



www.insoper.com

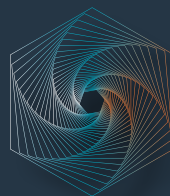
More than Microscopy Software

Enhanced Fluorescence Microscopy Imaging

KEY ADVANTAGES ▶

A COMPLETELY NEW APPROACH TO ACQUIRE IMAGES IN FLUORESCENCE MICROSCOPY

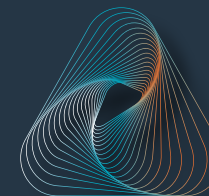
INSCOPER is the new microscopy acquisition solution for fluorescence video microscopes. Incorporating a specially-designed device, the INSCOPER solution provides a new user experience with improved technical performance, system integration, and ease-of-use.



COMBINING ALL IMAGING TECHNIQUES

INSCOPER is natively designed so that the user can combine multiple microscopy techniques, and several temporal or spatial dimensions (XYZT, λ , Θ).

The software simply adjusts to limits imposed by biology and optics!



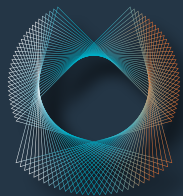
THREE TIMES HIGHER TEMPORAL RESOLUTION

Many users believe that image acquisition speed is determined by the camera framerate and the slow response time of microscopy devices. In fact, latency generated by imaging software is by far the predominant factor slowing acquisition.

The core of INSCOPER technology eliminates any software latency, thus tripling the acquisition framerate. When examining live specimens, temporal resolution is unquestionably just as important as spatial resolution.



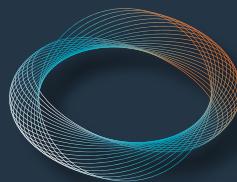
◀ KEY ADVANTAGES



100% UNIVERSAL

INSCOPER imaging software is compatible with camera-based microscopes produced by the top four manufacturers (Leica, Nikon, Olympus and Zeiss), and with all third-party devices and add-ons used with these microscopes: cameras, light sources, optical modules, microfluidic devices, etc.

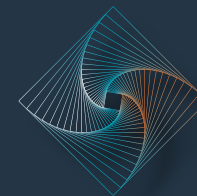
Even home-made equipment can be integrated if its communication protocol is documented to a minimum level.



FULL REPEATABILITY

INSCOPER technology triggers the microscope, camera(s) and controlled devices. All command signals are synchronized, ensuring full stability of acquisitions over time and total repeatability between sessions.

Obtaining reproducible results is facilitated by ensuring that the imaging protocol remains consistent from session to session. This is a key strength of the Inscoper solution.



UNIQUE WINDOW, INFINITE APPLICATIONS

The INSCOPER user interface is designed to resemble a mobile app or modern website. It is visually attractive and provides a reassuring user journey with no drop-down menus or windows to organize.

Users can, therefore, focus all their energy on the complexity and uncertainties relating to their biological specimens.



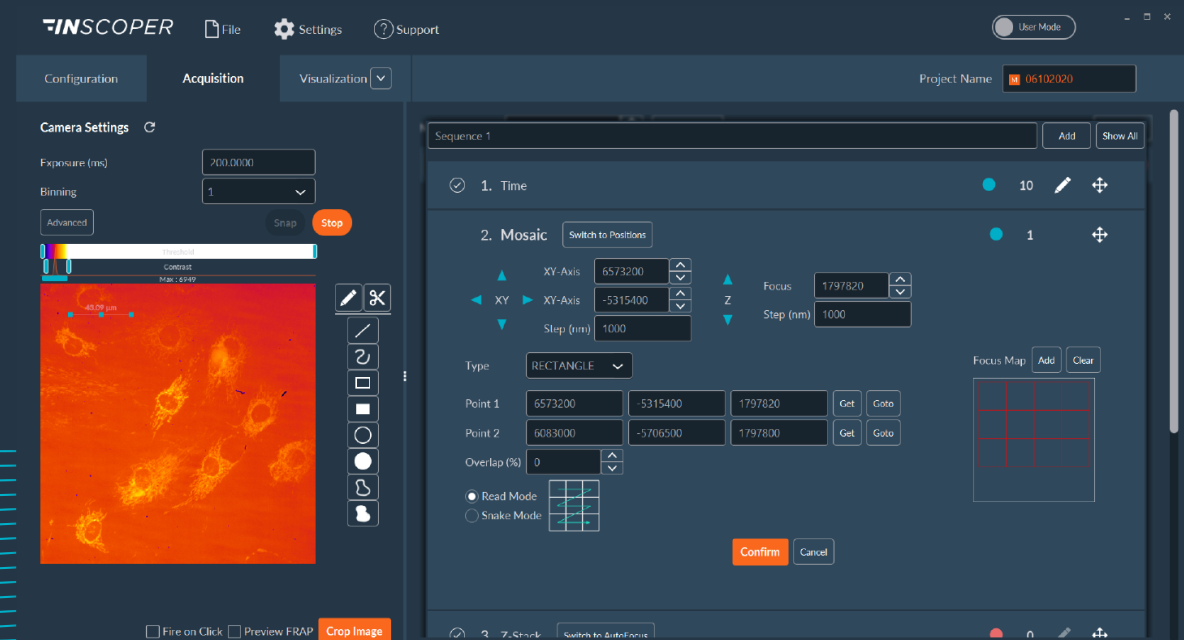
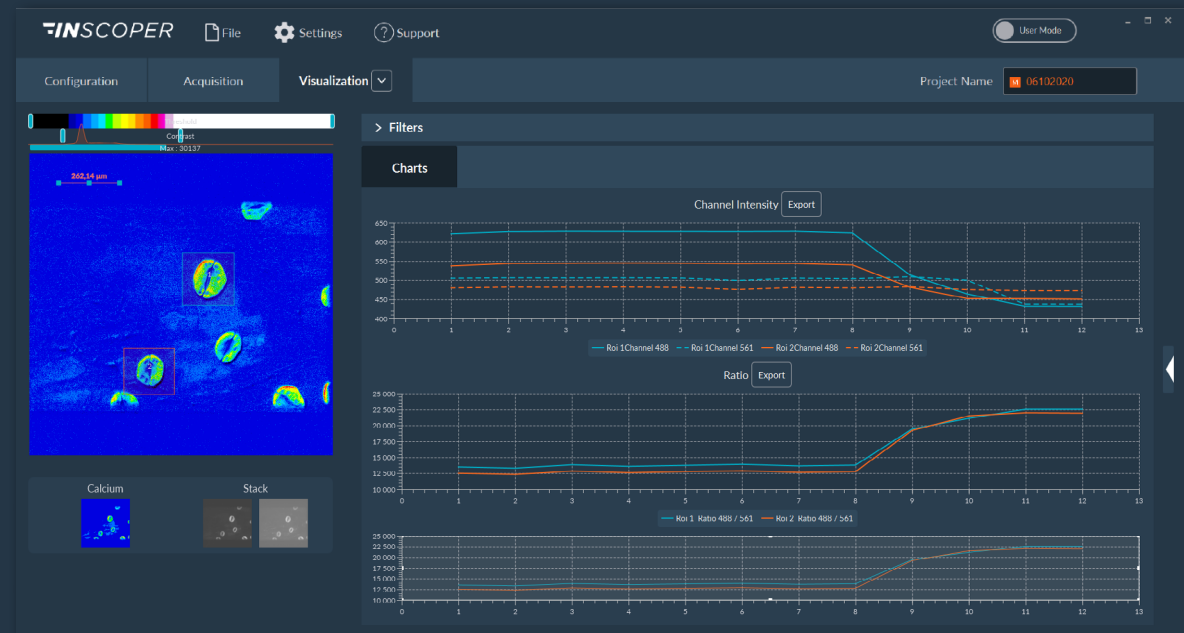
MICROSCOPY APPLICATIONS ▶

INSCOPER is a full image acquisition solution for **advanced video microscopes** used in life sciences. The software is designed based on multidimensional organization of fluorescence microscopy techniques used to observe and/or manipulate live samples.

The basic **dimensions for live cell imaging** are time (time lapse) and the 3 spatial dimensions (X-Y, focus Z). Further dimensions include wavelength (channel) for exciting the required fluorophore, and an additional spatial dimension such as a rotation axis which is sometimes used for light-sheet systems.

Advanced light imaging techniques appear in the software as additional dimensions that can be configured and combined freely with others. This makes cutting-edge methods such as **F-techniques** (FRET, FRAP, FLIM) or **sample manipulation** (temperature, injection of a drug, photomanipulation) extremely easy to use regardless of the equipment used.

Some techniques are directly incorporated as options in the basic dimensions. For example, setting up a **High Content Screening** image acquisition sequence for a **multi-well plate** is merely a variation on acquiring several X-Y coordinates for a conventional slide. This is also true of advanced **single molecule imaging** techniques (PALM, STORM) and **image tile generation**, which are natively integrated in the relevant dimensions.



◀ MICROSCOPY APPLICATIONS

VIDEO MICROSCOPY

- ▶ Wide-field techniques, confocal spinning disk, TIRF, Hi-Lo, Light-Sheet/SPIM
- ▶ Features: tiling (mosaic) & stitching, multi-camera, high-content screening, multi-well plates

LIVE CELL IMAGING

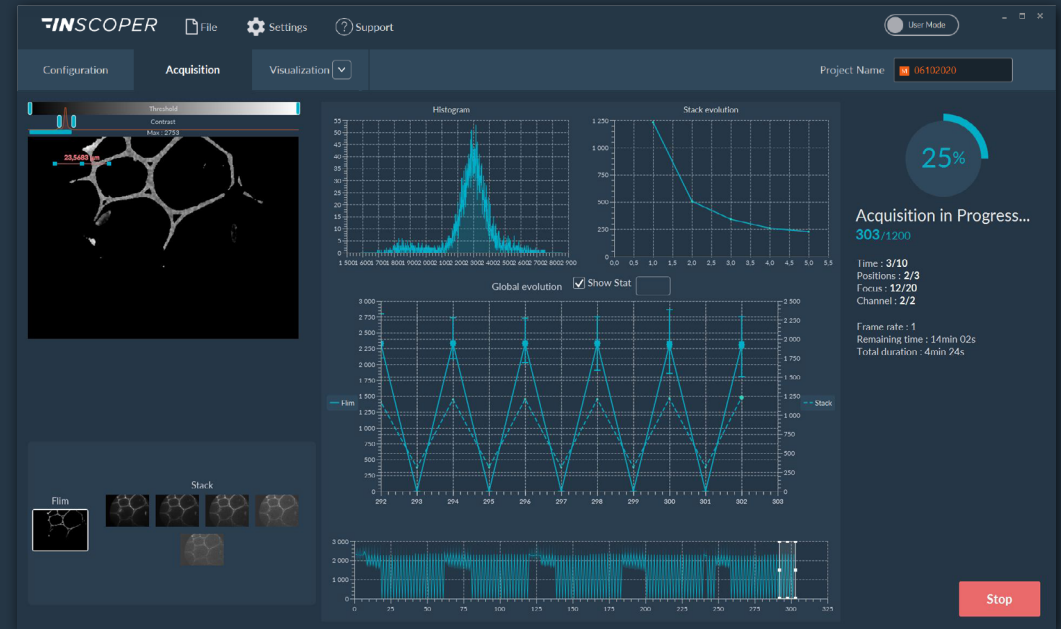
- ▶ Frame rate (images per second) three times higher than conventional software for the same multidimensional acquisition, where other factors are constant
- ▶ Sample exposure to the light source is strictly limited to the camera exposure time -> minimal, controlled phototoxicity

4D/5D IMAGING

- ▶ A comprehensive, modern and intuitive interface with a user journey organized into 3 tabs (Configuration, Acquisition, Visualization) regardless of how specialist or complex the application is
- ▶ Full stability of acquisitions over time and total repeatability between sessions

ADVANCED TECHNIQUES

- ▶ FRET, FRAP, FLIM, PALM/STORM, calcium and ratiometric imaging
- ▶ Combination and synchronization of all techniques, add-ons and microscopy devices with each other



SOFTWARE FEATURES

USER MANAGEMENT

- Storage/backup of acquisition projects
- Users guided through 3 consecutive steps: Configuration - Acquisition - Visualization
- Expert mode: all devices full access
- User mode: customizable access

DEVICES COMPATIBILITY

Camera-based microscopes	Leica , Nikon, Olympus, Zeiss
Scientific cameras	Andor, Hamamatsu, PCO, Photometrics
Third-party devices	100% (with documented communication protocol)

CONFIGURATION AUTOMATE & CALIBRATE

- Up to 4-camera automation
- Simultaneous image acquisition on 2 or more cameras
- Camera settings: exposure time, binning, live, snap, (advanced)
- Autofocus (digital, hardware)
- Image functionalities: live, snap, measuring tool, crop, contrast, LUT, ROI tools, (Max, Mean, Standard Deviation) of an image stack, noise elimination
- Storage/backup of channels
- Option of specifying the exposure time for each channel

ACQUISITION MONITOR & REGISTER

- Real-time visualization of results during acquisition / Real-time synchronization of graphs with ROIs during and outside acquisition
- Acquisition pause/stop
- Graphic timeline for acquisition / Stack evolution graphs: option of returning to a specific point in time
- Multi-sequence acquisitions: specify the sequence, number of loops, etc.
- Fire on Click (FRAP on fly) / FRAP in live mode
- Tiling, image stitching included with multi-well plates
- View live and/or new acquisition sequence from tiling
- Focus map – a tool that compensates for variations in sample thickness

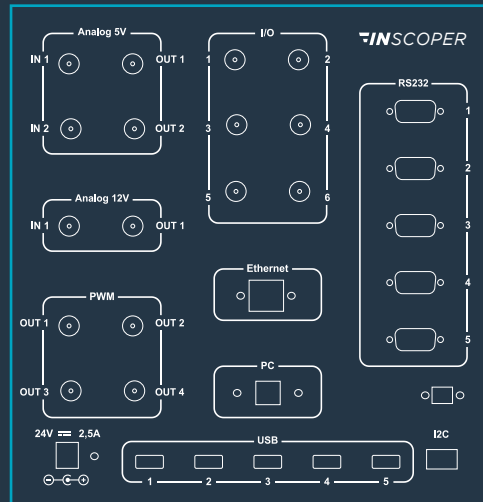
VISUALIZATION ANALYZE & GET YOUR DATA

- Image filter for visualization and export / Dimension filters to visualize results
- PLAY button for replaying the sequence of acquired images based on a chosen dimension or other filters
- Export of images including their metadata to TIFF or bigTIFF formats
- Metadata compatible with Bio-Formats
- Export of graphs in CSV format
- Export of videos in AVI format
- File names fully customizable

HARDWARE SPECIFICATIONS

INPUTS / OUTPUTS

Analog 5 V	2x analog inputs & 2x outputs (0-5V) with resolution of 12 bits
Analog 12 V	1x analog input & 1x output (0-12V) with resolution of 12 bits
PWM	PWM 4x outputs which modulate devices that need duty cycle modulation with 5 V signals
Power	Supplied by 24 V-2.5 A
I/O	6x TTL ports that can be used as digital inputs or outputs (0-5 V)
Ethernet	Control devices via TCP/IP
PC	1x USB device, B-type
USB	5x USB Host ports, A-type
RS232	5x 9-pin female, D-type
I2C	Connect another Inscoper Electronic Unit (auxiliary port)



Weight

3.050 kg (6.724 lb)

Dimensions (L*W*H)

230 * 230 * 230 mm (9.06 * 9.06 * 9.06 in)

SYSTEM REQUIREMENTS

	Minimum requirements	Optimum configuration
Operating system	<ul style="list-style-type: none"> Windows 7 32 bit MAC OSX 10.5 	<ul style="list-style-type: none"> Windows 10 64 bit MAC OSX 10.5
RAM	4 Go	16 Go
Hard disk drive	4 Go	128 GB SSD drive for fast image saving
Processor	Pentium 2 266 MHz	Core i5 3.2 GHz
Screen	Resolution 1920 x 1080	2 screens



HOW IT WORKS

BREAKTHROUGH TECHNOLOGY

INSCOPER is a turnkey solution combining hardware and software that completely revolutionizes the way fluorescence microscopes are controlled in live cell imaging.

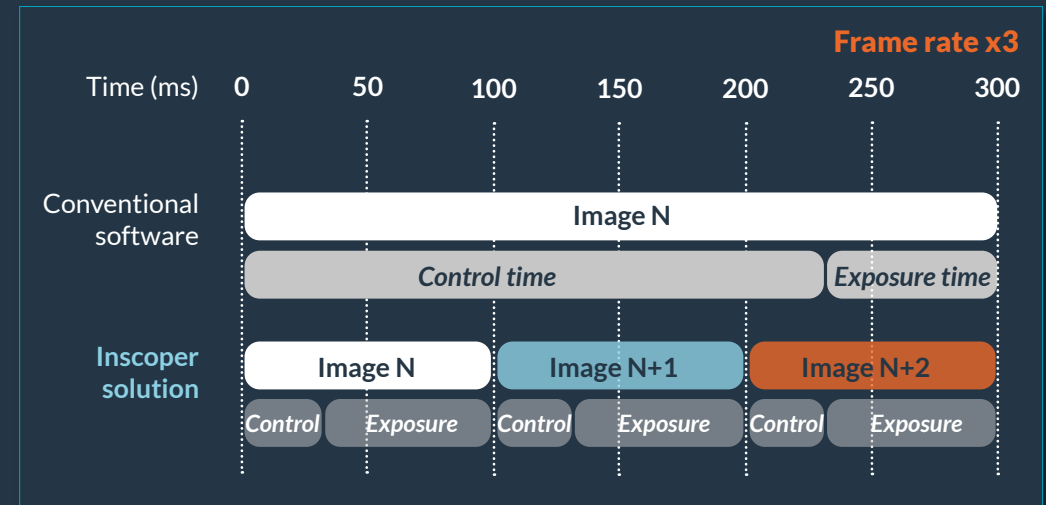
INSCOPER's fundamental new approach involves dissociating the two functionalities managed by all acquisition software: user interaction and device control.

1/ **User interaction:** to configure the acquisition sequence, receive the acquired images and display & save them;

2/ **Device control:** to communicate with the different devices in the microscopy system and run the acquisition sequence defined by the user.

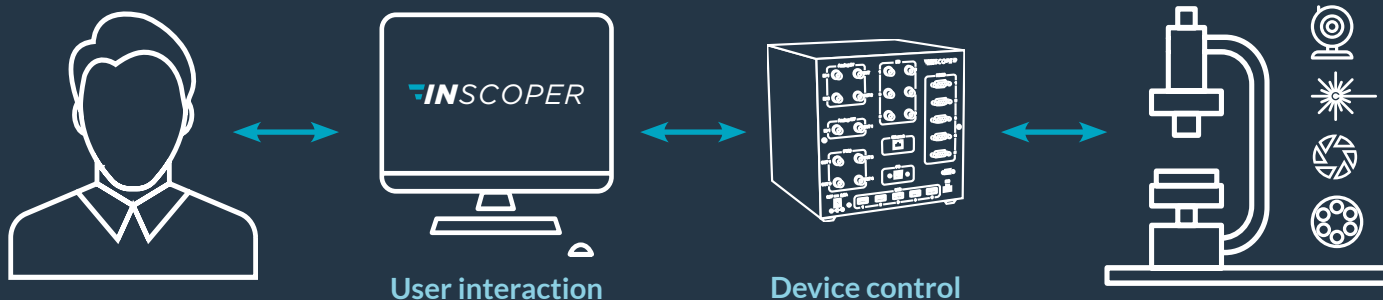
The key to achieving optimal microscope performance and reliability is to control the various devices with a dedicated electronic system, instead of a computer.

Reduced Time for Image Acquisition



The INSCOPER approach involves embedding Device Control in a specialized electronic unit. This unit has been designed to communicate with devices in the same way as hardware to control them as quickly and reliably as possible. This solution eliminates all latency caused by the operating system (Windows) and the multiple software drivers it requires to communicate with devices.

For the User Interface functionality, this separation means it is free from hardware constraints. So, regardless of the type of microscope, the interface remains flexible, versatile and focused on user requirements rather than hardware issues.



SERVICES

SUPPORT

The support service includes the following:

- email and telephone support with a guaranteed response time of 1 working day;
- diagnostics in the event of problems with the software or hardware;
- help with using the system in the event of user errors or oversights;
- debugging and reactivation of the system in the event of software problems or following replacement of hardware that has become faulty;
- software updates and upgrades. These are only installed if customers give their prior consent.

Work is performed remotely using a connection such as TeamViewer. In the event of faults with the INSCOPER unit, a replacement unit is sent by express delivery and installed remotely on receipt.

UPGRADES

What happens if you want to add a new device or replace one that has stopped working? You may wish to change your camera, computer, or operating system, or introduce a new manipulation. This list merely covers the probable upgrades required throughout a microscope's service life.

INSCOPER support service includes these types of adjustments at no additional cost. This gives users the peace of mind that they can count on a system that will develop with their projects.

INDUSTRIALIZATION

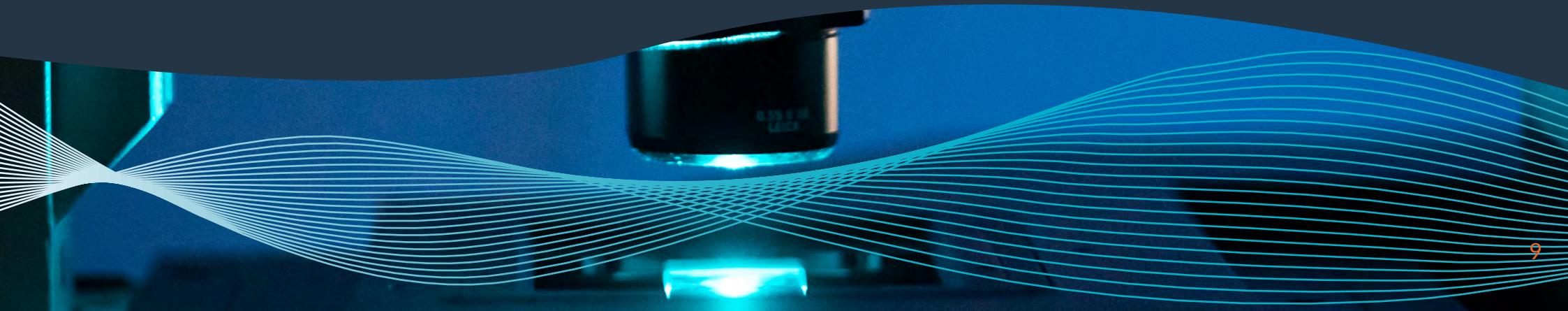
Many research teams develop their own microscopy systems to create a new imaging technique or adapt an instrument to their specific work.

The INSCOPER solution is ideal for transforming such laboratory prototypes into commercial-quality microscopes at reasonable and pre-determined cost.

The INSCOPER solution can be used to create a bespoke microscopy system which is reliable and easy to use, facilitating transfer to an imaging core facility or another research team.

YOU BUY THE SOFTWARE.

YOU GET A FULLY OPERATIONAL MICROSCOPE.



LET'S KEEP IN TOUCH

contact@inscoper.com

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GET A QUOTE,
REQUEST A DEMO,
ASK A QUESTION.

Provide us with the list of your system's devices and a short description of the application / manips that you carry out.



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