



Protect your investment while
improving performance and safety.

Lifecycle Services for DeltaV™ Systems
Keep your plant running consistently while improving asset
reliability and achieving business goals.



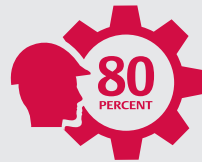
You're expected to keep your control system running smoothly and productively for the next 40+ years.

When you are entrusted with preserving your automation system for the lifespan of your facility, you must ensure it is reliable in order to gain a competitive edge in the market and respond to the changing world around you.

You are also expected to manage the total cost of ownership, making it imperative to follow a comprehensive, proactive maintenance plan, develop a long-term lifecycle strategy for reliability, manage risk, and access the right people and resources necessary to keep your plant performing optimally to achieve your business goals.



“Unplanned downtime due to asset reliability impacts plant safety, as well as availability, with as much as 5 percent of production capacity lost each year due to unplanned shutdowns. Estimates show nearly 80% of these losses are preventable.”
 — ARC Advisory Group, Paula Hollywood, “Passing the Insurance Acid Test with APM,” March 18, 2011.



“US business leaders are increasingly concerned about cybercrime. 69% of US respondents reported they were worried about the impact of cyber threats to their growth prospects.”
 — PwC, 17th Annual Global CEO Survey, January 2014.



“50% of experienced and managerial personnel in national and international oil and gas processing companies are expected to retire in the coming decade.”
 — Society of Petroleum Engineers, “The Great Crew Change: A Challenge for Oil Company Profitability,” April 16, 2011.



Instead of relying on reactive, firefighting methods to handle issues, what if you could keep your system up-to-date and have the necessary information to make decisions on how to effectively optimize your system? Approach your lifecycle planning differently and build a long-term strategy.

Lifecycle Services for DeltaV™ systems provide expertise, technology and processes to help you operate safely, improve asset reliability and optimize process capabilities. Working with Emerson, you'll have the resources to maximize the effectiveness of your system through its lifecycle and reduce costs.

Better manage your total cost of ownership while making continuous improvements to increase efficiency.

You place a lot of effort into developing a maintenance plan so your operators can meet today's demands. But it can be arduous to stay on top of the relentlessly fast pace of changing technology, particularly since keeping current or spending money to upgrade your system may seemingly contradict a lean philosophy to improve quality and lower costs.

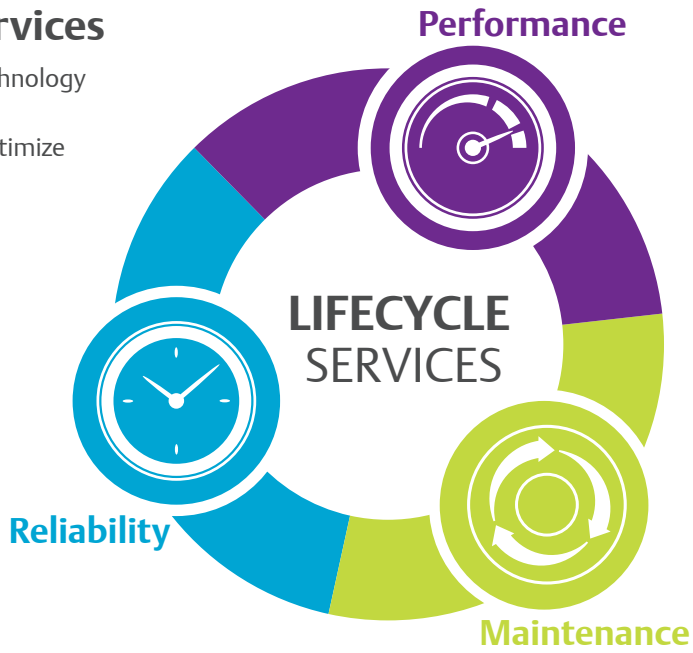
When you partner with Emerson, the result is a well-designed and effectively executed comprehensive maintenance strategy that will allow you to operate your system efficiently and safely. Improve plant reliability with better insight into system and equipment health, and access the right expertise and training to strengthen plant performance.



Your facility can lose millions of dollars in lost production if the control system malfunctions and causes an unscheduled shutdown. Protect your company's investment by implementing the right processes to keep your facility running smoothly and productively.

Emerson Lifecycle Services

provide customers with expertise, technology and processes that help them operate safely, improve asset reliability and optimize process capability.



Operate safely, consistently and economically.

Access the tools, technology and processes needed to identify potential failures early, so your team can quickly respond to emerging problems and keep your system performing at peak efficiency. Factory-certified experts provide faster resolutions to operational issues and minimize the likelihood of future concerns.

Maintenance ▶ Page 6

Optimize your plant performance.

Obtain the right expertise to help you successfully adopt and deploy more complex product features that will optimize the performance of your system. In addition to augmenting your in-house staff with process experts who can get you back on track when your system requires attention, you can upskill your operators on regular operations as well as abnormal process situations in an environment that feels like your plant.

Performance ▶ Page 10

Increase plant reliability and preserve your investment.

Proactively identify reliability issues or cyber threats before they cause system failures that contribute to downtime. By executing a long-term lifecycle reliability strategy, you minimize a myriad of business disruptions by identifying the root cause of potential issues in your system. This will reduce risk and increase system availability and sustainability.

Reliability ▶ Page 8

Improve your competitive advantage and bottom line business results.

Optimize the reliability and performance of your system with 24x7x365 technical support, software updates, and proactive information. The single source for aggregated, critical and personalized data about your platform helps to improve risk management, incident management, and lifecycle management.

Guardian Support ▶ Page 12



Use proactive **MAINTENANCE** to operate safely, consistently and economically.

You are expected to keep your automation system running continuously, without negatively impacting production. But, when faced with persistent changes in technology and a shrinking workforce, your small crew must react quickly to each new maintenance problem.

You must also build a comprehensive maintenance strategy detailing proactive maintenance activities to lower the cost of ownership. You need to access skilled personnel and proven processes to operate long into the future. Unfortunately, when your system goes down, it disrupts the operation of your entire plant and shatters any possibility of meeting your plant's production targets on time. You need to support production changes and demand for increased throughput while minimizing variability and running closer to constraints, all within a set budget. While you do everything possible to get your plant up and running quickly, it is even more taxing if you don't know the source of the problem or how to make improvements to avoid future shutdowns.



"82% of companies with high-performing security practices collaborate with others to deepen their knowledge of security and threat trends."

— PwC, CSO magazine, CIO magazine, The Global State of Information Security® Survey 2014, September 2013.

Maintenance



What if you could have the people who built your system help guide its maintenance strategy?

Keep your system running smoothly



Scheduled System Maintenance protects your automation investment by scheduling planned maintenance visits.

- | | |
|-----------------------------|------------------------|
| 1 System Updates & Hotfixes | 6 Network Integrity |
| 2 Cabinets | 7 DeltaV SIS |
| 3 Controllers | 8 Patch Management |
| 4 Workstations | 9 Virtualization |
| 5 I/O Subsystems | 10 Backup and Recovery |



Emergency Onsite Service offers a team of experts immediately available to reduce or eliminate any unplanned downtime.



SIS Functional Safety Maintenance and Proof Testing Services specialists identify failures, while helping you meet compliance and manage risks.

Protect your control system from critical issues



DeltaV System Health Monitoring Service eliminates manual effort and increases system availability.



Backup and Recovery Services provide a centralized, scalable, single solution for data protection and disaster recovery.

Secure critical parts promptly



Spare Parts Management with DeltaV Extended Hardware Warranty provide direct access to required spare parts and lower total cost of ownership by creating budget certainty.



Extended Computer Availability Service provides factory-certified remanufactured workstations and server computers.



Improve plant **RELIABILITY** and preserve your investment.

You are responsible for protecting your automation investment for the lifespan of your facility. It is imperative that you have the right plan in place for extending the life of your control system. In order to protect your investment and minimize risk, you must also stay on top of cybersecurity threats. You must ensure that your system is secure and consistently receives upgrades and patches to avoid unforeseen issues. Because it takes more than a maintenance plan to keep your system sustainable, you recognize the need for an effective, proactive, long-term approach to keep your control system in prime condition.



“We don’t have to run around and manually do patches anymore. We can really see them all in one place, and easily get the data and reports we require... It saves us much time and effort compared to manual methods.”

— Kurt Russell, Patch Management Service Streamlines System Maintenance at Eli Lilly, Control Global, 2014.

Reliability



What if you could achieve your lifecycle objectives and lower your total cost of ownership, now and in years to come?

Protect your control system from a security breach



Cybersecurity Solutions for DeltaV Systems consist of a comprehensive set of features, products and services including assessment services, expert consultation, patch management services, endpoint solutions and more, to establish a proactive cybersecurity strategy.

Increase system availability while reducing risk



DeltaV Upgrade Service updates your system safely and efficiently, with minimal disruptions to current operations and production.



Power and Grounding Integrity Service allows specialists to investigate, analyze and report recommendations for integrity issues in your plant.



SIS Modification Services ensure straightforward, predictable and documented modifications.

Get proactive to avoid system reliability surprises



Site Evaluation Service delivers an evaluation of your distributed control systems across multiple dimensions, compared against Emerson Best Practices.



Guardian Support Bridge for DeltaV™ v11.3.1 provides a flexible schedule to perform control system upgrades.

Operational Savings **5-10x**

A top reliability program delivers operational savings 5-10 times over maintenance savings.

- Reported by Emerson's Reliability Consulting based on multi-industry study of Best Practices



Optimize your plant PERFORMANCE.



To remain competitive in a demanding market filled with ever-increasing competition, your plant must meet rigorous production goals that require highly skilled processing expertise. However, it is challenging to keep your system running at peak performance around the clock when you're confronted with endless technology changes and complex processes. Your workforce demographics are also changing. A retiring workforce and a continual influx of young, new engineers and technicians who may lack knowhow and expertise make it difficult to make critical decisions about your system when something goes wrong. You need to be able to take advantage of the built-in functions of your modern control system so you can get the full return on your automation investment.

Performance






What if you could increase control and operator performance to maximize your return on investment?




Analyze improvements before deployment with Process Simulation

-  **Digital Twin** helps you validate changes to the control strategy before deploying them to production. It also lets operators practice responding to regular and abnormal process situations in an environment that feels like your actual plant.
-  **Mimic Simulation Software** provides dynamic, first principle, process modeling objects that simulate accurate, real-time plant behaviors. Aspen HYSYS® can also be easily integrated with Mimic.

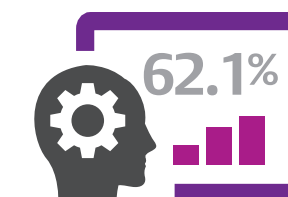
Augment your team with Control Performance Solutions

-  **Control Performance Discovery Studies** involve Emerson consultants who analyze data and provide guidance on improvement opportunities to help you improve operational performance.
-  **Control Performance Improvement Projects** can be used to implement remedial actions previously identified as improvement opportunities or to solve a variety of problems.
-  **Control Performance Service Programs** use a team of expert consultants to help you maintain, sustain and enhance your control performance.

Achieve your business goals with Operator Performance Solutions

-  **Alarm Management** services and solutions include turn-key alarm management services for new or existing plants, continuous KPI monitoring against industry standards, and the ability to eliminate alarm floods, helping you improve alarm performance while increasing operator efficiency.
-  **DeltaV Logbooks Services** help maximize functionality with worry-free installation, setup and configuration of DeltaV Logbooks.
-  **Advanced Operator Graphics Services** include overall display philosophy review and design services, consultation, and implementation services designed to increase process situational awareness, allowing you to run your plant safer and more efficiently.

concerns over
GAPS
in training



Some employees expressed concerns over gaps in appropriate training... 62.1% are waiting to receive technical training that they feel they should have already received.

— "Training and Development Survey." SPE Research, December 2012.



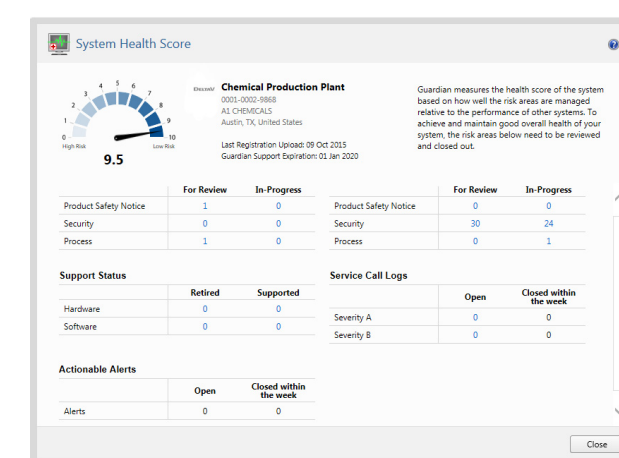
What if you could improve your competitive advantage and bottom line business results with one critical, prognostic service?



Make better decisions and reduce risk with **GUARDIAN SUPPORT**.



Guardian™ Support is the core element of your Lifecycle Services program. This prognostic service is designed to optimize the reliability and performance of your system, and it includes access to all software updates. Guardian Support is the single source for aggregated, critical and personalized data about your platform architecture and applications. It delivers risk, lifecycle and incident management with 24x7x365 expert technical support.



Guardian Screenshot

Risk Management

- Leverage your system-specific information to proactively manage risk with a secure web dashboard and push notifications.
- Microsoft updates are tested, confirmed for compatibility and bundled for easier installation.
- A visual dashboard gauges overall system health, making it easy to see which systems need attention or are at low risk.

Lifecycle Management

- Match enrolled hardware/software content to its associated lifecycle status to better plan for upgrades and replacements.
- An accurate inventory of all system components and licensing is readily viewable through a secure site.
- The Global Service Center provides expertise and advice for maintaining your system, with resources to help troubleshoot or extend knowledge.

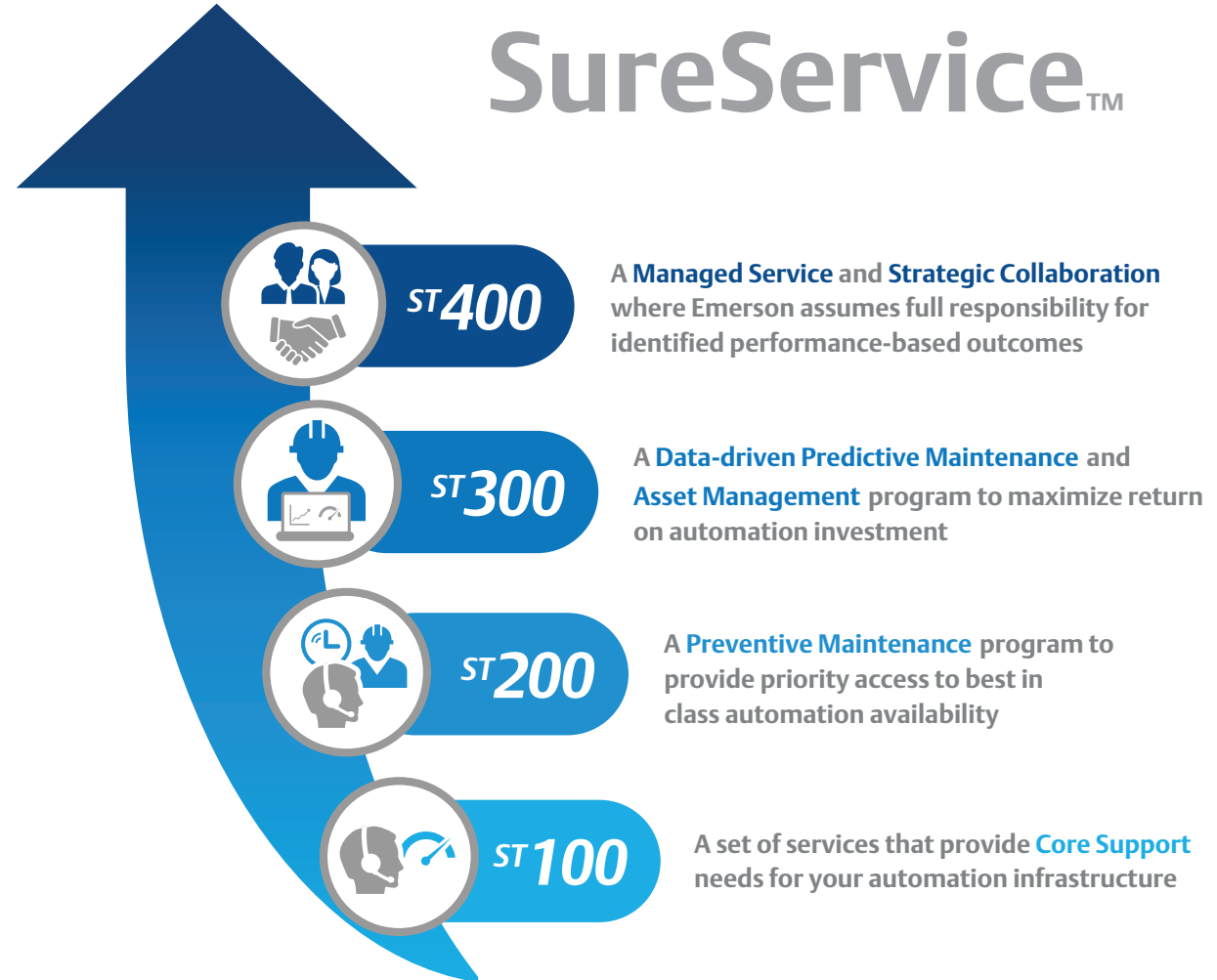
Incident Management

- Support is always available, with access to experts at all times to help you through critical issues.
- Diagnostic system data, collected by our specialized tools, helps us identify and analyze issues faster, while Knowledge Base Articles help you fix issues quickly and correctly.
- A historical record of your system issues makes it easy to collaborate or share information across your enterprise.



Packaged lifecycle service offerings ensure you can more efficiently manage and maintain your system.

SureService™



Our SureService Program offers you flexibility through its four tiered packages of services to support or replace your existing maintenance-management processes. The progressive tiers provide flexibility to decide how much to involve Emerson in taking care of your system maintenance, reliability, and performance needs. Each of the four service tiers this program offers build upon one another, allowing you to find the package that best meets your needs.

SURESERVICE makes it easier to fill the gaps between where you are now and where you want to be in the future.

Maintaining a control system is a complex task. Maintaining multiple systems or a multi-site fleet of control systems can be even more complex. Every system and site has different challenges, a unique history and a particular way of doing things. You need to have the right people, tools and processes to develop and execute a successful strategy. Working with Emerson will allow you to focus on proactive and predictive efforts to unlock the full value of your system. When considering the SureService program—with four tiered packages of Lifecycle Services to fill the gaps—you have the flexibility to decide how involved Emerson is in your system maintenance, reliability and performance. Emerson’s experts will assist in benchmarking against your goals and best practices and help you select the tier that best meets your needs.



“End users have decided to focus on core competencies and outsource automation system maintenance due to the increasingly specialized knowledge set and labor required to keep automation assets running optimally.”

—ARC Advisory Group, Supplier Provided Automation Services: Global Market Research Study, 2014.

Hands-on training from Emerson's EDUCATIONAL SERVICES provides your team with practical skills to help ensure your facility's peak performance levels.

Acquiring and retaining qualified personnel is a major challenge. As your workforce ages, automation experts retire and there's a shortage of experienced engineers and operators to fill the void. Make a smart investment by transferring knowledge and skills to capable personnel. By continually increasing your employees' skills, you boost job satisfaction and increase employee retention.

Classes with a high level of application expertise and practical field experience from Emerson Certified Instructors can dramatically boost your personnel's skills and performance. Hands-on training from Emerson's Educational Services provides your team with practical skills to help ensure your facility's peak performance levels and profits. Comprehensive, customized training programs are designed to your job or application requirements. Flexible training modules are offered in an easy, intuitive environment and in a variety of formats including blended, eLearning, virtual training and instructor-led classes.



“The training our operators received was second to none. The real-life exercises put our operators at the top of their game and helped make this one of the best startups I’ve ever seen. We finished a day early with no injuries or environmental incidents.”

— Operations Manager in the Refining Industry

“The workshop was great! I liked having the hands-on training. It is what made everything really come together.”

— Maintenance Worker in the Chemical Industry

Traditional Classroom

Instructor-led classes provide local language support with the equipment and tools necessary for hands-on deep dives into engineering, maintenance, and operations training. Courses can be taken at an Emerson regional training center, at a local site, or in your facility.

Virtual Classroom

Gain all the benefits of learning in a classroom without the cost or inconvenience of traveling. Students participate in live classes in their own locations while interacting with an instructor based at an Emerson facility. In a virtual learning environment, students also interact with the equipment and other students in real-time.

Competency Development Program

Fill your knowledge and skill gaps using a consultative process to understand specific issues, problems and the impact on operations caused by a lack of trained personnel. A discovery assessment will recommend proposed education solutions.

eLearning

In an eLearning setting, students learn at their own pace, on their own schedule, online with no travel required. A Learning Management System tracks their progress.

Blended Learning

With this option, state-of-the-art media and technology are combined to create optimum training programs and budgets. Blended learning offerings include virtual live instructor sessions, cloud classrooms with recorded lectures and demonstrations, and hands-on workshops performed on a virtual system in the cloud.

DeltaV Operator Training Solutions

Customized, instructor-led curriculum packages expose operators to what they will experience in their actual control room in a simulated environment. Other options for complete, process specific, dynamic simulation-based training platforms provide a rapidly deployable yet long-term training solution for your operations staff.



The Emerson Global Service Center provides immediate access to technical support on a 24x7x365 basis.

The Global Service Center and Product Engineering organization includes technical support engineers, laboratory engineers, support personnel, and experienced executive and senior technical managers. Engineers for every core technical product discipline are continuously and immediately available to fully support all aspects of Emerson products.

The Global Service Center has a fully-equipped laboratory for issue replication and simulation. The large, modern facility features extensive problem verification labs and powerful analytical and information retrieval tools.

The Global Service Center and Product Engineering staff provide expert technical consultation. These engineers can perform direct examination and analysis of your control system via remote system diagnosis.

When you call for support, Customer Support Engineering uses a well-defined escalation process based on severity and impact to each customer. Rapid response ensures proper resources are engaged to manage and resolve critical situations that directly impact production. Call activity is regularly monitored, and actionable information is communicated to the installed base via Knowledge Base Articles.

Emerson uses a Service Management System to provide technical, customer, system, product and service information to ensure effective and consistent services. This global information system ensures real-time sharing of system data and call records with local Emerson support locations throughout the world.

Assistance from the Global Service Center is gained through enrollment in the Guardian Support program.

Emerson Lifecycle Services for DeltaV Systems

	Maintenance	Reliability	Performance
Guardian Support	■	■	■
SureService	■	■	■
DeltaV Mobile	■	■	■
Educational Services	■	■	■
Resident Engineer	■	■	■
Scheduled System Maintenance	■		
Emergency Onsite Service	■		
Spare Parts Management	■		
DeltaV System Health Monitoring	■		
Backup and Recovery	■		
Extended Hardware Warranty	■		
Extended Computer Availability	■		
SIS Functional Safety Maintenance and Proof Testing Services	■		
Site Evaluation Service		■	
DeltaV Upgrade Service		■	
Cybersecurity Assessment Services		■	
Application Whitelisting		■	
Endpoint Security		■	
Automated Patch Management Service		■	
Security Information and Event Management (SIEM)		■	
Network Security Monitor		■	
Cybersecurity Emergency Incident Response		■	
Cybersecurity Incident Response and Forensic Investigation		■	
Cybersecurity Site Policies and Procedures Development		■	
Cybersecurity Site Incident Response Plan Development		■	
Power Quality and Grounding Integrity Service		■	
SIS Modification Services		■	
Guardian Support Bridge for DeltaV v11.3.1		■	
Process Simulation			■
Digital Twin			■
Mimic Simulation Software			■
Control Performance			■
State Based Control			■
Advanced Control			■
SmartProcess™			■
Operator Performance Solutions			■
Alarm Management			■
Advanced Operator Graphics			■
DeltaV Logbooks Services			■



Develop proactive maintenance strategies to operate safely, improve reliability, and optimize process capabilities and performance.

Operate consistently and economically, preserve your investment and strengthen plant performance. Access the right people and resources necessary to achieve your business goals.

To learn how comprehensive Lifecycle Services solutions address your process management needs, contact your local Emerson sales office or representative, or visit www.emerson.com/DeltaVLifecycleServices.

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