PROFINEWS
PROFIBUS & PROFINET
PI INTERNATIONAL
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<< www.profibus.com
<< www.profinet.com

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SPRING FAIRS 2006: SAME PROCEDURE AS EVERY YEAR?

Not at Hanover Fair (April 24-28)!

PNO has a refreshing new design for its booth and is creating a huge 'center' for communication and information at the show!

The booth measures approximately 330 m², and about 50 member companies will be showing their products, systems and services. Highlights will be live presentations with PROFIBUS PA, PROFIsafe, PROFINET and IO-Link.

For the first time the "Future of Automation" forum will be next to the PROFIBUS / PROFINET fair booth. At this forum, expert speakers will discuss news and trends in automation technology in numerous sessions designed to address all sections of factory and process automation.

See PROFIBUS and PROFINET in Hall 11, A41

And not at Achema (May 15-19 in Frankfurt) either!

"The whole range of investment goods for the process industry under one roof" is the theme of this year's event, which takes place once again in Frankfurt, Germany.

With about 4.000 exhibitors from every continent and over 200.000 visitors from 100 countries this is one of the most important trade fairs in the process industry.

With rich and powerful user benefits available to process plant operators (see story right) participation is a must for PNO and its member companies. On the 150 m² booth visitors will find comprehensive details of latest developments and massive proof of the advantages of using 'the world's most popular fieldbus'.

See PROFIBUS and PROFINET in Hall 10.2, F3-J6

CONFIRMED AGAIN! PROFIBUS IS THE WORLD'S MOST POPULAR FIELDBUS

Official confirmation that PROFIBUS is the world's most popular fieldbus by a long way, has come with the news that 2005 was the most successful year to date for PROFIBUS International (PI) and its member companies.

The number of PROFIBUS nodes sold rose by nearly 25% compared to the previous year, as approximately 2.8 million PROFIBUS devices were added to the worldwide user base. The total number of PROFIBUS devices now installed has grown to 15.4 million.

PI remains on target for increasing this to 20 million by the end of 2007. The total today exceeds all other fieldbus solutions by a large margin.

Contd. on Page 2 >

IRT AWARD

Control Engineering hosted an award ceremony at the National Manufacturing Week venue in suburban Chicago in March. PROFINET IRT technology received an award in the networks and communications category. Michael Bryant, Executive Director of PTO, accepted the award from *Control Engineering* publisher Michelle Palmer (pictured left) .

Mark T. Hoske, Editor in Chief of *Control Engineering* hosted the award ceremony and cited the benefits of IRT in his recognition of the technology.

The ERTEC chip that supports IRT was also recognized by the award.

SURVEY

PI wants to know what YOU think about PROFINEWS and whether there are any aspects that can be improved or extended. Do you have any ideas that you think would help the PROFIBUS world? An online survey form has been developed for your response. Only 5 minutes of your time is required.

Find it here.

PI News

NAMUR DIAGNOSTICS FOR PROFIBUS PA PUBLISHED

After passing NE107 (NAMUR Recommendation 107), 'Self-monitoring and diagnostics of field devices', PI developed a new concept for the classification of fieldbus diagnostics which significantly simplifies systemwide data management in process plants. The new profile was closely coordinated with NAMUR, and jointly developed.

The flood of messages created by intelligent devices has grown exponentially. Users in the process industry are looking for simpler and more standardized diagnostics information. For this reason, PI championed the cause of streamlining and adjusting the diagnostics for PROFIBUS PA in favor of the users. The classification of diagnostics information into the status signals 'Maintenance Required', 'Function Check', 'Failure' and 'Outside of Specification' - as demanded in NE107 - is now transmitted in the measured-value status defined in the PROFIBUS PA profile.

PROFIBUS PA diagnostics does the thinking

Devices which provide the current measured-value status continue to provide it for compatibility reasons. However, the revised diagnostics provides for switching between 'old' and 'new'. This paves the way for extensive asset management functions, including:

>> Adjustable classification of diagnostics events

>> Level of details of the measured-value status

>> Consideration of different roles for the diagnostics

The newly specified measured-value statuses have been published in Appendix 2 of the profile for PA devices. **More from www.profibus.com.**

NAMUR WELCOMES DIAGNOSTICS WITH PROFIBUS PA

Statement by Michael Pelz, Chairman of NAMUR WG 2.6, 'Fieldbus'

"PI took NE 107 seriously and defined the corresponding assignments in the PROFIBUS profile. For the first time, this allows for the introduction of a standardized diagnostics transmission in the communication profile. This step is a very welcome development for the NAMUR WG 2.6, 'Fieldbus.'"

> *'Confirmed again!' contd. from Page 1*

PROFIBUS is particularly strong in process automation. In 2005, 130,000 new PROFIBUS PA devices were installed, an increase of 30% compared to 2004. By year end, approximately 530,000 devices were being used in mainstream process and process-oriented systems.

The broader picture - including PROFIBUS DP - in process markets is even stronger. A total of about 2.8 million PROFIBUS devices is used in process plants because of the excellent integration between PROFIBUS DP - the fieldbus protocol optimized for discrete manufacturing - and PROFIBUS PA itself, which is an IEC 61158-2 solution designed for mainstream processes. PROFIBUS is the only fieldbus to support both types of application on a single protocol. Since most process plants incorporate discrete manufacturing functions upstream and downstream of the main process, PROFIBUS is the most cost-effective option available.

PROFIBUS continues to strengthen its position in all segments of the market, and in all regions of the world. North American and Far Eastern markets were especially dynamic in 2005, said Edgar Küster, (pictured above) Chairman of PI, the organization responsible for PROFIBUS worldwide. Recently, PROFIBUS International certified the first PROFIBUS PA instrument to be developed solely in China. Others are expected shortly.

"Our extensive international network of regional organizations and competence centers is very important to growth," Küster added. "The range of PROFIBUS products spans virtually all applications in automation, and the large number of suppliers gives a high degree of freedom for users to select 'best in class' solutions at competitive prices."

FIRST CERTIFIED DTM

ABB has become the first company to have a DTM certified as FDT compliant . The DTM is for the Multivariable Transmitter 2600T series for mass and standard volume flow, which is used for liquids, vapors or gases, with pressure and temperature compensation. The FDT/DTM technology is an important module because it calculates the flow parameters according to the application and in this way directly makes the correct values available. **ABB: Tel: +49 (0) 6023 92-3129 or Bernd.Hassenpflug@de.abb.com**

NEW PORTAL

PI has a new web portal linking to comprehensive PROFIBUS and PROFINET resources. It provides colour-coded navigation to the best fieldbus advice and information available. **www.profibus.com** or **www.profinet.com**

Applications

USA/ VELOCITY CONTROL: The process of pultrusion involves pulling material through a die to create a desired shape. Key to maintaining a consistent chemical process is constant velocity. The fiber is pulled with a 'hand-over-hand' operation actuated by two 4-foot long hydraulic pulling cylinders, each moving an independent carriage on a rail, to which is clamped the material being pulled.

Threading the die is a time-consuming task. Once the machine is set up and starts pulling parts, machine operators want to keep it running as long as possible. If the handoffs by the pulling cylinders are not smoothly coordinated, the fiber material will either bunch up or be compressed, with serious implications to production quality.

Entec Composite Machines has recently upgraded its line of pultrusion machines to use an electronic motion controller. To replace the old PLC-driven velocity controls, Entec selected a programmable motion controller from Delta Computer Systems to output a variable control voltage to each of the two proportional servo valves of the pulling cylinders in order to precisely control the pulling velocity.

Entec was introduced to the Delta controllers through hydraulic distributor Interstate Hydraulics. Delta had one of their application engineers create an example framework for programming the motion controller and an Entec engineer fine-tuned the programs and added a PROFIBUS interface.

Entec likes to use PROFIBUS because it lends itself very well to high-performance distributed control. The pultrusion machine is very long (see photo) and has many distributed control elements. PROFIBUS is used to transfer information on speed and operating mode, and the commands between a Siemens PLC that performs overall machine control and the motion controller. The PLC tells the RMC what mode to go into, including selection between multiple pulling modes, and provides adjustment commands for machine operators, such as a command to 'jog' the axes into a particular position.

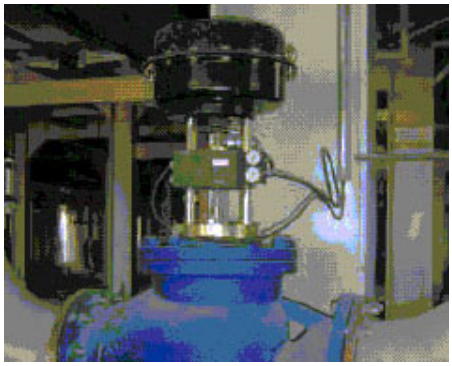
On a new design or a more extensive retrofit other parts of the system can be controlled in the same way. **Delta Computer Systems: www.deltamotion.com**

TURKEY/ SUGAR: Konya Seker is the largest private sugar producer in Turkey. At the end of 2004, the company put a new sugar factory into operation in Cumra, in the highlands of Middle Anatolia, about 185 miles south of Ankara. The factory can process up to 12,000 tons of sugar beet per day, yielding about 1,500 tons of sugar. In automating the plant, the aim was to set a new standard for the entire sugar industry and production had to be more cost-effective than any other plant in the industry.

An essential step was the consistent use of PROFIBUS. The process instruments (around 600 including 316 PA devices) are linked to the control system via PROFIBUS. PROFIBUS not only allows the transmission of the pure process signals, but also the transmission of all calibration data from the central engineering system after installation. This considerably simplifies engineering and all of the instrumentation was configured by just one project engineer. Level, pressure, temperature, flow and analytical instruments are connected via PROFIBUS PA, while actuators such as vents, valves, motors, and frequency converters, communicate via PROFIBUS DP. Both types of field device can be connected to PROFIBUS, underlining its unique capability to support perfectly this kind of hybrid plant.

The PCS 7 process control system is used plant wide, networked by Industrial Ethernet. The main factory of Konya Seker in Konya is connected to the Cumra factory by an intranet link and a management information system (MIS) was installed in both locations. This stores all process and laboratory data and generates reports for the two factories. With the MIS, the company is able to continuously keep an eye on the processes, detect critical developments early and respond to them pro-actively before there is a total production outage.

Production was successfully brought up to maximum capacity within just a few weeks from zero to full steam. Easy commissioning, fast and centralized access from the operator, and improved resolution of measured values have been recognized as important advantages. **Siemens: www.siemens.com/sugar**



Technology Update

INTEGRATION TO THE LAST METER

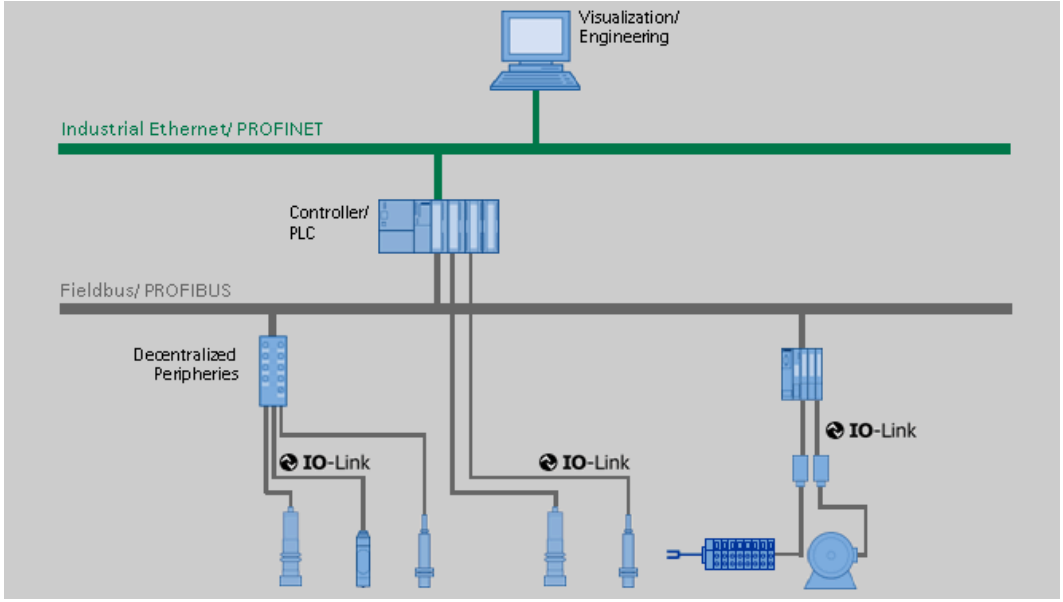
Under the auspices of the PROFIBUS Nutzerorganisation (PNO) in Germany, a Working Group dealing with the new sensor level communications solution IO-Link has just completed its work. The final specification has now been released and first products will be shown on the PNO booth at Hannover Fair. It is expected that members of the IO-Link consortium will also demonstrate products.

IO-Link serves the new generation of more sophisticated devices which, for example, can have microcontroller-guided 'teach in' capability for precise sensor adjustments as well as expanded diagnostics. To fully exploit these capabilities, the interface between I/O assembly and sensor must be able to use the switching signal (process data) and also exchange parameter and diagnostics data (demand data) with the sensor. It's a matter of integrating the last meters of a communication solution.

To avoid changing familiar topologies the communication had to be defined as an 'add-on'. This expansion allows the user to take advantage of automation solutions with system-wide integrated communication down to the field device. The last meters between sensor/actuator and I/O assembly remain 'point-to-point'.

IO-Link has been designed as an open interface with a freely available specification. International standardization under IEC is in preparation.

In addition to the description of the communication specification, including the transmission hardware and the protocol, the IO-Link specification also contains a fieldbus-neutral data interface for process and demand data as well as information about system integration. The IO-Link mapping for PROFIBUS DP, Interbus and PROFINET has already been completed.



Applications

USA/ WASTE&WATER: The town of Rainsville, Alabama, wanted to raise the capacity of its sewage treatment plant by 30%, and also improve peak handling after heavy rainfalls. Existing PROFIBUS drives at the 1.6 hectare site suggested using similar technology for the upgrade, while Industrial Ethernet was favoured for site wide communications over a redundant 1800 metre fibre ring. PROFIBUS and PROFINET was chosen by integrator Hi-Tech Systems, with Component-Based Automation (CBA) being employed to make engineering and configuration

simple. The site includes several Motion Control Centers for the various pumping and filtering functions. This 'modularity' allows functions to be represented as 'components' of the overall system and CBA enables the communications relationships between them to be configured using simple drag and drop techniques. In this way data communication need not be separately programmed, speeding engineering and making the plant much more flexible. PROFINET IO remote IO modules are used, along with standard PROFIBUS remote IO functionality. The project succeeded in doubling the performance of the plant and will enable extensions to be deployed easily by adding PLC components.

Hi-Tech Systems: marty@hi-techsystemsinc.com or +1 706 278 1311

New Products

SAFE AND PA LEVEL

Pointek CLS 200 and 300 are the first level instruments to incorporate PROFIsafe, and among the first PROFIsafe process instruments in the world. PROFIsafe is especially adapted to safety related processes where very secure communications are required. The SITRANS level Probe LU now has PROFIBUS PA connectivity. An Intrinsically Safe infrared hand-held programmer is used to set-up the device without opening the lid, even in hazardous areas. SITRANS LC 300 is also now available with PROFIBUS PA. **Siemens Milltronics: +1 705 740 7020** or **james.powell@siemens.com**

UNIVERSAL TESTER

The PB-T3 Tester is for analysis, monitoring, error finding, and maintenance of PROFIBUS systems. It provides an overview of signal conditions, helping to quickly find and correct errors. The integrated master simulator checks an installation even without having the bus master in operation. PB-T3 can also determine the topology of a plant, thereby localizing sources of error with exact position information. **Softing: +49 (0) 89 45656 340** or **info.automation@softing.com**

OPTOCOUPLERS

HCPL-4100/4200 optocouplers operate as transmitter/receivers for current loop equipment. Optical coupling breaks the ground loop and provides high immunity to common mode noise, especially in long distance transmissions. HCPL-4100/4200 supports full/half-duplex and point-to-point/multi-drop configuration with typical transmissions of 40m at 100kBd and over 200m at 10kBd. **Avago Tech: www.avagotech.com/optocouplers**

I&M 'FIRST'

ProfiTrace, the popular PROFIBUS analyzer on USB, is the first to support the recently defined I&M functions for DP-V1 devices. A free upload is available from the PROCENTEC web site. Other powerful features are added that can boost your PROFIBUS activities, according to the makers! More at **www.procentec.com/profitrace or info@procentec.com**.

PROCENTEC has also launched ProfiHub A5, a spur line repeater for PROFIBUS DP that makes the implementation of long, multi-device spur lines and backbone structures with tree/star segments possible. It has the function of 5 galvanically isolated transparent repeaters. Extended spur lines can handle up to 31 devices over a length equal to the main bus. **PROCENTEC: info@procentec.com** or **www.procentec.com/profihub**

PROFINET I/O PROXY

The applicom PROFINET I/O Proxy is the first product to provide real-time communication between a PROFINET I/O network and devices connected to an Ethernet, PROFIBUS or Serial network. Just about every popular network protocol can be connected. Woodhead has also expanded its IP67 discrete I/O offering with the Classic 60mm wide PROFIBUS Modules, which come in an 8-port 16-channel format with four I/Oconfigurations. Finally, Woodhead has announced a new version of its SST PROFIBUS Scanner for ControlLogix. This supports PROFIBUS DP-V1 and additional PROFIBUS baud rates (i.e. 31.25 / 45.45 kbit/s), enhancing the Scanner's use in PROFIBUS PA networks. There's also added support for Remote Link Library (RLL) software. **Woodhead: +1 519 725 5136** or **www.woodhead.com**

PROFINET CONNECTOR

Ruggedized PROFINET components have been added to the Yamaichi Y-Con series, offering protection ratings of IP69K, IP68, IP67 and IP20. The four-stranded PROFINET wire has a PUR sheathing and can withstand at least 1 million bending cycles. It is specified for Cat 5e and suitable for -20°C to +80°C. It uses piercing contacts, and the mating face conforms to the RJ45 standard. **Yamaichi: +49 89 45109 0** or **www.yamaichi.de**

DTM DIAGNOSTICS

The new Advanced Diagnostic Module (ADM) for the FieldConnex Power Hub measures the fieldbus physical layer and brings transparency and control to fieldbus networks during installation, commissioning and maintenance. Detailed information is displayed in a DTM.

The ADM monitors a comprehensive set of measurements. A snapshot is typically taken right after commissioning. In operation, ADM compares current conditions against this snapshot to alert operators to decreasing communications quality before critical levels are reached. Documentation is automatically generated and faults can be pinpointed quickly and efficiently from the control room. **Pepperl+Fuchs: pa-info@de.pepperl-fuchs.com** or **+49 621 776 2222**

WIRELESS GATEWAYS

Connect PROFIBUS field devices 'over-the-air' up to 20 miles, using these new ProLinx Wireless Gateways. Progressive technology provides unprecedented flexibility, allowing heterogeneous networks to share process and status data wirelessly. Data is transferred securely and efficiently between different industrial networks and protocols in a high-performance way. **ProSoft: www.prosoft-technology.com**

CNC INTEGRATED

The System SINUMERIK 840D powerline is an open and modular CNC System for complex processing tasks characterized by dynamics and precision. High demand turning, drilling, molding, milling and laser machining in tool and mold making or high speed cutting are the main applications. Openness and flexibility in CNC applications are enhanced by the integration of PROFINET I/O and PROFINET CBA interfaces.

PROFINET I/O allows, for example, the integration of remote machine segments via industrial wireless LAN. This helps to reduce downtime as extensive service functions may be executed, even on moving parts.

Increasingly flexible manufacturing concepts are continuously demanded by the machine tool industry. PROFINET CBA offers a fast and easy way to integrate machines in various changing environments. Imagine the application of a robot or loader at the front of a machine tool when mass-producing, and then being able to change back to manual parts placing for smaller lots.

Graphical reconfiguration of the interfaces and download of the new communication relationship at site is available without PLC programming thus making such change easy even for the end-customer himself.

For SINUMERIK the application of the open PROFINET standards are vital for innovative preventive maintenance concepts. Employing the TCP/IP protocol grants worldwide access to the CNC equipped machine by remote control, notifications in event of fault and status oriented maintenance through Internet based services like ePS.

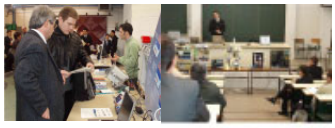
Trend analysis based on regular tests provides the basics for preventive maintenance. Data can be shared between CNC manufacturer, machine manufacturer and end-customer. Machine manufacturer and machine operator's maintenance personnel are able to co-operate closely, increasing availability, precision and thus quality of the machine tool. **Siemens: +49 911 978 3282** or **karin.kaljumae@siemens.com** or **www.siemens.com/sinumerik**

PI World

ITALY

PNI, the local PI organisation in Italy, organized a very successful PROFINET Day on March 30, 2006, in Milano. A status report on PROFIBUS, Ethernet and PROFINET technology was given to participants, followed by technical presentations on PROFINET IO and Real-Time with PROFINET. Standardization was an important aspect of the presentations, as well as PROFINET products and applications. The PROFINET Day was organized for the second time in co-operation with PNO Germany. **Download the invitation here**

FRANCE



France PROFIBUS organized a series of six 'Journees' in March and April, to explain PROFIBUS to engineers and technicians. More 'Journees' will be organized in 2007. **france.profibus@wanadoo.fr**

NETHERLANDS

31 participants attended PROFIBUS troubleshooting training at the AEL Institute in Helsinki, Finland, in March. Experts from the PROCENTEC gave 2-days of practical and theoretical instruction on how to use the ProfiTrace Analyzer and Oscilloscope to detect and eliminate disturbances. More sessions will be organized in the second half of this year. **PROCENTEC**: **dbooma@procentec.com** or **www.procentec.com/training**

PROFINEWS

PROFINEWS is published six times a year. The international version is supplemented by local versions in Brazil, China, USA and other countries. **Find out more here.**

NORWAY

PROFIBUS in Norway (PIN) celebrates its 10th anniversary on 23rd August. It is now planing a new set of seminars across the country, based on different topics, but with emphasis on PROFINET. PIN will also start the first approved PROFIBUS competence center in Norway this year, to support members with Certified training and consultation. Pictured are members of the PIN board. Left to right: Veslemoy Tysso, Hogskolen i Oslo; Hakon Rem, Siemens; Ivar Sorlie, Festo; Oistein Hildre, Jorgen Holmefjord; Bjorn Marvin, Norske Skog. (The PIN Board also includes Trond Ola Mostulien, Moeller, and Helge Lauvlid, Skotselv Instrumentering who were not present).

CHINA

Following successful roadshows in 2005, Chinese PROFIBUS Organisation continues to promote PROFIBUS and PROFINET. One project is the translation of PROFINEWS. **Have a look at PROFINEWS 48 in Chinese here!**

GERMANY

Workshops for the development of PROFINET products are a great success! During a recent PROFINET event in Essen in April, interested companies were informed about the development paths of PROFINET IO and PROFINET CBA products. Leading technology companies presented their options for development support. Due to many positive responses PNO will organize additional workshops this year. **Download workshop flyer here.**

UK

The 2-day 2006 PROFIBUS International conference has a strong 'user' theme covering system design, implementation and maintenance. The program has papers covering process, manufacturing and materials handling using PROFIBUS, PROFINET, wireless, AS-Interface and Safety. Hands-on sessions will be featured where equipment and techniques are demonstrated using real devices. The program of parallel conference presentations and exhibition mean that the event is a 'must' for anyone involved with, or thinking about networked control systems. The AS-Interface UK Expert Alliance is exhibiting and presenting a paper on linking AS-Interface and PROFIBUS safety systems. Bookings are being taken **here** or email **ann.squirrell@profibus.com**

NORTH AMERICA

Plans are well in hand for the 18th PI meeting to be held in the wine country of Sonoma, California. Training and workshops for PROFIBUS and PROFINET are now running almost weekly, with excellent attendances. On line registration at the new web site at **www.us.profibus.com** has proved popular. The North America e-newsletter is arousing great interest and is now being circulated by Control Engineering as well. It's packed with news of FREE training sessions. **You can get it here.**

JAPAN

In February, the Association of Japan Instrumentation Industry (AJII) had a seminar for young engineers in Osaka. Japanese PROFIBUS Organization (JPO) was invited to explain PROFIBUS basics in front of 71 delegates from 25 companies! Presentations and demonstrations were used extensively for the seminar. Because most of the attendees were installation engineers, there was a lot of interest in the engineering of PROFIBUS systems and how PROFIBUS works. JPO plans to have more PROFIBUS DP/PA and PROFINET seminars in 2006 than in 2005.

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