PTC Integrity™ Lifecycle Manager™

Integrity Lifecycle Manager, a PTC solution helps organizations accelerate product innovation by reducing complexity, improving collaboration, and automating best practices for software and systems engineering. Integrity Lifecycle Manager, a member of the Integrity family, is a flexible, process-based ALM (Application Lifecycle Management) platform that helps teams deliver higher quality, more innovative software and systems with less risk.

In today's world, the demand for smarter, more connected products is increasingly fulfilled through software and systems. Software and systems – whether embedded in a product or providing supporting functionality – are key to driving product differentiation and profitability. Business analysts, architects, engineers, developers, quality managers, testers, partners, suppliers, and other stakeholders use Integrity Lifecycle Manager as the means for collaboration and control over the end-to-end product development lifecycle.

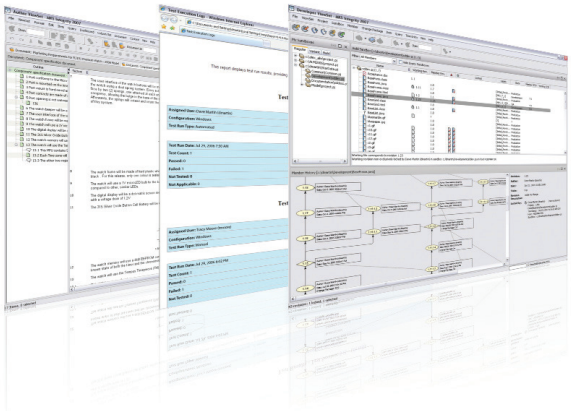
With seamless, collaborative management of all activities and assets, the Integrity Lifecycle Manager platform helps software and systems engineering teams achieve greater transparency, better productivity, and shorter cycle times across the entire development lifecycle.

What makes integrity different?

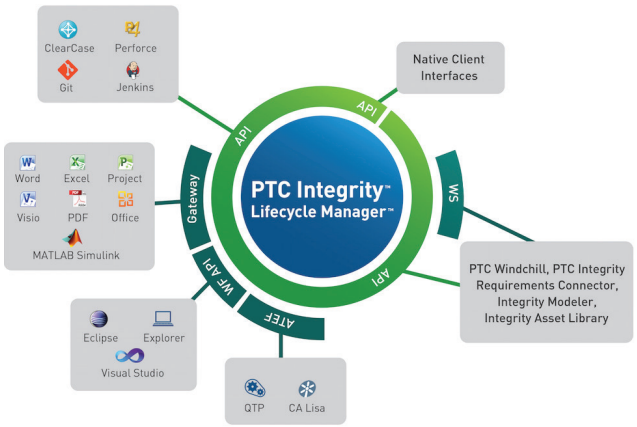
All too often, organizations struggle to gain an end-to-end view of assets that span multiple tools, with meta-data stored in multiple, disjointed repositories. The result is a lack of visibility and traceability across the lifecycle, higher defects, and longer development cycles.

Our solution provides a unified, global development platform that supports all activities and assets associated with the engineering and delivery of applications and products.

- **Collaboration, change control, and configuration management for all lifecycle assets (not just source code)** – Beyond the immediate impacts for traceability and control, this capability opens up unprecedented levels of smart reuse across the development lifecycle.



- **Rapid configurability** – Templates for many development methods can be used out-of- the-box or configured. Configurability increases the business value delivered by this platform while reducing the time-to-value and total cost of ownership.
- **Incremental implementations, unified platform** – Integrity Lifecycle Manager can comprehensively address the development lifecycle and support incremental deployment. One platform means simplified administration, reduced training costs, and a single price per user. When you need to expand capability, you already own the platform.
- **Integrate easily to leverage existing investments** – Whether it's an incumbent source control tool your organization has customized or a PLM system that must deliver real-time data, Integrity Lifecycle Manager has out-of-the-box integrations to popular tools, rich APIs, and tailored integration toolsets aimed at specific needs within software, systems, and product engineering. It integrates with PTC Windchill and PTC Integrity Modeler to provide access and transparency of data spanning your systems, software, and product engineering lifecycle.
- **Enterprise scalability, reliability, and data integrity** – In use by some of the largest and most demanding organizations in the world, Integrity Lifecycle Manager readily scales from 10 to 10,000 users. One system to manage and a unified data model to control means an elimination of data redundancy and an infrastructure that is more stable, secure, and scalable.



How the platform works

The Integrity Lifecycle Manager platform is designed to work with an enterprise-class Oracle or Microsoft SQL Server database repository. It provides access – through a native client, Web, command line, rich Java, C, or Web Services API – to capabilities that enable the definition, orchestration, and management of assets and processes spanning the entire development lifecycle. A unified data model and federated repository houses all processes, activities, assets, and source code.

Items

Items are the basic building blocks of the Integrity Lifecycle Manager data model, representing the information assets and process objects associated with development (for example, requirements, design documents, specifications, test cases, source code, and change requests). Standard items include all the assets needed to manage the end-to-end development lifecycle. Every item is configurable and contains metadata and history about that item. New item types can be added as needed to address your organization's specific requirements.

Relationships

Definable, named relationships between items are what provide structure to the system, establishing hierarchies and traceability. Items can have an unlimited number of relationships, but standard relationships are defined in the solution templates (that is, a test case relates "upstream" to an originating requirement). Each organization can configure relationships to reflect its own unique needs, as well as add new relationships as required. Relationships can be used to group items for management and impact analysis as well as driving automated metrics and suspect tracing.

Common services

The PTC architecture broadens to a flexible and extensible process layer for process and data connection across every stage of the development lifecycle. PTC's platform approach enables organizations to scale in terms of data model, physical implementation, and integration reach—and PTC has live deployments with tens of thousands of users in globally distributed organizations.

Workflow and process automation

Every item type has its own enforceable workflow that describes how it moves from state to state, complete with definable rules, full audit trails, and security. Escalations, conditional assignments, notifications, and external processes can all be defined and initiated as part of Integrity Lifecycle Manager's process automation.

Configuration management

Every artifact – not just source code – can be versioned, branched, merged, and baselined as part of a configuration. This translates into significant reuse-by-reference, at multiple levels of abstraction, throughout the entire lifecycle and across products or projects.

Change management

Full change management (change requests, change orders, change packages, and so on) can be applied to any artifact, extending the level of control and mitigating risk throughout the development lifecycle. Applying this level of control greatly streamlines the effort needed to achieve compliance with standards like CMMI, Automotive SPICE, or functional safety frameworks like IEC 61508 or ISO 26262.

Viewsets

Configurable views for every type of user so that authoring and interaction can be performed in the appropriate context. Document list, tree, detail, and filtered views and integrations into productivity apps (Word, Excel, and Project) and IDEs (Eclipse and Visual Studio) ensure that each contributor can participate in development in a manner that reflects their discipline and responsibilities.

Security and permissions

Centrally administered enterprise-class security and audit, including domain-based authentication, item-level access permissions, attribute control (viewing, editing), e-signatures, state-based approvals, and full audit reporting and control capabilities are included.

Reporting and metrics

As a unified platform, Integrity Lifecycle Manager greatly simplifies the effort needed to surface metrics for all activities within a unit of work. Real-time data populates dashboards, charts, and reports with full drill-down capability to discover the causes behind the metrics. In addition to measuring process efficiencies, this approach facilitates a management-by-exception approach and improves status reporting across all project assets and activities.

System monitoring and reporting

Performance Advisor provides unprecedented visibility into hardware and software environments for easy monitoring and reporting of its health.

World-class functionality throughout the lifecycle

Integrity Lifecycle Manager can be deployed to address the individual needs of any of the domains traditionally addressed by stand-alone point tools. The value to an organization accelerates as the number of functional areas managed by Integrity Lifecycle Manager increases, particularly as the unified platform helps avoid the "silo" effect created when development assets and activities are managed in disparate tools.

Standard functionality within the Integrity Lifecycle Manager platform includes:

- Change control
- Configuration management
- Requirements management
- Test and quality control management
- Source code management
- Build, release, deployment management
- Issue and defect management
- Process and workflow visibility and management
- Project management

Connecting the technology value chain – integrations

Incumbent point tools and adjacent systems are a reality in software and product development of any kind, so Integrity Lifecycle Manager is designed to integrate as needed to these other systems, ensuring seamless connections across all assets and activities. The architecture exposes data through standards-based interfaces and Java, SOAP, and RESTful web services and supports both interactive tool integrations and process or event-driven server-to-server integrations.

Integrity Lifecycle Manager provides standards-based solutions enabling organizations to integrate point tools, integrate with other enterprise applications, and connect with partners and suppliers.

Solutions

The end-to-end lifecycle management capabilities in the platform, coupled with the powerful integration toolsets available, mean Integrity Lifecycle Manager can deliver solutions that precisely match the needs of even the most demanding global enterprises.

PTC has collected the best practices and lessons learned from implementations with our global enterprise customers; we offer these as solutions that address the needs of specific industries or the demands of specific process and governance frameworks.

Aerospace/defense

Integrity Lifecycle Manager enables large global teams to produce systems and products with unprecedented levels of complexity and interdependence (often also facing regulatory or export control scrutiny).

Electronics

Integrity Lifecycle Manager ensures that mobile device and other electronics manufacturers with embedded software and systems can address the incredibly complex technical challenges and variations in devices, carriers, and regions in one of the fastest growing and competitive markets.

Automotive

With the accelerating amount of software onboard modern automobiles, Integrity Lifecycle Manager helps solve challenges relating to quality, process maturity (SPICE, CMMI), safety (ISO 26262 and IEC 61508), and data exchange between OEMs and suppliers (including AUTOSAR and ReqIF).

Medical devices

Integrity Lifecycle Manager helps medical device customers radically improve their ability to address compliance and audit demands from the FDA (United States), CE Mark (Europe), MHW (Japan) and other regulators for medical devices that contain increasing amounts of safety-critical software and systems.

Other vertical markets

PTC has a broad customer base with solutions that also address the needs of avionics, financial services, government, life sciences, telecom, and retail customers. Tailored solutions and deep domain expertise enable reliable implementations with rapid time-to-value.

Process and methodologies

Integrity Lifecycle Manager automates and enforces processes for requirements management, change request initiation, control and approval, promotion to production, test management, and separation of duties, while providing detailed audit trails and reporting over all system transactions and activities.

Platform support and system requirements

For more information, visit: PTC.com/go/integrity.

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