go2signals

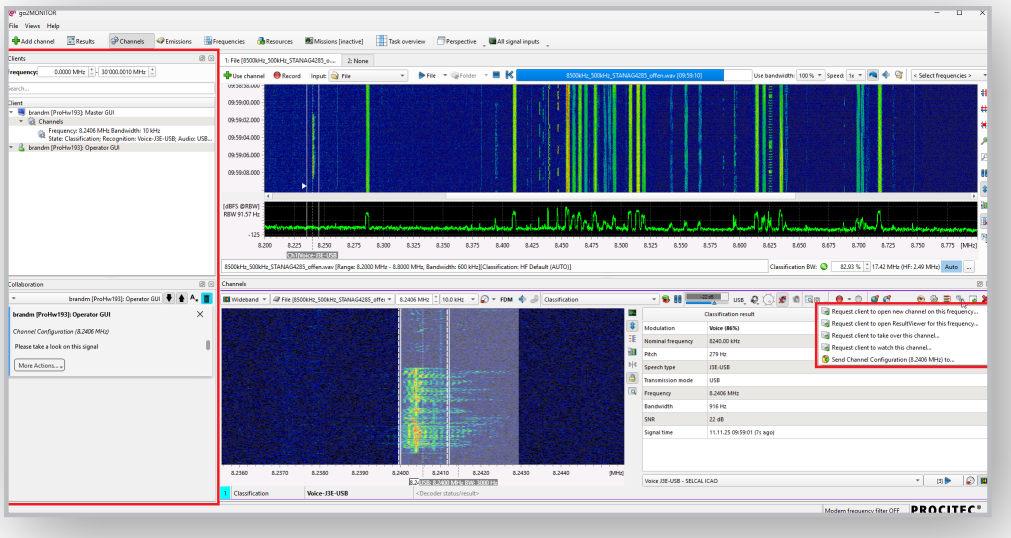
RELEASE NEWS
VERSION 26.1

PROCITEC®
HOUSE OF SIGNALS

GO2MONITOR ENHANCEMENTS

NEW FUNCTION: COLLABORATION FEATURE

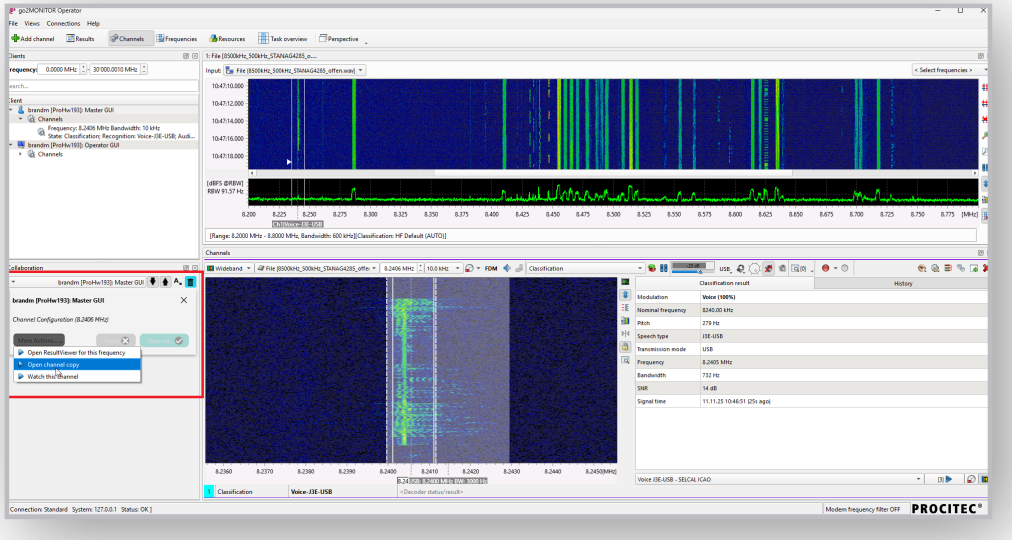
Sharing tasks, resources, results, etc., multiple workstations can perform radio spectrum monitoring in parallel. Operators can now exchange messages, share data and results of interest, and send task requests to each other in real time. These new features improve team collaboration and help streamline workflows for faster, more effective operations.



New Collaboration features inside go2MONITOR for sending and receiving request

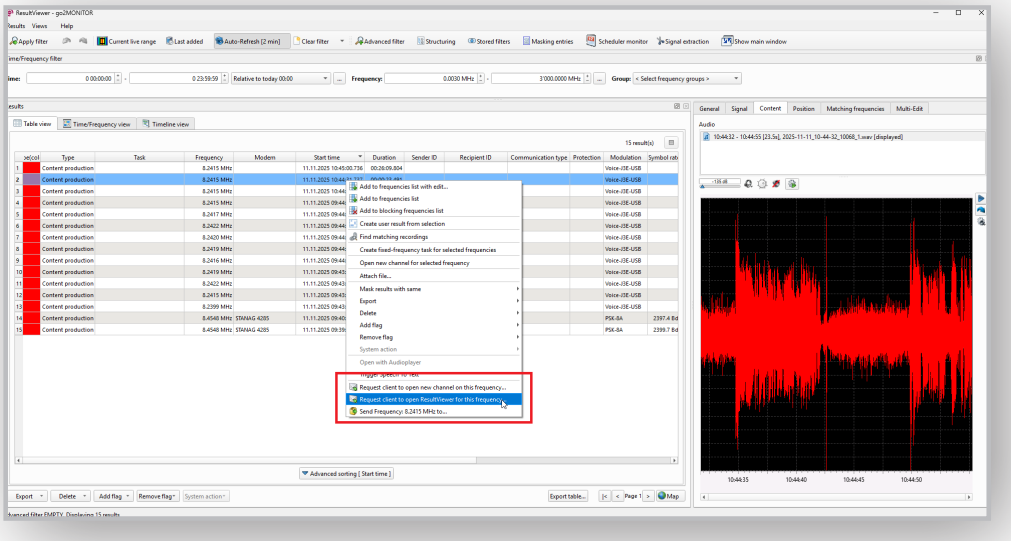
With the new feature, sharing of a signal or frequency is now a simple task. The new Client View provides a detailed overview of all clients currently connected to the go2MONITOR system, including information on their production channels usage.

For example, you can ask another connected operator to have a look on the same frequency on which you found an important signal. He will receive a message in his collaboration window and can then decide whether to set up a new local channel for the signal or simply look into the same channel you are currently using.



A second workplace receives the request and opens his own channel on that frequency

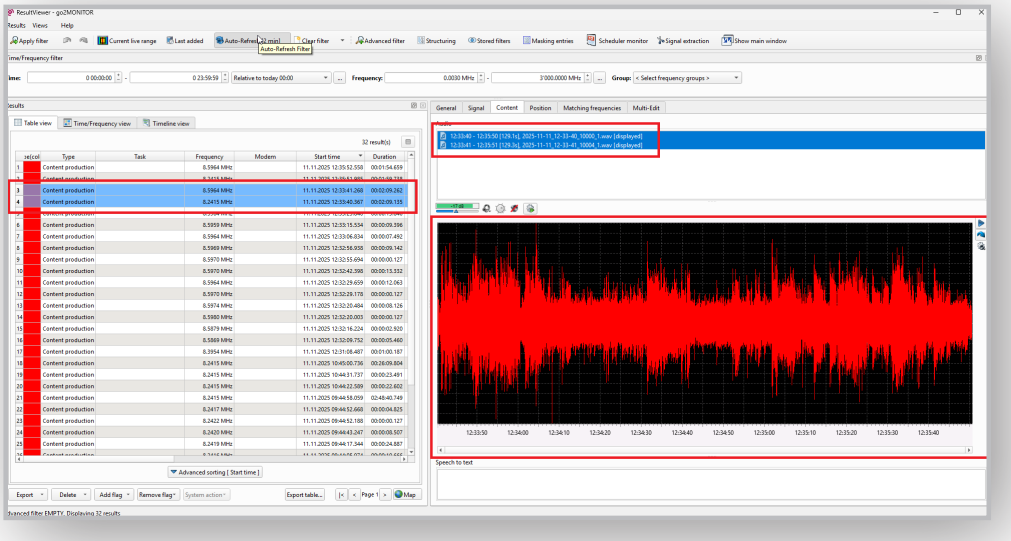
You can also send requests while reviewing results in ResultViewer. For example, send a request to a colleague to view a specific result stored in the database, or send him a special filter for the database you are currently using to review results.



Collaboration during result reviewing in ResultViewer

ENHANCEMENT: NEW RESULTVIEWER AUDIO PLAYER

The ResultViewer has been upgraded with a powerful new audio player that automatically skips silence, allows selection playback, supports loop and variable speed controls, and includes a playback squelch function. The player can merge and play audio from multiple results, enabling operators to listen to communications originating from different results simultaneously.

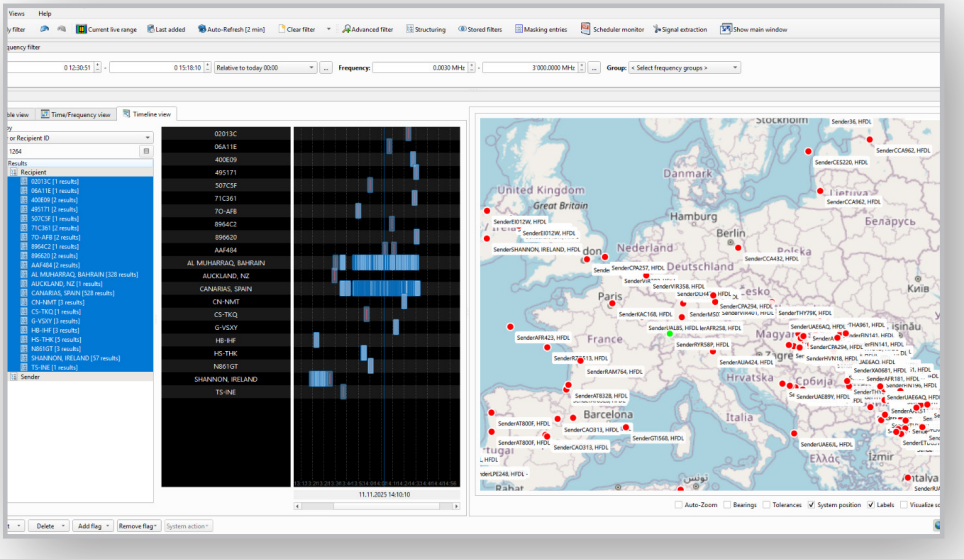


Select two frequencies in duplex connection to easily add and listen audio from both channels

GO2MONITOR ENHANCEMENTS

UPDATED: OVERVIEW MAP DISPLAY

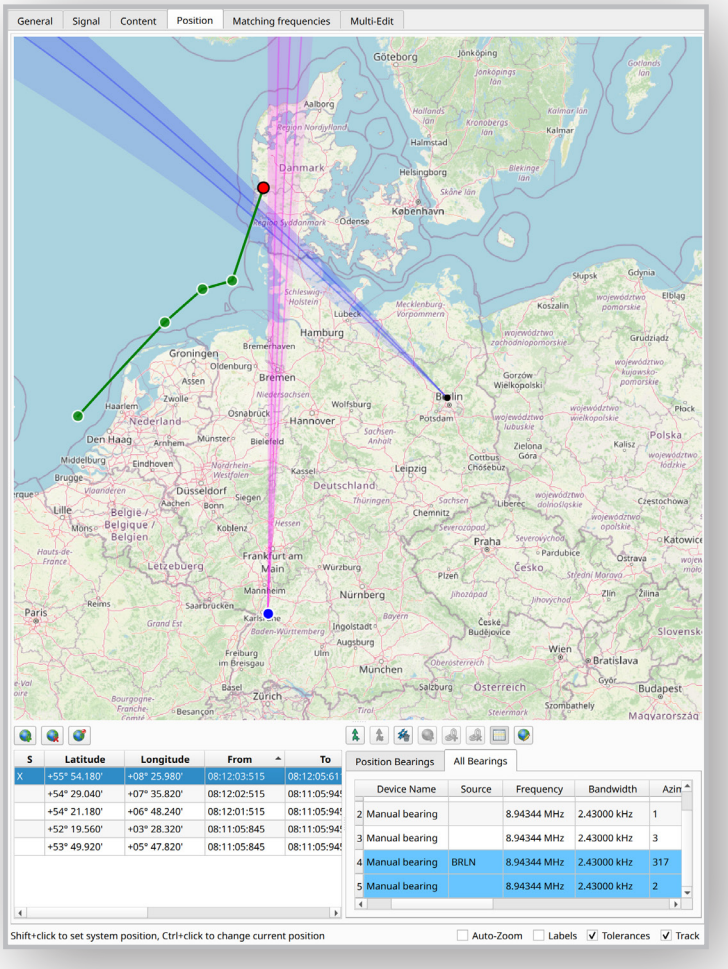
The overview map display in ResultViewer has been improved to interact not only with the table view but also with Time/Frequency and Timeline views. Only currently selected results are displayed, this offers a more focused and precise result visualization.



The new Overview Map Display works now together with all three result views

REDESIGNED: POSITION RESULTS

Adding many new features, the Position View in ResultViewer has undergone a complete redesign. Operators can now add and edit bearings and positions, assign bearings to positions, and automatically compute position fixes from bearings. The map display now shows bearing tolerances, position tracks, and more.



Redesigned Position View

The main functions of the view:

- Display bearings and positions in a geographic overview, including tracking of positions
- Interactive editing and maintenance of bearing and position data, including manual creation, correction, assignment, and deletion of individual entries
- Support for localization and tracking of radio emitters based on a included position determination algorithm and position tracking

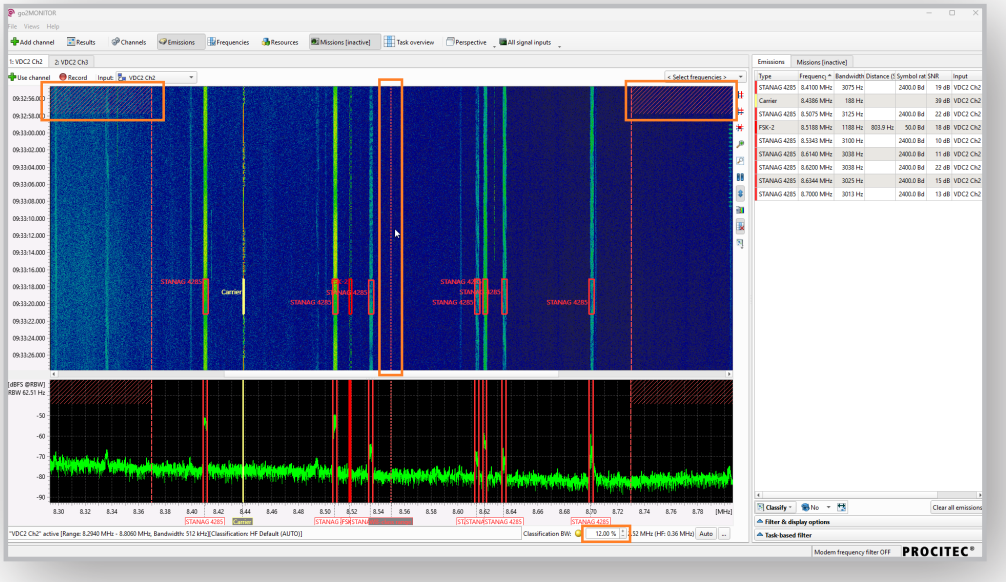
GO2MONITOR ENHANCEMENTS

ENHANCEMENT: ADDITIONAL WIDEBAND INPUT FEATURES

The wideband input bandwidth in go2MONITOR is defined by the receiver used or the bandwidth of a replayed recording. It may also be wider than the wideband classification bandwidth. If this is the case, the classifiable range is marked in the spectrogram. Two new features give you now the possibility to flexible use this range and enlarge it over the complete input.

MOVABLE WIDEBAND CLASSIFICATION RANGE

The wideband classification frequency range is no longer fixed to the input center; it can now be freely and interactively moved, giving operators more flexibility when working with different frequency ranges.



Example: Reduce and move classifyer bandwidth for a selected input

MEMORY-STEP WITH TWO-STAGE ALGORITHM

Memory-Step (part of automatic monitoring AMT) now uses a two-stage algorithm that takes the wideband classification bandwidth into account. The process first steps across the input by moving the wideband classification range, followed by tuning the receiver for optimal performance.

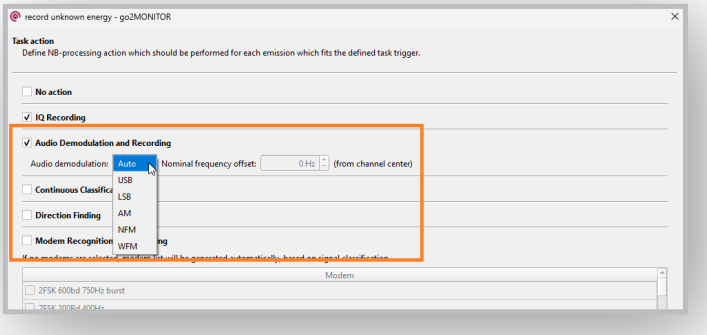
Two-stage algorithm optimizes the memory step function

GO2MONITOR ENHANCEMENTS

ENHANCEMENT: NEW AUTOMATIC MONITORING FEATURES (AMT)

AUDIO DEMODULATION AND RECORDING

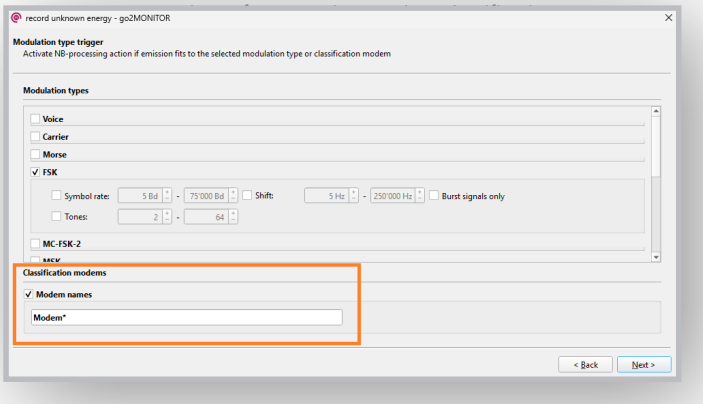
AMT tasks now include a new "Audio Demodulation and Recording" action to automate audio processing without consuming production channels. This improves resource management and efficiency because no decoder is used.



New AMT Audio Features

WIDEBAND CLASSIFICATION TRIGGERS

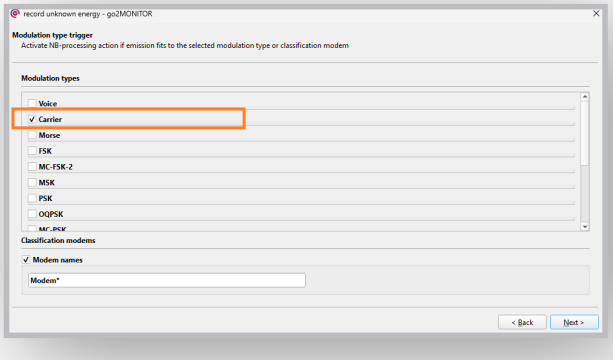
AMT tasks can now be triggered by modem detections reported by the wideband classifier. This adds another layer of automation and precision to task execution.



New Trigger Feature using modem classification

CARRIER TRIGGER

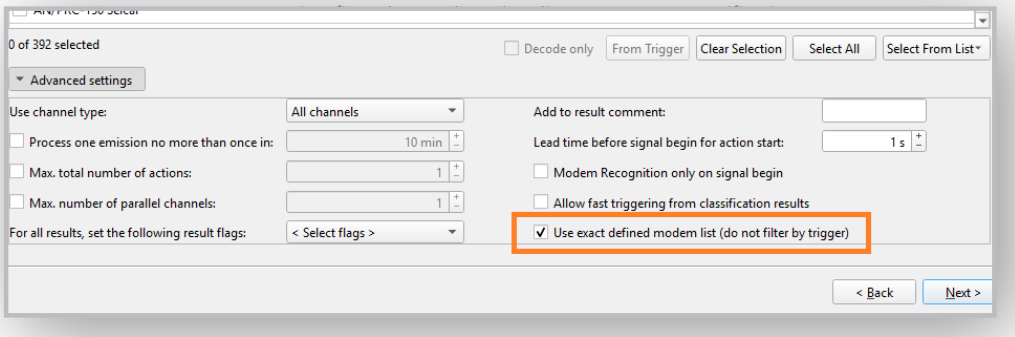
A new "Carrier" modulation type has been added as a valid trigger condition in AMT tasks. This gives you the option, for example, to trigger emissions that use a carrier in idle mode.



Trigger by carrier detection

FIXED MODEM LIST OPTION

AMT tasks can now use a predefined, parameterized modem list directly – without validating it against the modems detected by the classification process. Ideal if the typical modems for a frequency are already known.



New option fixes the used modem list to customer specification

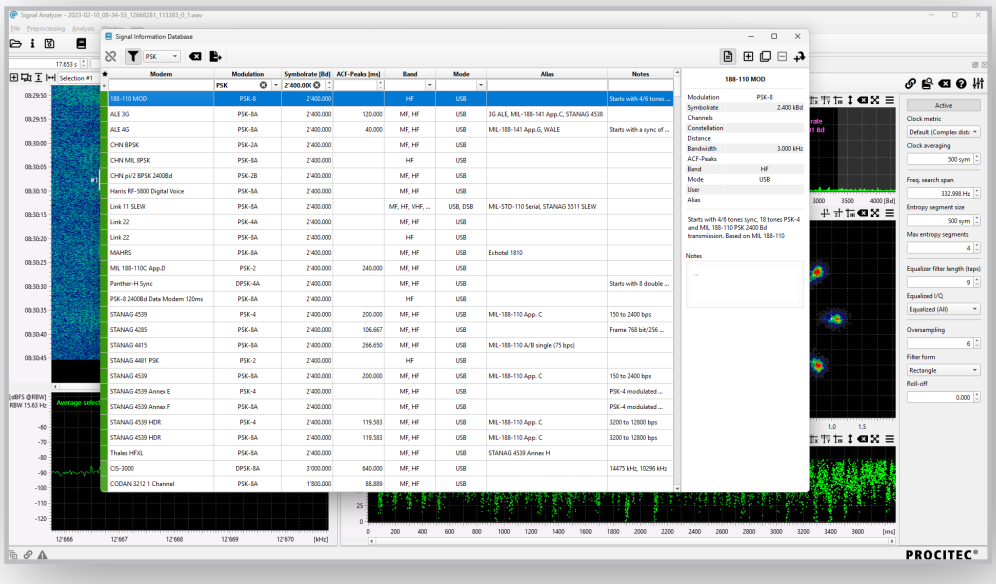
SIGNAL ANALYZER ENHANCEMENTS

RENAMING AND SOFTWARE MAINTENANCE

We took this release as opportunity to carry out software maintenance and make detailed improvements to the Signal Analyzer. Firstly, the name was changed from ‚Signal Analyzer' to ‚go2signal-analyzer' to emphasize its connection to the go2signals universe more clearly.

For example, improvements have been made to support SignalHound IQ files with float samples and splited data files, as well as to the gain adjustment in Midas Blue files.

The application now saves additional spectrogram settings in its project files, and the Signal Information Database search features have been enhanced.



Using Signal Information Database in go2signal-analyzer

GO2SIGNALS ANALYSIS SUITE

INTRODUCING THE NEW GO2SIGNALS ANALYSIS SUITE

The new go2signals Analysis Suite is now available, providing a comprehensive and integrated toolbox for advanced signal analysis, decoder development, testing, and training. While the go2signals-analyzer is already well established among users, an new brochure now presents the complete Suite and its components.

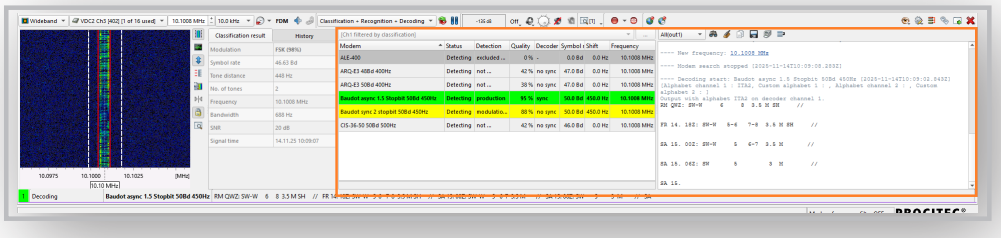
The go2signals Analysis Suite brings together all essential tools required to analyze unknown signals, create or adapt decoders, generate realistic training scenarios, and extract ARC4 cipher keys for DMR systems.

This toolbox forms a flexible, military-off-the-shelf solution that enables operators and analysts to respond quickly and effectively to new, changed, or challenging signals. The Analysis Suite ensures seamless workflows – from the very first detection of unknown signals all the way to deployment in go2MONITOR.

Discover the complete capabilities in our new product brochure and experience the next level of operational readiness and analytical performance.

DECODER AND DEMODULATOR ENHANCEMENTS

This new release significantly increases the flexibility and efficiency of many decoders, such as DMR, LoRa and some STANAG, particularly improving their performance in challenging real-world communication scenarios.



Decoding in Manual Mode in go2MONITOR

NEW DEMODULATOR FEATURES:

- Link 22: improved decision on waveform type and reed-solomon mode
- STANAG 4415: new robust demodulator based on rake receiver
- LoRa: improved processing performance

DECODERLIST

List of all available Decorders
www.procitec.com/go2signals-decoderlist

NEW DECODER FEATURES:

- New decoder added
  - CRY2001
- DPRK PSK: reduced false positive detection
- Iridium: added decoding of voice
- Tetra: added output of logical channel packets to pcap files
- Tetra Uplink: added option to skip modem synchronization if MCC or MNC does not match
- Improved decoding of mixed Morse F1A and CIS-36-50
- Baudot decoders: added raw output of payload
- Pactor 2/3: added detailed output about received frame
- STANAG 5066: added output of logical channel packets to pcap files
- Serdolik System v2: added operator chat
- DMR:
  - Detection if custom Russian firmware „Veda“ is used
  - Improved error correction using an iterative turbo product decoder
  - Frame recording to file always active in case of ARC4 encryption
- LoRa added decoding of:
  - APRS payload
  - Meshtastic Header
- Added detection of Harris Citadel encryption in some decoders
  - STANAG 4415
  - STANAG 4285
  - STANAG 4539

NEW DECODER DETECTION FEATURES:

- STANAG 4539 Annex E, F, G

NEW DECODER DEVELOPMENT LANGUAGE (pyDDL) FEATURES:

- New API for demodulator control and parameter changes (old API will be removed in v26.2)
- Allow setting burst preamble and training pattern when switching demodulator
- New multiplicative descrambler
- New utility function to convert a polynomial into a generator matrix
- New decoder for non-systematic linear block codes
- Preprocessing function differential_encoding now makes use of higher-order modulations symbols
- New utility functions for BitStream
  - Writable stream class for appending and buffering bits
  - Functions to get or test stream and rewind lengths
- New functions for bit code analysis
  - Maurer’s universal statistical test
  - Calculating Tsallis entropy of a discrete probability distribution
  - Chi-Square test
  - Repetition detection of bit sequences
  - Search for LFSR polynomials using Berlekamp-Massey algorithm

RECEIVER SUPPORT

With each new release of our software, we continuously expand support for an even wider variety of receivers. In this latest release, we have once again integrated numerous new models to offer our users even more flexibility and choice when using our services.

Whether you own a brand new device or a tried-and-tested classic, you can rest assured that we always keep our software up to date so that it is compatible with the latest receiver models. This offers one of the best performances and user experiences currently available on the market.

- Added support for EPIQ NDR364
- Added support for IZT R5010/5040 multicast
- Aaronia SPECTRAN V6 ECO/PLUS support over Aaronia RTSA-Suite PRO software implemented
- Added support for Generic SoapySDR interface

Aaronia SPECTRAN V6 PLUS receiver (copyright by Aaronia)

ADDITIONAL NOTEWORTHY CHANGES GO2MONITOR

- **Multiple full GUIs**
  In addition to multiple Operator GUIs, a single system can now host multiple full go2MONITOR GUIs concurrently.
- **Result context menu**
  The context menu for results in the ResultViewer is now also available in the Time/ Frequency and Timeline views.
- **Playback-only squelch**
  The audio squelch affects local playback only; system-wide audio demodulation remains unaffected.
- **Local time display**
  In ResultViewer, date/time can be switched from UTC to any cho-sen local time zone.
- **Dynamic production-channel assignment**
  When available production channels are fewer than the total number of NB channels, NB channels are no longer statically bound to the first N channels; each channel can be configured to use production resources when available.
- **HDU channel placement**
  If the number of HDU channels is less than the number of wideband inputs, users can select which input hosts an HDU channel.
- **NB spectrum inversion.**
  New option to invert the spectrum of an NB channel (for the "Wideband input" channel type only).
- **Open NB channel from results**
  ResultViewer can request opening a new NB channel at the frequency of a selected result.
- **Heterogeneous wideband inputs**
  System configurations can now include wideband inputs with differing capabilities, such as low- and high-bandwidth receivers within the same setup.
- **Store unknown WB classifications**
  A new system configuration option allows auto-matic storage of "Unknown" wideband classification emissions in the database when they are detected as part of an active AMT task trigger.
- **Initial audio frequency handling**
  The logic for setting the initial audio frequency when switching between results in Result Viewer has been improved to reuse user-defined frequencies from other results whenever possible.
- **SignalHoundIQ file support improved SignalHoundIQ-Plugin**
  float und multi-file support
- **New GUI scripting context available**
  Allows processing of ResultViewer signal files, including user-defined rectangle selection within the spectrogram.

PROCITEC®

HOUSE OF SIGNALS

PROCITEC GmbH
Rastatter Strasse 41
75179 Pforzheim
Germany

Phone +49 7231 155 61-0
Fax +49 7231 155 61-11
sales@procitec.com
www.go2signals.de / www.procitec.com

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