



# PROCITEC®

HOUSE OF SIGNALS

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go2signals

**TRAINING  
COURSES**



**GO2SIGNALS IS AN INNOVATIVE SOFTWARE PACKAGE, DESIGNED TO MEET TODAY'S TACTICAL AND STRATEGIC REQUIREMENTS IN THE FIELDS OF RADIO-MONITORING, COMMUNICATIONS INTELLIGENCE AND SIGNALS ANALYSIS AND EXPLOITATION.**

**GO2SIGNALS – THE ONE FOR ALL RADIO MONITORING TASKS**

The go2signals toolset consists of a collection of complementary software applications to search, monitor, process and analyze radio communication from SLF up to SHF frequency range, specialized on HF and V/UHF signals. Its open design concept allows the users to adapt, tailor and automate their monitoring tasks, improving the quality of results, managing the increasing density of signals and subbands in the RF spectrum, and 'staying current' with new requirements.

Employing wideband parallel-processing techniques, our go2signals monitoring application offers powerful capabilities for HF-V/UHF voice/data-signals interception, monitoring and recording even on small sized COTS hardware. It includes automatic detection, modulation classification, modem recognition, deep context decoding, sensor controlling and a database to collect all the results.

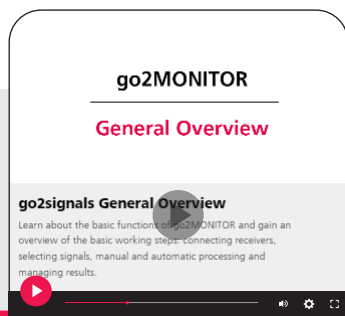
To improve quality of automated results use go2signals toolsets for signal analysis and decoder development, to analyze and adapt demodulator parameters, to develop new customer decoders and protocols and to 'fine-tune' signals monitoring tasks. Even forensic analysis of demodulated data signals at the bitstream level are possible.

# GO2SIGNALS VIDEO TRAINING

## ONLINE, TUTORIAL-BASED INTRODUCTION TO GO2SIGNALS MONITORING SUITE AND ITS OPERATIONAL USAGE

In this online video course you will learn the basics of working with go2MONITOR and its available options. We will guide you through the entire signal processing chain, from initial installation to results management. We explain how to set up the UI and the Workplace and what technical requirements need to be met. You will be shown how to search and classify emissions in the wideband channel and how to classify, demodulate and decode multiple signals simultaneously in the narrowband channel. Learn how to display signal content and associated parameters and how to analyse, structure, filter and export signal results. Further tutorials show how to work in manual mode and how to easily automate signal processing with missions and tasks.

At the end of the course, open questions can be asked in a 3-hour online session and answered live by one of our signal experts from the support team.



**go2signals**  
**VIDEO TRAINING**

**ORDER-NUMBER**  
TRN-GO2SIG-VIDEO

### COURSE DURATION:

Over 2.5 hours of professional training tutorials. 3 hours of online FAQ support during the activation period. Activation of 5 user accounts for the online video platform for a period of 12 months. This collection is constantly being expanded.

### DOCUMENTATION:

In addition to the videos, several case studies and product documentation are also available in the user accounts

### TRAINING SYSTEMS:

Users need internet connection to access the video platform on our website. Each user will have their own password-protected account. This requires registration on the website.

### COURSE LOCATION:

Online video– Internet access required.

### VIDEO LANGUAGE:

English - At least CEFR level B1 necessary, level B2 or higher strongly recommended

### COURSE CONTENT

- Overview go2MONITOR
- Installation
- First steps with go2MONITOR
- go2MONITOR manual mode
- go2MONITOR automatic mode
- ResultViewer

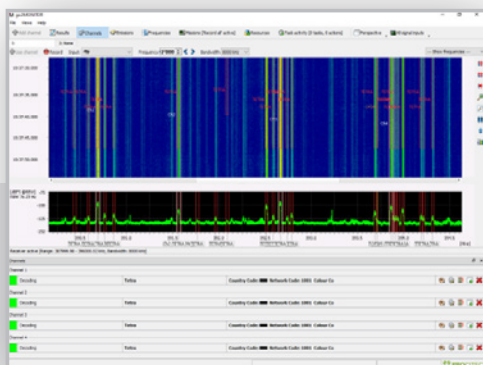
### TARGET AUDIENCE

- Spectrum Monitoring and Policing Operatives
- Communications Surveillance and Intelligence System Operators

# GO2MONITOR STANDARD OPERATOR TRAINING

## AUTOMATIC DETECTION, CLASSIFICATION, RECOGNITION, DECODING AND REPORTING OF COMMUNICATIONS SIGNALS USING WIDEBAND MULTICHANNEL TECHNIQUES

Our go2MONITOR Standard Operator Training Course captures the go2MONITOR host-system's complete signal flow from connected receiver or sensor to the content of the processed radio signals. We place particular emphasis on the efficient and task-orientated application of the available go2MONITOR features and resources to ensure rapid assimilation of information and successful application of the presented instructions by the Students.



### COURSE CONTENT

- Introduction to go2MONITOR operational usage
- Host Receiver or Sensor control
- Wideband spectrum analysis and classification of signals within the RF spectrum
- Narrowband multichannel signal processing (autoprocessing signals, classification, demodulation, decoding)
- Display of results (temporal, spectral, merger of raw data and content output)
- Transfer from manual to automatic mode, creation of automated tasks (where applicable)
- Lectures and practical exercises

### TARGET AUDIENCE

- Spectrum Monitoring and Policing Operatives
- Communications Surveillance and Intelligence System Operators



**Entry Criteria:** Basic understanding of the RF Spectrum and signaling techniques

This course is also available as an online training. For more details please contact [sales@procitec.de](mailto:sales@procitec.de).

**ORDER-NUMBER**  
TRN-GO2MON

### COURSE DURATION:

3 days / 24 training hours for a maximum of 8 Students

### DOCUMENTATION:

Electronic training documentation (English)

### TRAINING SYSTEMS:

Necessary hardware is provided by PROCITEC if training location is PROCITEC HQ; in all other cases it has to be provided by the customer

### COURSE LOCATION:

PROCITEC HQ, Pforzheim, Germany or customer-location (additional logistics costs will apply if the Training Course is delivered outside of the European Economic Area)

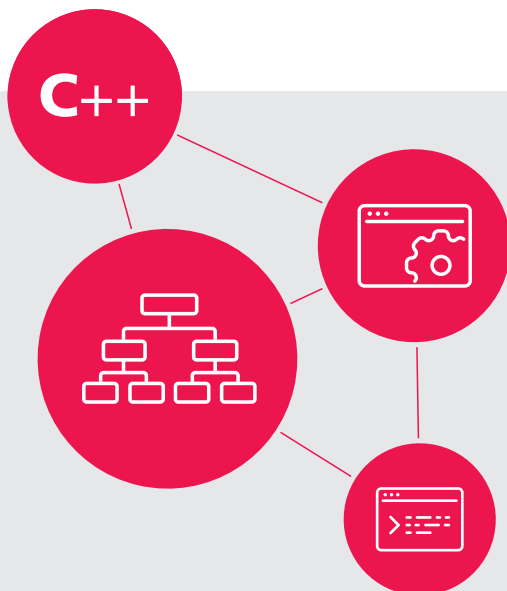
### TRAINING LANGUAGE:

German; English - At least CEFR level B1 necessary, level B2 or higher strongly recommended

# GO2MONITOR INTEGRATOR TRAINING

## EFFICIENT SYSTEMS INTEGRATION OF GO2MONITOR FOR SOFTWARE ENGINEERS

This training course focuses on the integration of go2MONITOR components into the customer's systems and applications. The course provides a comprehensive introduction to the protocols, standards and vital considerations in designing their own applications and toolsets which uses key features of the go2MONITOR components. This course is designed for Design Teams who have an interest in the complete or partial integration of go2MONITOR capabilities into their systems, and wish to improve their ability to successfully commission and maintain their overall system solutions.



### COURSE CONTENT

- Functionalities of the go2MONITOR application
- Information flow inside software
- Remote control of the product components
- Interface Control Document (ICD)
- Input and output data formats

### TARGET AUDIENCE

- C++ Developers



**Entry Criteria:** Experience in C++ (incl. Network, Threads, OOP). Examples will be coded with Microsoft Visual Studio C++.

**ORDER-NUMBER**  
TRN-GO2MON-ICD

### COURSE DURATION:

2 days / 16 training hours for a maximum of 2 Students, with 10 additional hours email-support via [service@procitec.de](mailto:service@procitec.de) included

### DOCUMENTATION:

Electronic training documentation (English)

### TRAINING SYSTEMS:

Necessary hardware is provided by PROCITEC

### COURSE LOCATION:

PROCITEC HQ, Pforzheim, Germany

### TRAINING LANGUAGE:

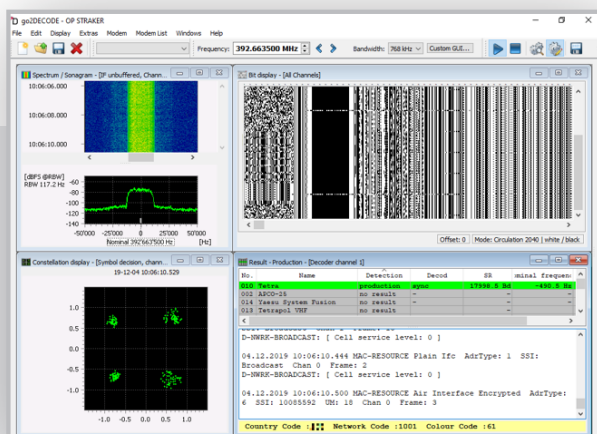
German; English - At least CEFR level B1 necessary, level B2 or higher strongly recommended

# GO2DECODE STANDARD OPERATOR TRAINING

## AUTOMATIC AND MANUAL RECOGNITION, ANALYSIS AND DECODING OF COMMUNICATIONS SIGNALS

The go2DECODE Standard Operator Training course familiarizes the Students with all go2DECODE components and functions, and their practical use. The course focuses development of the Students' knowledge of signals analysis techniques and procedures using go2DECODE. Configuration and parameter settings of demodulators and decoders for automatic detection of new modems are explored in-detail. During training delivery, the Students' skillsets are developed using practical 'real world' exercises employing live signal recordings sourced by PROCITEC and, optionally, the Students' User-Units. Upon completion of training, Students will understand the functionalities and capabilities of go2DECODE, and will have acquired skills in the analysis of modulated signals and creating effective modems for manual or automatic signal recognition, decoding and reporting.

This course is also available as an online training.  
For more details please contact [sales@procitec.de](mailto:sales@procitec.de).



**ORDER-NUMBER**  
TRN-GO2DEC

### COURSE DURATION:

4 days / 32 training hours for a maximum of 8 Students

### DOCUMENTATION:

Electronic training documentation (English)

### TRAINING SYSTEMS:

Necessary hardware is provided by PROCITEC

### COURSE LOCATION:

PROCITEC HQ, Pforzheim, Germany

### TRAINING LANGUAGE:

German; English - At least CEFR level B1 necessary, level B2 or higher strongly recommended

### COURSE CONTENT

- General System Introduction
- Fundamentals of digital signal modulation
- Signal inputs, interfacing and adjustments (DANA)
- Signal Simulation Tool (SOMO)
- Rapid Pre-Classification of Modulation Types
- Analysing FSK, MFSK and PSK Signals
- Setting Up Demodulators and analysis of Demodulation Results
- Setting Up Modems and Modem Lists
- Automatic Production and Signal Recording
- Brief introduction to Decoder Description Language (pyDDL) and decoder adaptation

### TARGET AUDIENCE

- Signals Analysts
- Technical staff involved in writing, modifying and editing signal-decoders.

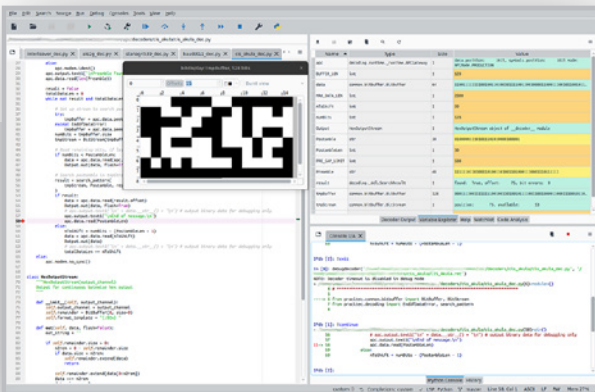
**Entry Criteria:** Good understanding of the RF Spectrum and signaling techniques



# GO2SIGNALS PYDDL TRAINING

## PYTHON-BASED DECODER DESCRIPTION LANGUAGE (PYDDL) FUNDAMENTALS FOR DEVELOPING AND ADAPTING PYDDL SIGNALS DECODERS

In this training course, Students are introduced to the fundamentals and general use of the Python-based Decoder Description Language (pyDDL). All essential commands are discussed in detail. The course focusses towards adaptation of existing decoders, design of new decoders, and use of the Decoder Development Environment based on Spyder. The course also captures the basics of channel coding and the fundamentals of forward error correction techniques. Upon completion of the course, Students will be able to use pyDDL to modify and create new decoders for use in the go2signals range of software products.



**ORDER-NUMBER**  
TRN-DDL

### COURSE DURATION:

4 days / 32 training hours for a maximum of 5 Students

### DOCUMENTATION:

Electronic training documentation (English)

### TRAINING SYSTEMS:

Necessary hardware is provided by PROCITEC

### COURSE LOCATION:

PROCITEC HQ, Pforzheim, Germany

### TRAINING LANGUAGE:

German; English - At least CEFR level B1 necessary, level B2 or higher strongly recommended

### COURSE CONTENT

- Lectures and practical exercises
- Introduction and Overview
- Basic Steps to Create and Modify Decoders
- Discussion of Simple Decoder Programs
- Use of Decoder Development Environment
- Detailed Discussion of Vital Commands
- Special Aspects of Automatic Production
- Exercises in Writing Simple Decoders
- Methods for Error Detection and Correction
- Integration of Customer Packages or Libraries

### TARGET AUDIENCE

- Technical staff involved in writing, modifying and adjusting decoders.



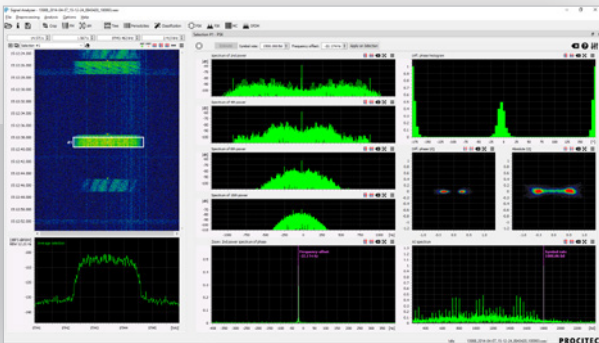
**Entry Criteria:** Completion of go2DECODE Basic Training and experience in the Python programming language; it is strongly recommended that all Students per-course have a similar start-state



# GO2SIGNALS SIGNAL ANALYZER TRAINING

## ANALYSIS OF MODULATION CHARACTERISTICS OF COMMUNICATIONS SIGNALS

The course focuses development of the Students' knowledge of signals analysis techniques and procedures using go2SIGNALS Signal Analyzer. During training delivery, the Students' skillsets are developed using practical 'real world' exercises employing live signal recordings sourced by PROCITEC and, optionally, the Students' User-Units. Upon completion of training, Students will understand the functionalities and capabilities of the Signal Analyzer software, and will have acquired skills in the analysis of unknown modulated signals.



**ORDER-NUMBER**  
TRN-SIG-ANALYZE

### COURSE CONTENT

- General application introduction
- Fundamentals of digital signal modulation
- Rapid Pre-Classification of unknown signals
- Analysis of FSK, MFSK, PSK, MSK, OQPSK and OFDM signals

### TARGET AUDIENCE

- Signals Analysts
- Technical staff involved in writing, modifying and editing signal-decoders:



**Entry Criteria:** Good understanding of the RF Spectrum and signaling techniques

### COURSE DURATION:

3 days / 24 training hours for a maximum of 8 Students

### DOCUMENTATION:

Electronic training documentation (English)

### TRAINING SYSTEMS:

Necessary hardware is provided by PROCITEC

### COURSE LOCATION:

PROCITEC HQ, Pforzheim, Germany

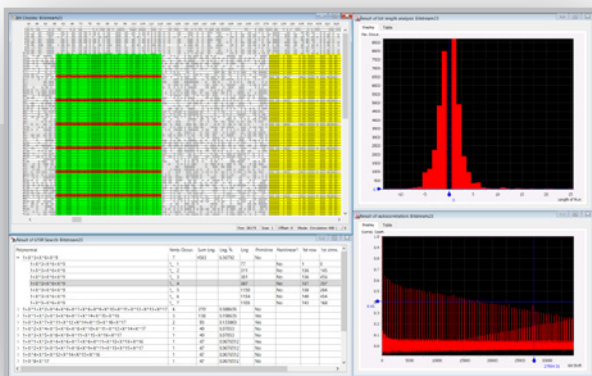
### TRAINING LANGUAGE:

German; English - At least CEFR level B1 necessary, level B2 or higher strongly recommended

# GO2ANALYSE TRAINING

## BIT VIEWER TOOL FOR OFFLINE ANALYSIS AND MANIPULATION OF BITSTREAMS TO AID DEVELOPMENT OF PYDDL-BASED SIGNALS DECODERS

This training course is scheduled for an additional day following completion of the Python-based Decoder Description Language (pyDDL) Training Course. The course comprises a presentation of the bitstream analysis and manipulation tool go2ANALYSE together with practical examples of typical applications. Students will learn how to use the go2ANALYSE application for analysing the content of unknown bitstreams. These analysis results can be used to identify specific codes, to create detection decoders and to support complete analyses of unknown codes.



**ORDER-NUMBER**  
TRN-GO2ANA

### COURSE CONTENT

- Lectures and practical exercises
- Introduction to the functions and capabilities of go2ANALYSE
- Detection of unidentified regular sequences
- Detection of apparent sequences
- Detection of Linear Feedback Shift Register (LFSR) outputs

### TARGET AUDIENCE

- This course is an optional part of pyDDL Training and is therefore intended for the same audience



**Entry Criteria:**  
Successful completion  
of pyDDL Training

### COURSE DURATION:

1 days / 8 training hours for a  
maximum of 5 Students

### DOCUMENTATION:

Electronic training documentation  
(English)

### TRAINING SYSTEMS:

Necessary hardware is provided by PROCITEC

### COURSE LOCATION:

PROCITEC HQ, Pforzheim, Germany

### TRAINING LANGUAGE:

German; English - At least CEFR level  
B1 necessary, level B2 or higher strongly  
recommended

A person is shown from the back, wearing large headphones and looking at a laptop screen. The laptop screen displays a software interface with various data points and text. The entire scene is overlaid with a semi-transparent red circle that has a thick red border. The text 'go2signals' is written in white lowercase letters across the middle of the image.

go2signals

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# GO2DECODE IN TACTICAL OPERATIONS

## EXPLOITATION OF COMMUNICATIONS SIGNALS FOR SITUATIONAL AWARENESS

Automatic and manual recognition, analysis and decoding of communications signals using go2DECODE to derive tactical Indications and Warnings for Situational Awareness in the land, littoral and maritime space.



### COURSE CONTENT

- go2DECODE running on low-SWaP Laptop or Portable PCs with low display resolution
- Terminologies and Signals: Student refresh for tactical context
- Radio-communications network topologies (civil / military / paramilitary)
- Data modulation techniques HF-UHF (tactical focus)
- V/UHF Signals Of Interest (tactical focus – Line-Of-Sight [LOS] / point-to-point /multipoint / direct and trunked networks)
- HF Signals Of Interest (tactical focus – short-range groundwave and ‘Near Vertical Incidence Skywave’ [‘NVIS’] propagation)
- Operational focus – automatic and manual signals recognition, analysis, decoding and reporting in real-time
- Operational scenarios based upon Land, Littoral and Maritime Tactical Use-Cases

### TARGET AUDIENCE

- Military and Security Communications Surveillance Operators using light / mobile sensor systems with integrated go2DECODE capabilities

**ORDER-NUMBER**  
TRN-GO2DEC-TAC

### COURSE DURATION:

5 days / 40 training hours for a maximum of 8 Students

### DOCUMENTATION:

Student-notes from supporting visual-aids and live/recorded scenarios;

### TRAINING SYSTEMS:

Necessary hardware is provided by PROCITEC if training location is PROCITEC HQ; in all other cases it has to be provided by the customer

### COURSE LOCATION:

PROCITEC HQ, Pforzheim, or customer-location (additional logistics costs will apply if the Training Course is delivered outside of the European Economic Area)

### TRAINING LANGUAGE:

English – Students require at least CEFR level B1; level B2 or higher recommended (option: consecutive interpretation is available as required)



**Entry Criteria:** A basic knowledge of the RF spectrum, signaling techniques and Tactical Operations

# GO2MONITOR IN TACTICAL OPERATIONS

## MULTICHANNEL EXPLOITATION OF COMMUNICATIONS SIGNALS FOR SITUATIONAL AWARENESS

Exploitation of communications signals using go2MONITOR to derive tactical Indications and Warnings for Situational Awareness in the land, littoral and maritime space.



### COURSE CONTENT

- go2MONITOR running on low-SWaP Laptop or Portable PCs with low display resolution
- Terminologies and Signals: Student refresh for tactical context
- Radio-communications network topologies (civil / military / paramilitary)
- Data modulation techniques HF-UHF (tactical focus)
- V/UHF Signals Of Interest (tactical focus)
- Line-Of-Sight [LOS] / point-to-point / multipoint / direct and trunked networks)
- HF Signals Of Interest (tactical focus – short-range groundwave and 'Near Vertical Incidence Skywave' ['NVIS'] propagation)
- Operational focus – automatic signals detection, classification, recognition, decoding and reporting in real-time
- Operational scenarios based upon Land, Littoral and Maritime Tactical Use-Cases

### TARGET AUDIENCE

- For new and experienced Land Electronic Warfare (Land-EW) and Maritime Communications Electronic (Warfare) Support Measures (Maritime-CESM) Operators.

**ORDER-NUMBER**  
TRN-GO2MON-TAC

### COURSE DURATION:

4 days / 32 training hours for a maximum of 8 Students

### DOCUMENTATION:

Student-notes from supporting visual-aids and live/recorded scenarios;

### TRAINING SYSTEMS:

Necessary hardware is provided by PROCITEC if training location is PROCITEC HQ; in all other cases it has to be provided by the customer

### COURSE LOCATION:

PROCITEC HQ, Pforzheim, or customer-location (additional logistics costs will apply if the Training Course is delivered outside of the European Economic Area)

### TRAINING LANGUAGE:

English – Students require at least CEFR level B1; level B2 or higher recommended (option: consecutive interpretation is available as required)



**Entry Criteria:** A basic knowledge of the RF spectrum, signaling techniques and Tactical Operations





## **GO2SIGNALS TRAINING SUPPLEMENTARY NOTES**

### **GO2SIGNALS CUSTOM TRAINING PACKAGES**

The PROCITEC Training Team designs, develops & delivers bespoke, customized Training Packages to suit the specific operational needs of our go2signals strategic and tactical user-groups. To fully align the Customer's required Training Objectives and Learning Outcomes with our custom training solutions, these Training Packages are developed upon completion of a Training Needs Analysis initiative which is undertaken by members of the PROCITEC Team in consultation with appropriate members of the Customer's End-User Groups. Dependent upon the identified training need, our resultant go2signals Custom Training Courses are delivered over '1 to many days' duration.

Please contact PROCITEC for further information concerning our go2signals Custom Training Packages.

## **GO2SIGNALS TACTICAL OPERATIONS WORKSHOPS**

The PROCITEC Operations and Training Team includes ex-military Tactical Communications Surveillance Specialists who are highly experienced in land, littoral and maritime Electronic Surveillance operations. At customer-request and based upon our growing library of go2signals Tactical Case-Studies, members of the PROCITEC Team deliver supplementary go2signals Tactical Operations Workshops to satisfy the operations and mission-specific needs of our Customers' End-User Groups who have already completed their appropriate go2signals Training Packages. Our go2signals Tactical Operations Workshops are available from '1 to many days' duration.

Please contact PROCITEC for further information concerning our go2signals Tactical Operations Workshops.

## **THE GO2SIGNALS INSTRUCTORS**

Our go2signals Instructors are highly qualified and experienced in their respective fields, including digital signals processing, software engineering and development, signals monitoring and spectrum policing, strategic Communications Intelligence, and tactical Electronic Warfare.

Please contact PROCITEC for a copy of our Instructor Profiles suited to your specific go2signals training needs.





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