go2signals

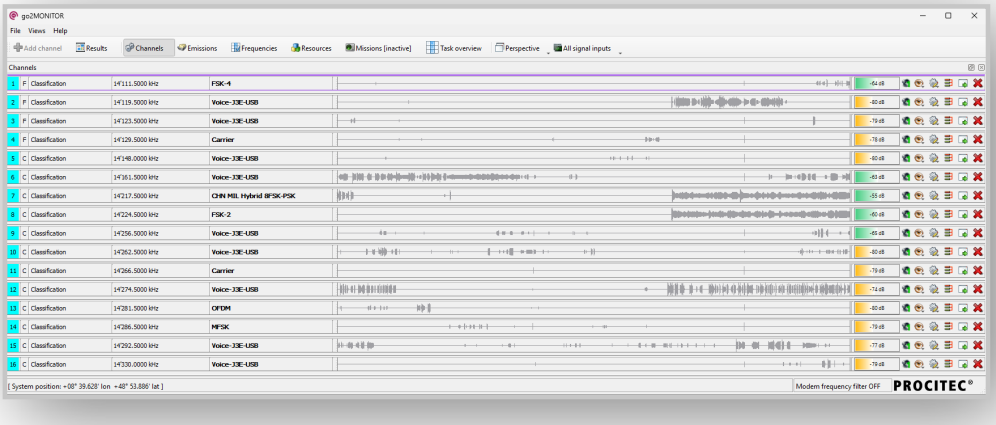
RELEASE NEWS
VERSION 25.2

PROCITEC®
HOUSE OF SIGNALS

GO2MONITOR ENHANCEMENTS

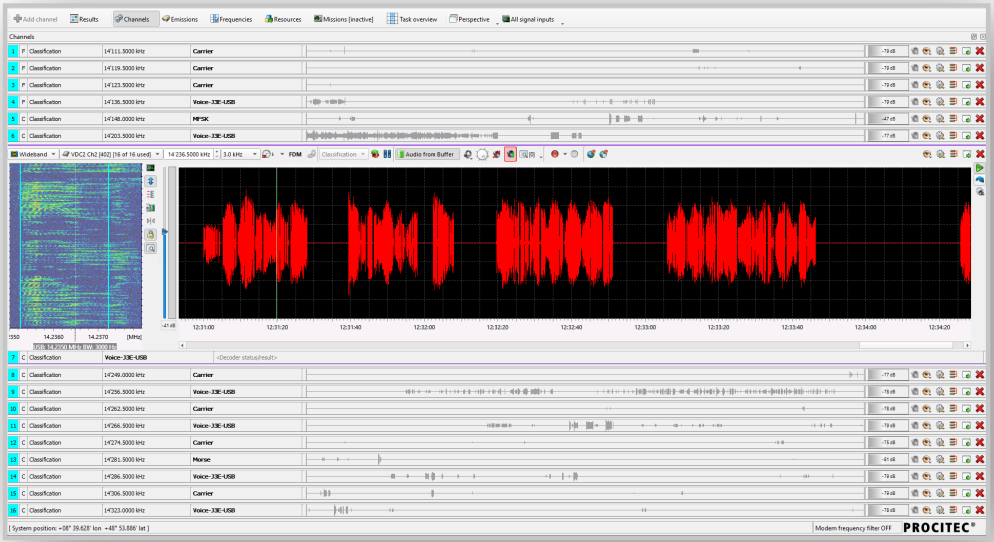
NEW FUNCTION: MULTI CHANNEL AUDIO PROCESSING

A common task is the parallel monitoring of analog voice signals on a large number of fixed frequencies. With this new release, go2MONITOR offers significant improvements in audio handling for this type of usage.



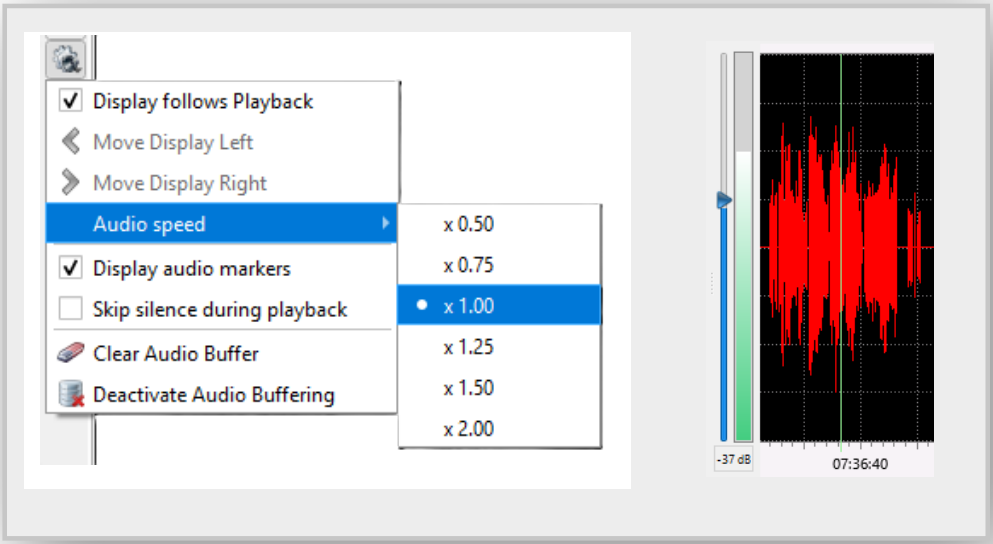
16 channel live audio listening and 30 min buffering for playback

For example, in addition to live listening, each audio channel has its own playback buffer for several minutes, which makes it possible to playback the audio in a specific area or from a specific position during further processing.



Replay selected channels at a selected position or in a defined time range

During replay from the audio buffer you get some new features like an additional squelch function, change replay speed (slower and faster) or activate skipping of silence.



New features like replay speed or additonal squelch

NEW OPTION: 32 AUDIO CHANNELS

With the new audio functions, there is now an additional article for go2MONITOR, the "32 Audio channels" option, which extends the software by 32 channels (select n times for more than 32 channels). These additional channels support the demodulation of LSB, USB, AM, FM or WFM with squelch function and are optimized for manual monitoring of audio signals on fixed frequencies. The demodulated audio signals are buffered for playback and can be recorded automatically or manually and saved in the results database.

MONITORING SUITE

Technical Specifications Document
www.procitec.com/go2signals-specifications-monitoring

ANALYSIS SUITE

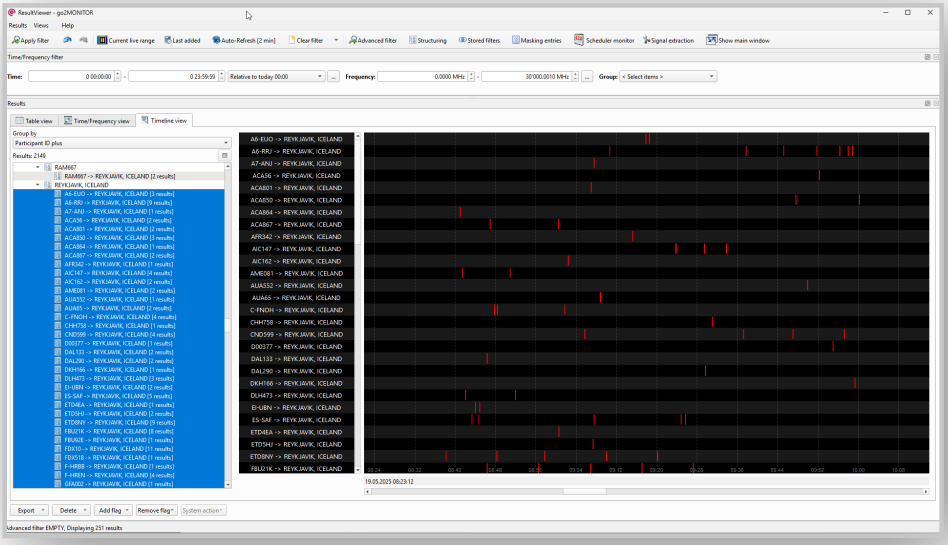
Technical Specifications Document
www.procitec.com/go2signals-specifications-analysis

GO2MONITOR ENHANCEMENTS

NEW FUNCTION: TIMELINE VIEW IN RESULTVIEWER

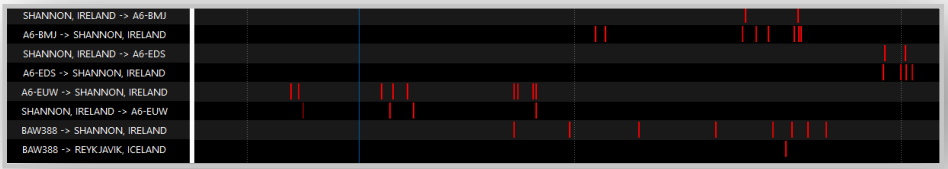
With the ResultViewer in go2MONITOR, the user has the option of analyzing, editing or merging results and forwarding them accordingly to other systems.

A new feature for result analysis is the now available Timeline View. This view shows the temporal behavior of individual results and their relationship to each other, e.g. to recognize patterns of typical communication behavior or to identify frequencies used.



Timeline View: This example shows who called Reykjavik at what timed

The display uses the structuring option to group result e.g. by subscriber or by technical parameters such as frequency, modulation, content, etc.



Timeline View extract showing specially selected communications

This enables a wide range of different analysis options, especially since the user can extend the structuring with his own scripts (editor in go2MONITOR included).

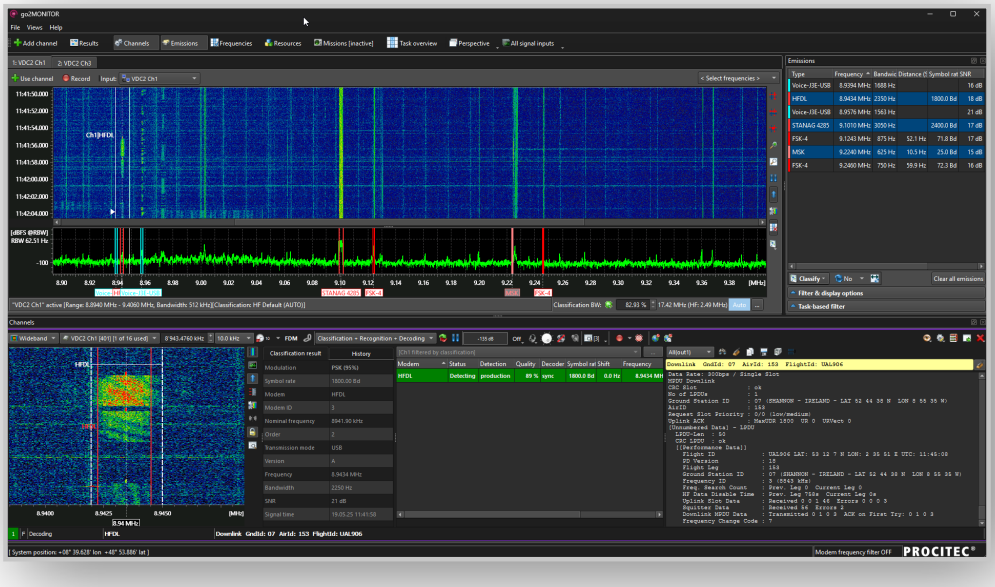
Participant_based_structuring_plus.py

```
while ResultsIn.next():
  # get sender and recipients as lists
  asSender = ResultsIn.getValue('Sender').split('|')
  asRecipient = ResultsIn.getValue('Recipient').split('|')

  # set lists to same size
  iMaxLen = max(len(asSender), len(asRecipient))
  asSender += [''] * (iMaxLen - len(asSender))
  asRecipient += [''] * (iMaxLen - len(asRecipient))

  # process all
  for sSe, sRe in zip(asSender, asRecipient):
    # strip spaces, otherwise the entries are separated
    sSender = sSe.strip()
    sRecipient = sRe.strip()
    # add to list
    sEntry = sSender+' -> '+sRecipient
    if len(sSender) > 0:
      GroupsOut.addResult( ['Sender', sSender, sEntry] , ResultsIn.getCurrentRecordId() )
      GroupsOut.addResult( ['Communication', sSender, sEntry] , ResultsIn.getCurrentRecordId() )
    if len(sRecipient) > 0:
      GroupsOut.addResult( ['Recipient', sRecipient, sEntry] , ResultsIn.getCurrentRecordId() )
      GroupsOut.addResult( ['Communication', sRecipient, sEntry] , ResultsIn.getCurrentRecordId() )
```

Example: Short customer script structuring communications

NEW: DARK MODE

In addition to light is now a new color theme dark available.

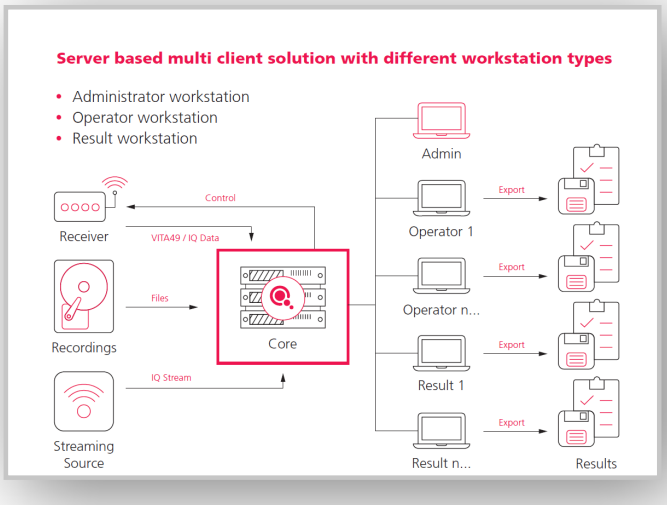


go2MONITOR in Dark Mode

GO2MONITOR ENHANCEMENTS

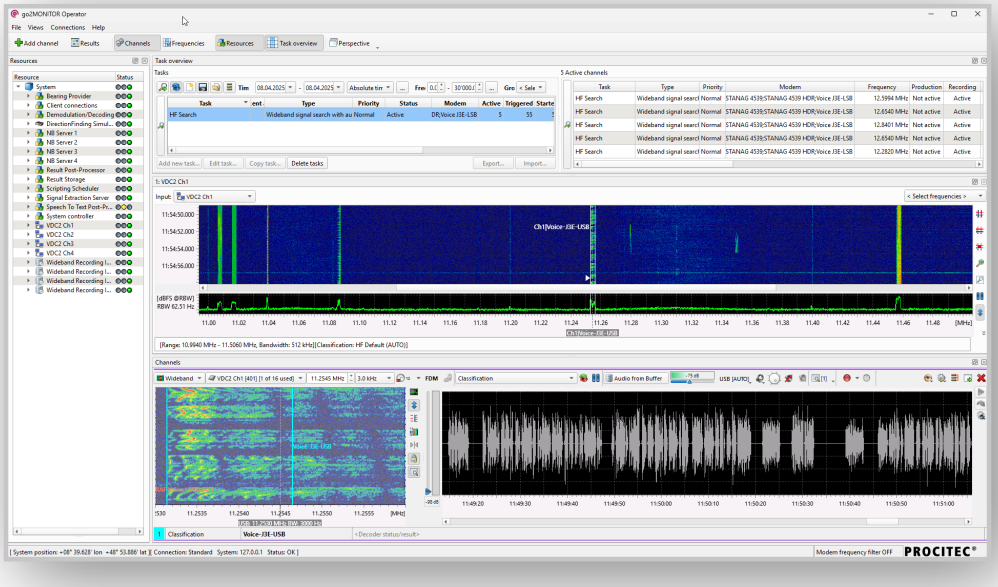
ENHANCED: GO2MONITOR OPERATOR

Since release 22.2, go2MONITOR offers the possibility to share the results and resources of a central used core software with additional configurable user workstations. This makes it possible to divide user tasks among different workstations (e.g. special workstations for special signals) or to configure small systems with multiple operators sharing a more powerful core go2MONITOR software.



Work with go2MONITOR and multiple workstations

The Operator workstation now include several Master UI features: Resource View, Emissions View (without Classify button) and recording symbols from narrowband channels.

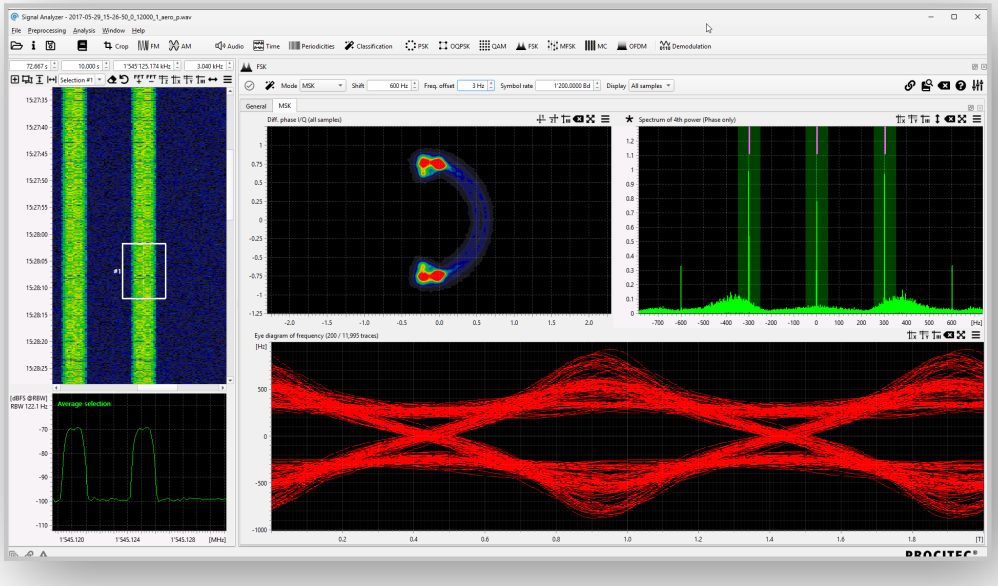


go2MONITOR Operator UI with additional Master UI features

SIGNAL ANALYZER ENHANCEMENTS

NEW: MSK ANALYSIS FEATURES

This new template enhances the FSK analysis template with additional measurement features specialized on MSK modulation. New features are differential phase I/Q display, the spectrum of the 4th power of the signal and an eye diagram of the instantaneous frequency.



New tab in FSK template with specialized MSK measurement features

NEW: DARK MODE

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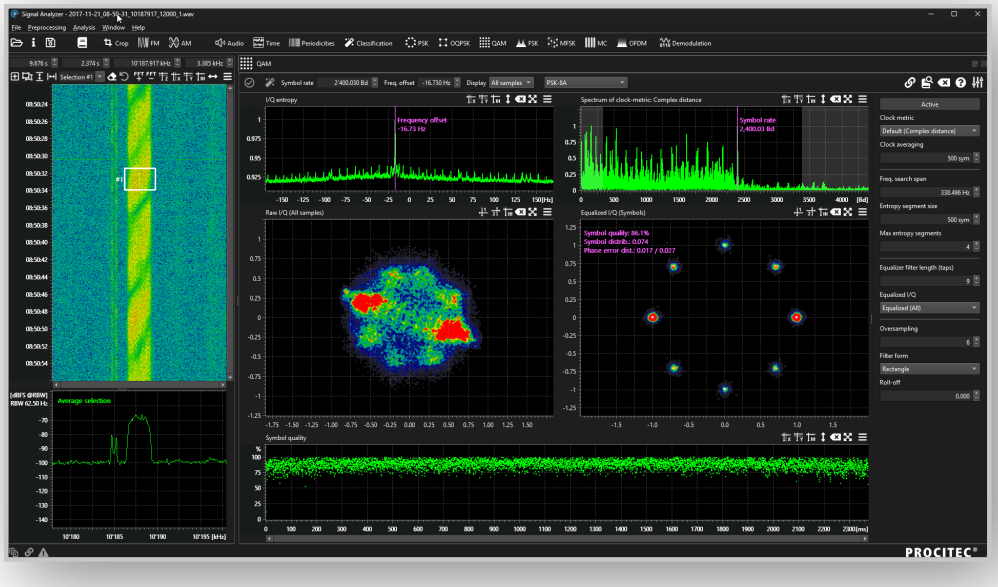
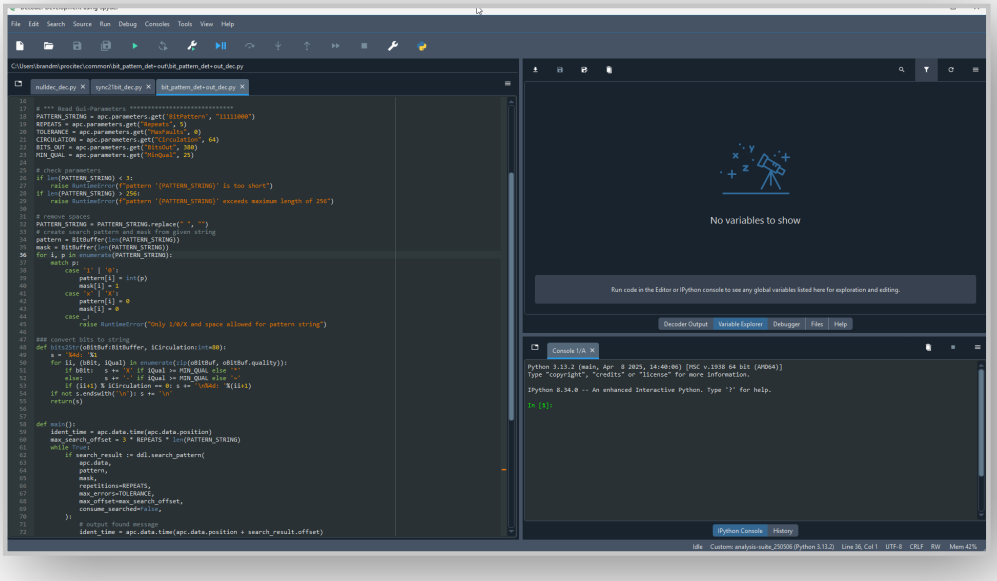


Signal Analyzer in Dark Mode

DECODER AND DEMODULATOR ENHANCEMENTS

With this release, there are once again lots of new features for demodulating and decoding. The list of decoders continues to grow, with new decoders like LoRa and DPRK ARQ 600/1200Bd and new features in digital voice communication signals like APCO 25 and DMR



Customer decoders development tool in Dark Mode

NEW DEMODULATOR FEATURES:

- New special LoRa demodulator
- New special Serdolik System v2 demodulator
- User definable correlative preamble detection of PSK Version B
- OFDM: individual and flexible symbol to bit demapping in ofdm xml

DECODERLIST

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

NEW DECODER FEATURES:

- New decoder added
  - LoRa
  - Serdolik System v2
  - DPRK ARQ 600/1200Bd
  - AN/PRC-150 Selcal
- APCO 25 Phase 1
  - Decryption with known key of ARC4/DES/AES encrypted voice
  - GPS coordinates and data packet information evaluation
- Pactor 2 / Pactor 2 FEC: slightly improved error correction
- CIS Datalink: added option to output content independent of crc validation
- Voice J3E – SELCAL ICAO: added callSign to XML output
- DMR
  - Revised decoder output format
  - Optional filtering of redundant or repeated control data
  - Added decryption
    + Encrypted Hytera Basic and Kenwood Basic voice for DMR continuous, automatic key finder
    + Hytera Basic and Motorola ARC4/DES/AES encrypted data packets
  - Added decoding
    + Hytera text and location protocol
    + Standard gps data and talker alias
    + Most tier 3 control data
    + Motorola capacity plus link control
    + Compressed IP/UDP headers
- Voice F3E decoding
  - Added MDC 1200 selcal
  - Added FleetSync selcal
  - Added five tone selcals CCIR, EEA, EIA, NATEL

NEW DECODER DETECTION FEATURES:

- CIS MFSK-16
- Yakhta T-219 Voice Scrambler

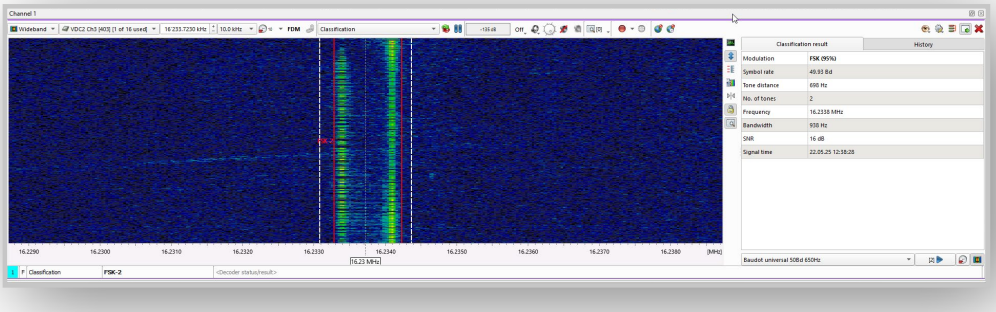
NEW DECODER DEVELOPMENT LANGUAGE (pyDDL) FEATURES:

- New generic LDPC decoder
- Suppress identical decoder status strings in output

CLASSIFIER ENHANCEMENTS

Step by step, we use AI-based classification to implement new modulation types or improve existing ones. With this release, we implement classification based on neural networks which greatly improves the probability of intercept for:

- FSK 2
- FSK 4
- FSK 8
- GMSK
- MSK



Classification of FSK 2 modulated signals in disturbed environments

RECEIVER SUPPORT

We follow the wishes of our customers, which is why more and more receivers are supported directly in go2signals products as signal inputs. Your receiver already supports VITA49 - so much the better - then the functional diversity of the go2signals products is directly available to you.

- Added support for IZT R5010 and R5040 receivers
- Added support for CRFS RFeye Node 40-8 receiver

CRFS RFeye Node receiver (copyright CRFS)

ADDITIONAL NOTEWORTHY CHANGES GO2MONITOR

- Added a mute function in narrowband and task watch channels to silence audio from all other channels.
- Narrowband channels can now be assigned keyboard shortcut focus, with numerous configurable shortcuts added to support this functionality.
- Added support for bulk playback of wideband IQ files, including directory monitoring and automatic playback of new files.
- The ResultViewer now includes a frequency filter based on predefined frequency groups, allowing for more targeted result analysis.
- The UI now displays overload status for IZT receivers, providing clearer visibility into signal overload conditions.
- Added support for the SigMF file format.
- Added support for the SignalHound IQ file format.
- Various improvements for better control of the Speech-to-Text function:
  - Number of CPU cores used for processing can now be configured
  - Added support for the new "BatchedInferencePipeline" mode
  - Added support for Voice Activity Detector mode
  - Removed periodic idle checks if faster-whisper is active and operational
- License-based limitation for wideband recording now applies to the total recording capacity across the system, rather than the bandwidth per individual input.
- Matching frequency names can now be displayed in the narrowband channel spectrogram and in the status bar when the channel is minimized.
- Improved UI look and feel on High-DPI displays.
- Enhanced performance for internal IQ data processing for certain receivers.
- Add support for Vita49 VRL frames in Vita49 input streams.
- Add support for processing Vita49 packets marked as invalid.
- Add preliminary support for streaming Vita49 data from SignalServer
- Audio energy level display does not use color gradient anymore in order to improve visibility
- Documentation regarding optional direction finding functions is now included in the go2MONITOR manual
- Additional technical documents are now included in the go2MONITOR installation (in <install>/doc/ directory)
- Obsolete channel configuration bulk_file_processing has been removed
- Added 3kHz bandwidth for narrowband channels
- Energy level display for audio: Coloring changed to improve current level visibility

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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