Mobile devices improve decision-making and knowledge retention by bringing operating data, work order programs, procedures, and inspection checklists to field operators

“Before IntelaTrac*, the operator rounds went unnoticed at times. But with IntelaTrac, the data is available to everyone at all times.”


Executive Summary
Oil refiners operate in a difficult environment that demands consistency and safety from every action performed in the field. Operators who work in the field make dozens of decisions every day and are closest to the refinery operation. By all rights, they should have the best access to information so they can be as successful as possible in their jobs.

To give operators the information they need and achieve the high level of results required by the industry, refiners historically have relied on years of training and tribal knowledge. However, workforces are aging. The American Fuel & Petrochemical Manufacturers organization reports that 800,000 refinery/petrochemical workers are expected to retire in the U.S. by 2017¹—approximately 40 percent of the total workforce.

This aging workforce poses big challenges for the oil and gas industry. Turnover will stretch the traditional on-the-job training model, and many refiners may lose critical information as their experienced operators retire. Refiners and petrochemical manufacturers run the risk of reduced quality, consistency, and safety in field operations as well as higher costs if workers must be pulled off the job for training.
But there is another way: companies can use technology to help transform how training is done and capture critical knowledge gained from experience.

Schneider Electric, Intel, and Microsoft have partnered to bring a high-value mobility solution to the refinery and petrochemical workforce. The combination of Intel-powered mobile devices—rated for hazardous locations—and IntelaTrac* mobile workforce management software on Microsoft Windows* helps organizations achieve world-class operational excellence by enabling field operators to access maintenance programs, procedures, checklists, and plant automation and historian data in the field. As a result, field workers are empowered with the best-available information to execute their job functions consistently and safely.

**Unprecedented Access to Information**

Outside operators in the refining and petrochemical industries must flawlessly perform a variety of tasks, often in stressful situations. They must follow and sign off on standard, special, and emergency procedures; conduct job safety reviews; perform lockout/tag out; and conduct a variety of routine and non-routine duties every day.

Training operators to effectively and proficiently perform these activities is a continual, resource-intensive process.

Using Schneider Electric Wonderware IntelaTrac software, running on ruggedized mobile devices rated for hazardous conditions and powered by Intel® processors, field operators have unprecedented access to critical information and the ability to share data they collect while in the field. Operators can view existing work order requests or notifications and create new ones; view plant automation data; sign off on operating procedures; record, review, and react to data from non-instrumented equipment; and fill out safety and reliability checklists while doing their routine duties.

**Data Where it Does the Most Good**

Providing operator access to information in the field improves consistency of field worker actions, facilitates accurate decision-making, and captures valuable compliance and asset integrity information efficiently and easily. And with the near-real-time transfer of information possible with Wi-Fi or cellular connections, operators can also quickly and easily communicate data to other departments in the organization.

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**Figure 1. Refinery mobile solution architecture**
Better operator and organizational access to data and information translates into multiple benefits, including:

- Optimized knowledge retention
- Improved refinery reliability
- Increased asset uptime and availability
- Enhanced operator efficiency
- Reduced maintenance costs
- Improved regulatory compliance
- Organizational visibility of non-instrumented data
- More informed decision-making

IntelaTrac allows subject-matter experts to incorporate their knowledge into operating and inspection rounds. This means best practices can be easily documented and used by all field workers, even the most junior of operators—in insulating refineries from a sudden loss of tribal knowledge. Mobile devices with Intel processors allow workers to access the information where they need it: in the plant while doing their jobs.

Remote Management for Maximum Uptime

With the solution running on mobile devices in the field, remote device management capabilities are essential for maximizing device uptime and ensuring field operators can consistently carry out their tasks. Remote management is also essential for locking down devices if they go missing, to protect corporate data. Intel® Core™ vPro™ processors with Intel® Active Management Technology (Intel® AMT) provide robust remote capabilities and give IT managers full control to manage the mobile device, whether it is connected to the network, powered off, lost, or stolen.

By capitalizing on the Intel vPro platform, oil and gas companies can access distant mobile devices or tablets without requiring help from users. Instead of mail-in repairs or deskside visits that can take days to schedule, IT managers can often solve problems in less than an hour.

Mobile Solution Components

Schneider, Intel, and Microsoft have an enterprise-level software and hardware solution that delivers mobile workforce management to the refining/petrochemical industry (Figure 1). It includes:

- **IntelaTrac mobile devices**: Tablets running Microsoft Windows and powered by Intel Core vPro processors with Intel AMT. The tablets are ruggedized, designed for the harshest conditions, and rated for hazardous locations. They feature best-in-class security, including:
  - BitLocker® drive encryption with Windows 8.1/10* Pro and Enterprise editions
  - Optimized for Intel® Trusted Platform Module (Intel® TPM) technology
- **IntelaTrac database server**: Microsoft SQL Server*-based database management server
- **IntelaTrac application server**: Microsoft Windows Server*-based integration server (synchronization, scheduling, and extensibility)
- **IntelaTrac web server**: Microsoft Windows Server-based web server (configuration, scheduling, and generating reports)
- **Integration modules**: Software modules that integrate third-party software such as historian, plant automation data, and maintenance programs into IntelaTrac
- **Network connections**: Tablet devices connect to the network either through Wi-Fi or cellular networks

Conclusion

Together, Schneider Electric (Wonderware), Intel, and Microsoft provide a high-performance mobility solution for oil refineries and petrochemical plants. This strategic partnership offers enterprises unmatched near-real-time data visibility in the field, along with access to the wealth of documented knowledge field operators need to be successful in their jobs.

For More Information

Learn more about Schneider Electric, Intel, and Microsoft joint solutions at: [http://campaigns.wonderware.com/campaigns/Pages/mobileworker-home.aspx](http://campaigns.wonderware.com/campaigns/Pages/mobileworker-home.aspx)

Register at Intel IT Center, or visit [intel.com/energy](http://intel.com/energy).

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2. Handheld devices are also available.

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Intel® vPro™ Technology is sophisticated and requires setup and activation. Availability of features and results will depend upon the setup and configuration of your hardware, software, and IT environment. To learn more, visit [http://www.intel.com/content/www/us/en/architecture-and-technology/intel-vpro.html](http://www.intel.com/content/www/us/en/architecture-and-technology/intel-vpro.html).

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