

HST301-CW Trinocular Upright Multifunction Metallurgical Microscope



Note: The picture is for reference only

Application

HST301-CW trinocular transreflective upright metallographic microscope is suitable for microscopic observation of opaque or transparent objects. Adopting the excellent design concept of infinity optical system and module function, it can provide excellent optical performance and product system upgrade, realize the functions of simultaneous transmission and reflection, independent illumination, polarized observation and other functions. The product has the characteristics of beautiful appearance, convenient operation, clear image, etc. It is an ideal instrument for research in biology, metallurgy, mineralogy, precision engineering, electronics, etc.

Mechanical stage

Double-layer mechanical stage, size: 210 * 140mm; moving range 63 * 50mm, visual design concept, the user is more convenient and comfortable when operating the stage.



Epi-illumination system

The use of halogen lamps (adjustable brightness) not only provides a clear and clear microscopic observation image for the normal bright field observation method, but also for polarized light and dark field observation methods. Built-in field diaphragm and aperture diaphragm can effectively control the field of view, adjust the contrast of the field of view, and the center of the field diaphragm can be adjusted.



Transmission illumination system

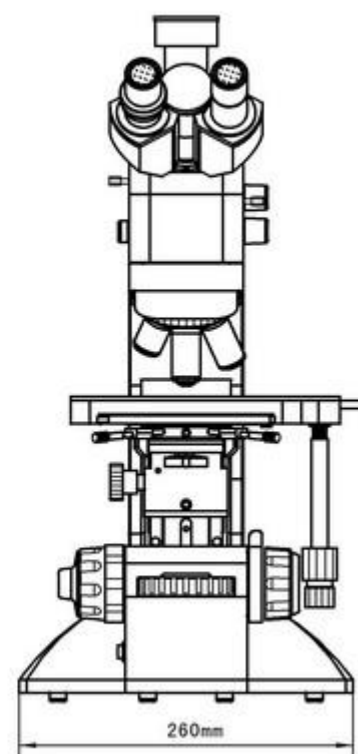
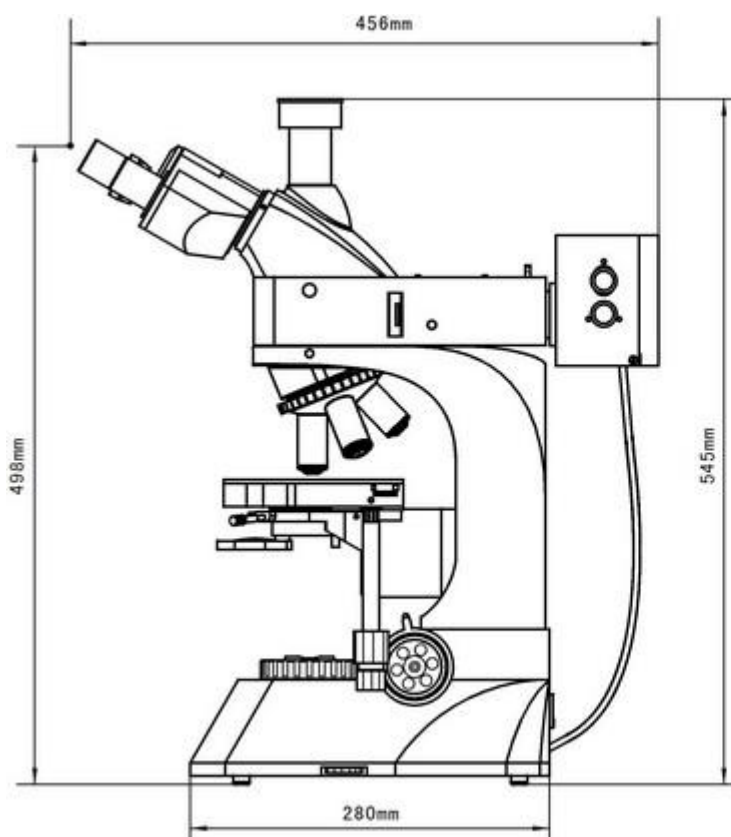
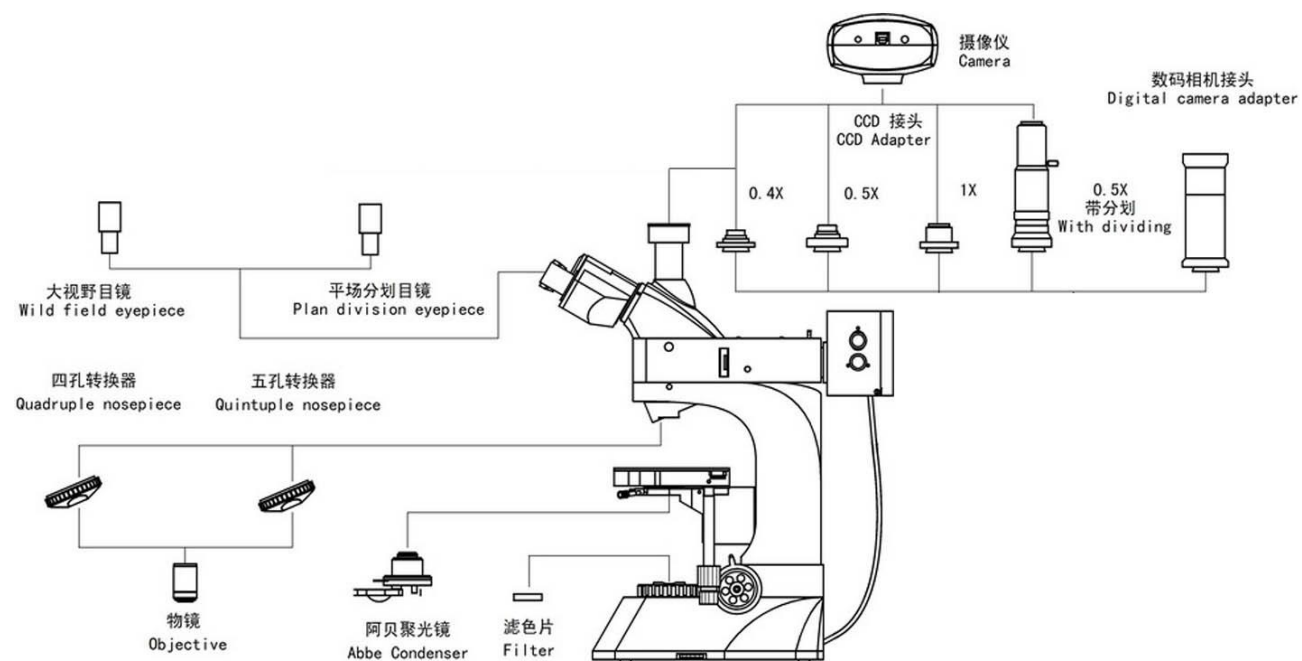
Built-in halogen lamp lighting device: 6V30W halogen lamp (adjustable brightness) can provide clear and clear microscopic observation images. The field diaphragm is built into the concentrator, and the Abbe condenser N.A.1.25 is adjustable up and down.



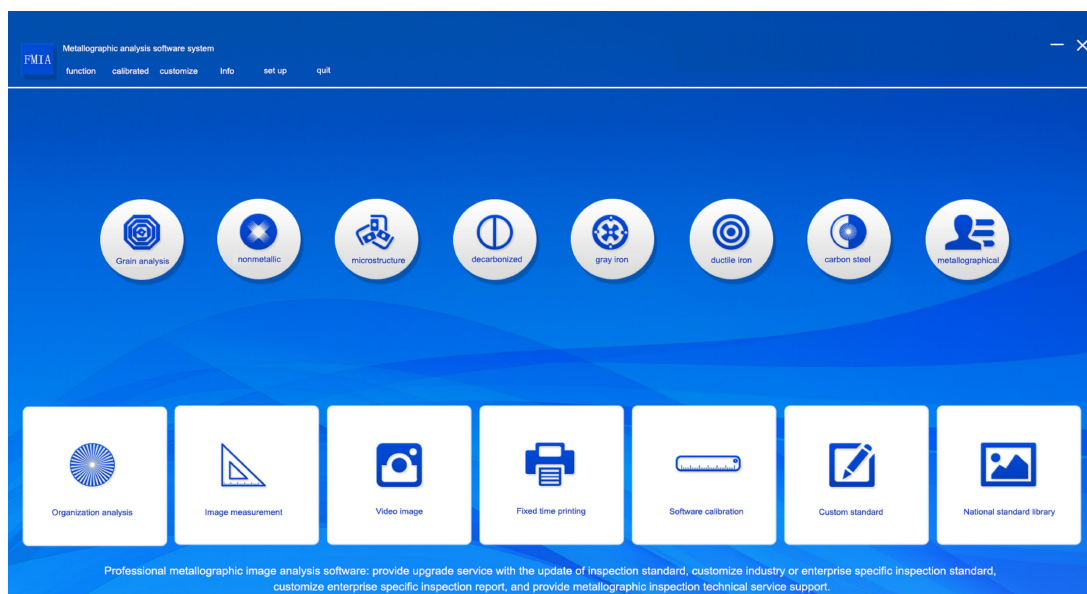
Specifications

Model	HST 301-CW	
Optical system	Infinite chromatic aberration correction optical system	●
Observation tube	Trinocular, tilted 30°, (built-in polarizer, switchable)	●
Eyepieces	Wide field WF10X / 22mm	●
	Large field of view WF10X / 22mm, with cross differentiation rule	○
Standard objective lens (Infinity plan achromatic objectives)	PL L5X / 0.12 WD26.1 mm	●
	PL L10X / 0.25 WD20.2mm	●
	PL L40X / 0.60 WD3.98 mm (spring)	●
	PL L 60X / 0.7 WD3.18 mm	●
Optional objective lens (Infinity plan achromatic objectives)	PL L20X / 0.40 WD8.80 mm	○
	PL L50X / 0.70 WD3.68 mm	○
	PL L 80X / 0.80 WD1.25 mm	○
	PL L100X / 0.85 WD0.40 mm	○
Converter	Five holes (inward ball positioning)	●
Focusing mechanism	Coarse and fine focus coaxial adjustment, fine motion grid value: 2μm, coarse and fine tension adjustment, with locking and limit device	●
Stage	Double-layer mechanical movable stage, size: 210mmX140mm, moving range: 63 * 50mm	●
Epi-illumination system	6V30W halogen lamp with adjustable brightness, equipped with yellow, blue and green color filters and frosted glass	●
	Built-in field diaphragm, aperture diaphragm, color filter conversion device, push-pull analyzer and polarizer	●
Transmission illumination system	Abbe condenser NA.1.25 can be moved up and down	●
	Built-in field-of-view light bar in collector lens, 6V30W halogen lamp, adjustable brightness	●
Software supporting	FMIA2026 genuine metallographic analysis software	●
Camera device	0.65X, 1X camera receiver	
Micrometer	High-precision micrometer (0.01mm grid value)	
Camera device	Sony chip camera (3 million, 5 million, 6.3 million, 12 million, 16 million, etc.)	○

Note: "●" is standard configuration; "○" is optional



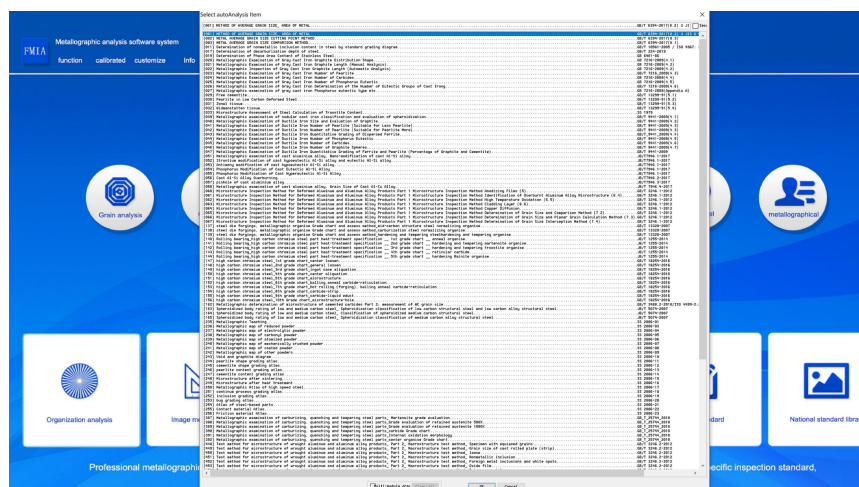
Metallographic image analysis software system



The metallographic image analysis software system is designed by our company to improve the product qualification rate by combining the current needs of foundry companies, auto parts companies, heat treatment companies, bearing steel industries, power system industries, railway parts industries, and related testing companies for metallographic testing. , to help improve the inspection level of various laboratories, we collected the needs and opinions of experts and teachers from various industries to develop this set of FMIA2023 version metallographic image analysis software system.

The national standard library of the software system contains about 700 commonly used sub-modules in 150 categories, basically covering commonly used metallographic standards and adapting to the metallographic analysis and inspection requirements of most units. Designate and open relevant categories according to the needs of different industries to meet industry testing requirements. All modules can be called for free for life, and standards can be upgraded for free for life.

In view of the continuous increase in new materials and imported grade materials, materials and evaluation standards that have not yet been entered in the software can be customized and entered.



Features:

- Software installation is more intuitive and concise

The new software installation, registration, and calibration guide mode are simple and clear, and can be completed by default prompts.

- **Genuine Software Assurance System**

After the software installation is completed, the original software activation is performed first, and then the computer hardware ID registration is performed to ensure the legitimate rights of the customer.

- **Quick access to 7 inspection categories**

Statistical production of 7 categories of quick entry: grain size, non-metallic inclusions, steel microstructure, decarburization layer analysis, gray iron, ductile iron, carbon steel spheroidization, etc., plus a metallographic teaching.

- **Demand standards can be customized**

In addition to the standard testing modules, special testing modules can be customized according to customer needs, such as: corporate standards, special industry standards, etc.

- **The report template can be modified**

Report templates can be customized for different companies.

- **Genuine software can be upgraded**

According to the standard implementation time of the National Standardization Committee, the software will be upgraded for free.

- **Wide application of computer systems**

This software can be installed and run under Windows 7, Windows 10.

The latest metallographic software standard:---partial excerpt

- GB/T 6394-2017 Grain size measurement rating (grain boundary extraction, grain boundary reconstruction, single phase, dual phase, grain size measurement, rating)
- GB/T 10561-2005/ISO 4967:1998 Determination of non-metallic inclusion content in steel
- GB/T 7216-2009 gray cast iron: graphite distribution shape, graphite length, pearlite quantity, carbide quantity, etc.
- GB/T 9441-2009 Ductile Iron: Spheroidization Rate, Graphite Size, Pearlite Quantity, Carbide Quantity, etc.
- GB/T 26656-2011 Vermicular graphite cast iron: graphite morphology, creep rate, pearlite quantity, phosphorus eutectic quantity, carbide quantity, etc.
- GB/T 18254-2016 Metallographic examination of high carbon chromium bearing steel
- GB/T 34891-2017 Rolling bearings_Technical conditions for heat treatment of high carbon chromium bearing steel parts
- GB/T 1499.2-2018 Steel for reinforced concrete Part 2: Hot-rolled ribbed steel bars
- GB/T 1299-2014 tool steel
- GB/T 3246.1-2012 Microstructural test methods for wrought aluminum and aluminum alloy products_Part 1_Microstructure test methods
- GB/T 13925-2010 cast high manganese steel: grades of undissolved carbides, grades of precipitated carbides, grades of superheated carbides
- JB/T 7946-2017 Metallography of cast aluminum alloys
- JB/T 1255-2014 Rolling bearings_Technical conditions for heat treatment of high carbon chromium bearing steel parts
- JB/T 9986-2013 Tool Heat Treatment Metallographic Examination
- QC/T 262-1999 Metallographic examination of automobile carburized gears: martensite needle length, carbide, austenite rating, austenite content
- QC/T 502-1999 metallographic inspection of automobile induction hardening parts
- QC/T 553-2008 Metallographic Examination of Cast Aluminum Pistons for Automobile Engines
- TB/T2942.2-2018 Steel Castings for Locomotives and Rolling Stock Part II: Metallographic Examination

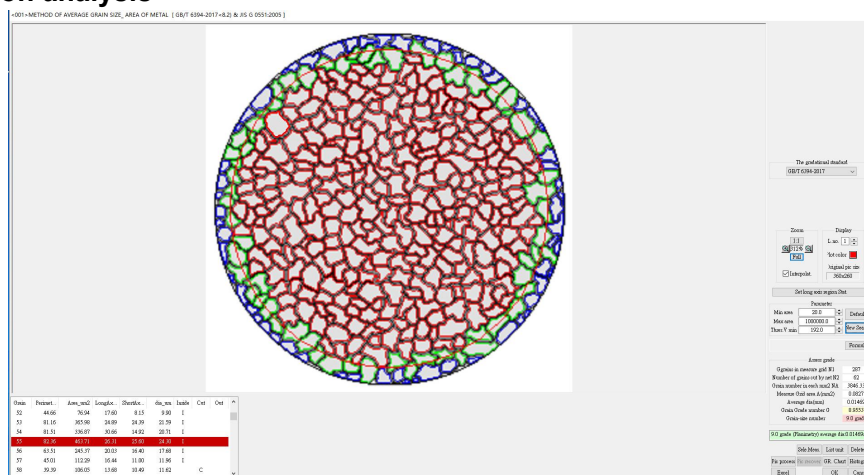
Chart.

- TB/T 2478-1993 Metallographic Structure Grading Chart of Spring Bar
- TB/T 2451-1993 Metallographic examination of non-metallic inclusions in cast steel
- TB/T 2944-1999 Carbon steel forgings for railway
- DL/T 773-2016 Standard for spheroidization rating of 12Cr1MoV steel for thermal power plants_Characteristics of ferrite plus pearlite spheroidization
- DL/T 773-2016 Spheroidization rating standard for 12Cr1MoV steel for thermal power plants_Features of ferrite plus bainite or bainite spheroidization
- DL/T 1422-2015 18Cr-8Ni series austenitic stainless steel boiler tube microstructure aging rating standard
- ISO 4499-2016 Cemented carbide -- Metallographic determination of microstructure
- ASTM A262-2015 Test procedure for susceptibility to intergranular corrosion of austenitic stainless steel
- ASTM E45-2013 Evaluation method of inclusion content in steel

The national standard library contains about 700 commonly used sub-modules in 150 categories, basically covering the commonly used metallographic standards and meeting the requirements of metallographic analysis and inspection in most units; the software randomly releases about 120 commonly used sub-modules, and the others are all Lifetime free upgrade calls.

Basic skills:

1. Organization analysis



Correctly select the execution standard of the material, capture and take pictures of the metallographic structure of the sample through the camera system of the metallographic microscope, and enter the evaluation level interface:

- (1) Automatic grading: If there are quantitative standards in metallographic standards (such as calculation formulas, percentage ranges, etc.), the software automatically grades, gives metallographic grades, and generates metallographic inspection reports.
- (2) Comparison and rating: The software can also compare the sample map with the map in the gallery, and manually determine the level.
- (3) Multi-module rating: Multiple modules can be counted at the same time

2. Image measurement

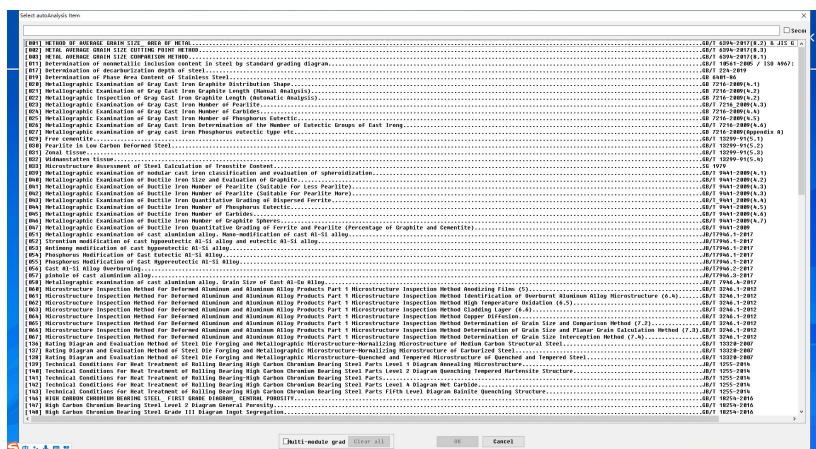


The software provides a variety of measurement tools such as distance, rectangle, circle, polygon, polyline length, angle, line angle, radian, point to circle center measurement, etc., to meet the user's basic geometric measurement functions and obtain relevant measurement data.

(1) Data export: The measured data can generate a dedicated measurement report with pictures and texts, and can also be directly imported into EXCEL.

(2) Save the image: the measured data can be automatically fused with the picture, and the accuracy of the measured part can be displayed intuitively and clearly.

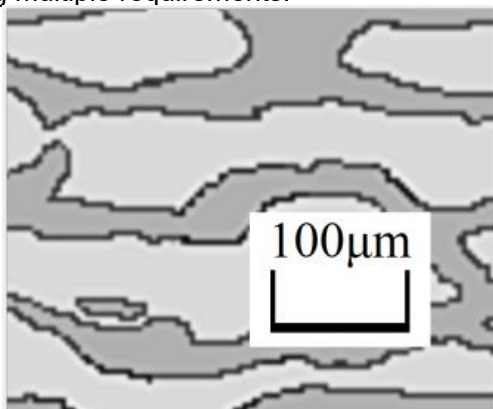
3. National standard library



The software provides the function of viewing the gallery, providing users with the latest national standard gallery.

2. Fixed-time printing

The software provides a fixed-time printing function, and users can realize fixed-time printing of pictures according to the actual printing multiple requirements.



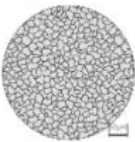
5. Inspection report

Submission unit: (送检单位) Submission time: 2022/1/26 13:23:21

Inspection Unit	(检验单位)
Sample Varieties	(试验品种)
Sample Grades	(试验牌号)
Test Items	ETHOD OF AVERAGE GRAIN SIZE_ AREA OF METAL [GB/T 6394-2017+8.2) & JIS G 0551:2005]
Assessment Level	9.0 grade (Planimetry) average dia:0.01469mm

☒ Fixed times display
☐ Original shows ☐ Fixed ruler length
 Resolution X:1.433,Resolution Y:1.451,Remark :Default (12-7-2021)
 Sample Photos: (Print magnification:100)

Fixed Multiples Image Process



Metallographic analysis software system composition:

1. Software program FMIA2026 (U disk);
2. Dongle: USB type + dynamic code verification;
3. Text information: "Instruction Manual" (on the U disk);
4. 0.01mm micrometer ruler.









MACHINERY DIRECTIVE ATTESTATION OF CONFORMITY

Technical file of the company mentioned below has been inspected and audit has been completed successfully.

2006/42/EC Machinery Directive Annex VIII has been taken as references for these processes.

Company Name : **JINAN HENSGRAND INSTRUMENT CO., LTD.**

Company Address : NO.4915, WEST JINGSHI ROAD, JINAN, CHINA

Related Directives and Annex : **2006/42/EC Machinery Directive/Annex VIII**

Related Standards : **EN ISO 12100:2010, EN 60204-1:2018**

Product Name : **TESTING MACHINE**

Report No and Date : TCF-JHIC230128-MD

Product Brand/Model/Type : WDS-1, WDS-2, WDS-3, WDS-5, WDS-10, WDS-20, WDS-30, WDS-50, WDS-100, WDS-200, WDS-300, WDS-500, WDW-1, WDW-2, WDW-3, WDW-5, WDW-10, WDW-20, WDW-30, WDW-50, WDW-100, WDW-200, WDW-300, WDW-500, WDW-600, WDW-1000, WE-300, WE-600, WE-1000, WE-2000, WEW-300, WEW-600, WEW-1000, WEW-2000, WAW-300, WAW-600, WAW-1000, WAW-2000, WAW-3000, WAW-5000, WAW-6000, LAW-1000, JB-300B, JBS-300, JBW-300, JB-500B, JBS-500, JBW-500, JBW-750, CST-50, VU-2Y, VU-1S, DWC-40, DWC-60, DWC-80, DWC-100, DWC-196, YES-2000, YES-300, YAW-1000, YAW-300, YAW-2000, YAW-3000, YAW-5000, NDS-200, NDS-500, NDS-1000, NDS-2000, NDW-200, NDW-500, NDW-1000, NDW-2000, NDW-3000, NDW-5000, NDW-10000, HEZ-3, HEZ-6, HEZ-10, JWJ-10, TLS, TLW, HST-P50, HST-P100, HST-P200, HST-P300, RDJ, NDT, DWTT, GBW-60, GW-50, HST, XNR-400

Certificate Number : **M.2023.206.C81366**

Initial Assessment Date : 31.01.2023

Registration Date : 01.02.2023

Reissue Date/No : -

Expiry Date : **31.01.2028**


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