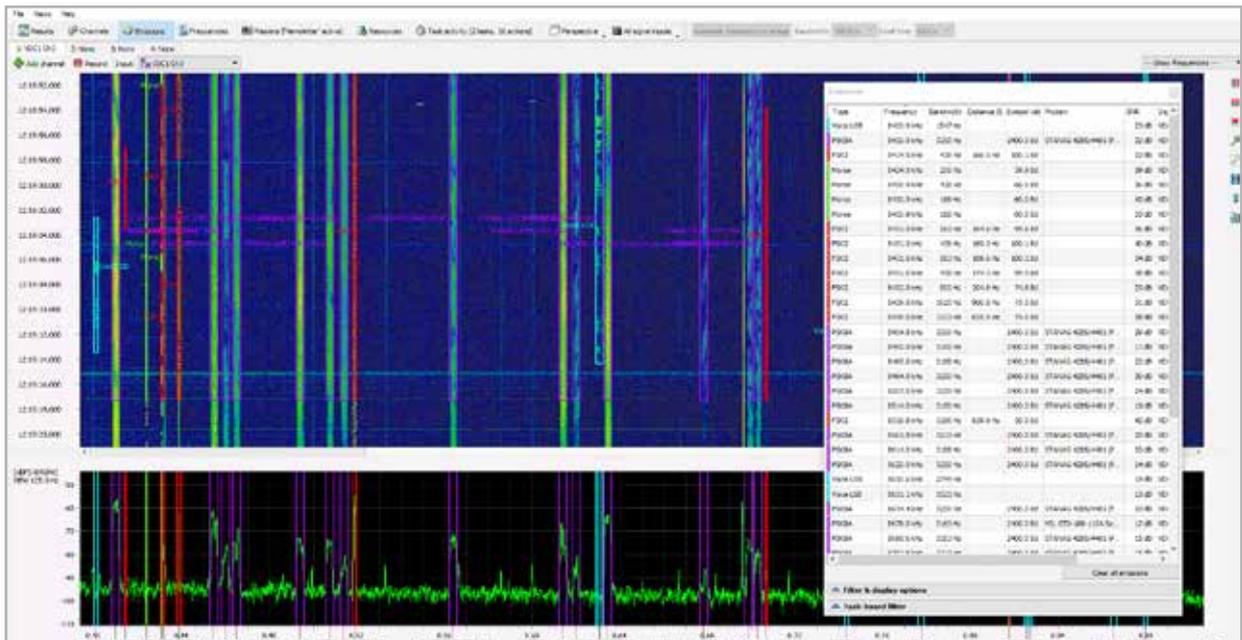


Support for R&S EB 500 Monitoring Receiver is now integrated

Classifier Improvements

go2MONITOR has wideband and narrowband 'modulation type' classification included for effortless signals detection and analysis. With every release we enhance overall classification performance by adding new and

optimizing existing classifiers. These 'modulation type' classification parameters relate to signals encountered in the MF – UHF frequency bands.



Wideband classifier analysing complete frequency bands and classifying all signals in parallel.

Enhanced signal classification bandwidth up to 200 kHz

PSK and (G)MSK modulated signals are now classified up to 125 kbd symbol rate and 200 kHz signal bandwidth. FSK2 signals are enhanced up to 75 kbd.

Additional modem classification

The modem classification feature now also supports the following modems:

- GSM (< 3G)
- CIS-45 33 Bd OFDM
- CIS-45 40 Bd OFDM
- CIS-60 OFDM
- CIS-93 OFDM
- CIS-112 OFDM
- CIS-128 OFDM

OFDM & GSM

Decoder and demodulator improvements

As with every release we add new decoders and decoder functions into go2MONITOR and go2DECODE

to enhance our excellent signals & protocol decoding coverage.

HF/VUHF Standard + SAT + PMR + MIL Decoder Package				
go2MONITOR 19.1 / go2DECODE 19.1				
Modem	Same as	Remarks	Modem File	Src*
PMR (Professional Mobile Radio) package (optional)				
APCO-25			apco-25	-
DMR		for burst emissions	dmr	-
DMR Continuous		for continuous emissions	dmr_continuous	-
dPMR			dpmr	-
D-STAR			d-star	-
IDAS	NXDN	Icom's version of NXDN		-
Motorola SmartNet 4kHz			smartnet4khz	-
Motorola SmartNet 6kHz			smartnet6khz	-
MotoTRBO	DMR	Motorola's version of DMR		-
MPT1327 1200Bd MSK		control channel	mp11327_1200bd_msk	-
NEXEDGE	NXDN	Kenwood's version of NXDN		-
NXDN 2400Bd			nxdn_2400bd	-
NXDN 4800Bd			nxdn_4800bd	-
P-25	APCO-25			-
Tetra			tetra	-
Tetra DMO			tetra_dmo	-
Tetra Uplink			tetra_uplink	-
Tetrapol		voice codec not included	tetrapol	-
Yaesu System Fusion		12.5 kHz bandwidth	yaesu_fusion	-
Yaesu System Fusion NB		6.25 kHz bandwidth	yaesu_fusion_nb	-

Portion of our full decoder list showing PMR decoder package (option available)

New decoders included for:

- YAESU System Fusion
- ALIS2 (before detection-only)

Extended demodulator functions:

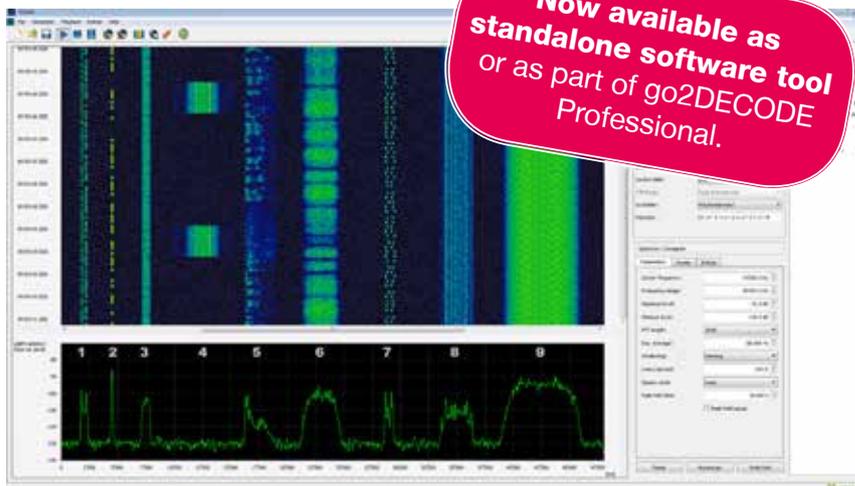
- FSK disc.: soft symbol output support
- PACTOR 2/3:
 - increased burst detector robustness to frequency deviation
 - makes use of burst length information from decoder
 - improved burst start detection

Extended decoder modes and functions:

- Inmarsat Aero-C: Voice decoding
- INMARSAT-C-TDM: EGC mode (SafetyNet, FleetNet)
- CODAN3212 (single channel): 150/300bps modes, soft decision, ARQ, STANAG 5066 (HF-IP)
- NXDN: descrambling with known key
- PACTOR 3: soft decision demodulation
- PACTOR 2/3: support for AirMail/SailMail
- D-STAR: improved synchronization, data output
- Added XML tags and result-splitting for decoder meta information extraction
 - HFDDL (ACARS-HF)
 - AIS
 - ACARS-VHF
 - DSC-HF/VHF
 - VDL2
 - ALE-2G

Generate signals and basebands for training and operations environment using the SOMO Software Modulator Tool!

- Perfect tool for training and development of data-signals analysis and exploitation techniques
- Wide range of user-adjustable modulation modes & signal parameters
- Create complex operational scenarios containing multiple Signals Of Interest
- Generate from simple, low-speed signals to complex, high-speed & multichannel emissions
- Synthesise FM-FDM 'multichannel' basebands for replay, recording and de-channelling
- Test and prove Electronic Surveillance systems processing paths offline





go2SIGNALS

... monitoring a connected world

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www.procitec.de



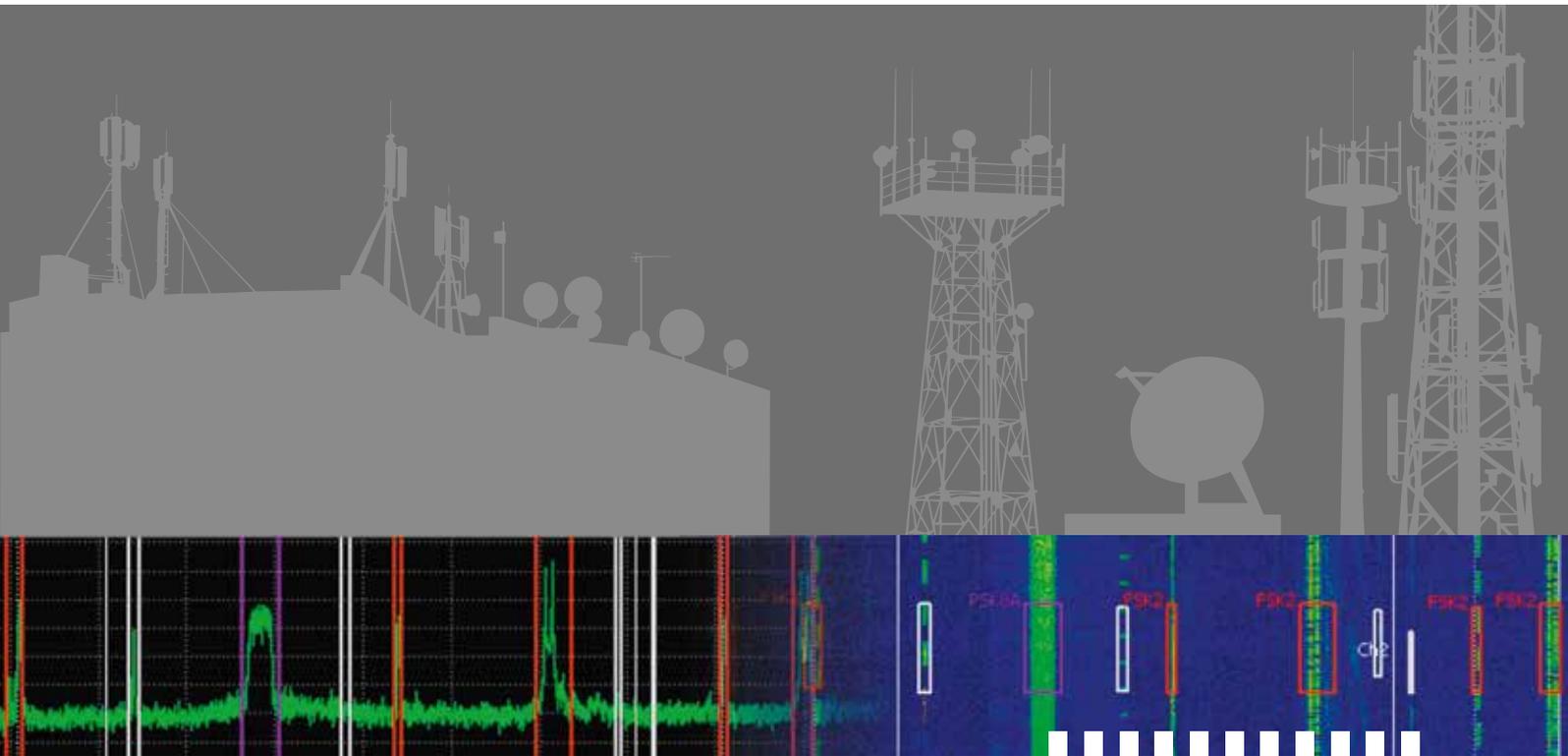
go2DECODE



go2MONITOR



go2ANALYSE



Management System
ISO 9001:2015