

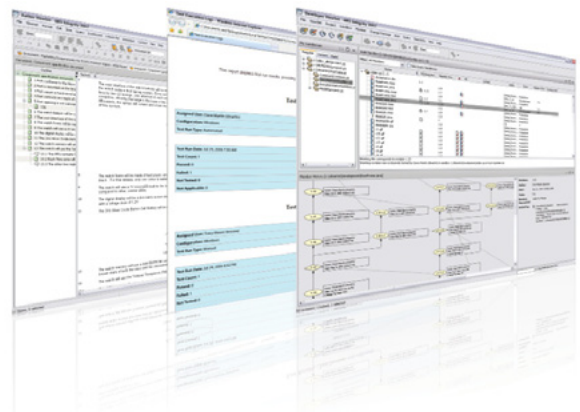
The Integrity Platform

Integrity, a ptc product, is a unique process-based change and configuration management platform, supporting enterprise solutions for engineering change management and application lifecycle management (ALM). Integrity enables organizations to solve the complexity involved in developing today's products and applications. With seamless, collaborative management of all activities and assets, Integrity delivers greater transparency, better productivity and shorter cycle times across the entire development lifecycle.

What Makes Integrity Different?

As a global platform, Integrity supports all activities and assets associated with the engineering and delivery of applications and products. Business analysts, architects, engineers, developers, quality managers, testers, partners/suppliers and other stakeholders (across multiple locations and organizations) all use Integrity as the means for complete collaboration and control over the end-to-end development lifecycle.

- **Collaboration, change control and configuration management for everything (not just source code) –** Beyond the immediate effects for traceability and control, this capability enables unprecedented levels of reuse across the development lifecycle.
- **Rapid configurability –** Templates for traditional, Agile and other methodologies can be used 'out of the box', or configured. Configurability increases the business value delivered by Integrity while reducing both the time-to-value and total-cost-of-ownership.
- **Incremental implementations, one platform –** Integrity can comprehensively address the development lifecycle, yet supports incremental deployment. One platform means simplified administration, reduced training costs and a single price per user – because 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 PPM system that must deliver real-time data, Integrity has out-of-the-box integrations to popular tools, rich APIs – and tailored integration toolsets aimed at addressing specific needs within software engineering.
- **Enterprise scalability, reliability – and data integrity** – In use by some of the largest and most demanding organizations in the world, Integrity readily scales from 10 to 10,000 users. One system to manage and one data model to control means an elimination of data redundancy and an infrastructure that is more stable, secure and scalable.

How Integrity Works: The Platform

The Integrity platform is a J2EE client-server application that sits on top of an enterprise-class Oracle, SQL or DB2 database repository. It provides access through a native client, Web, command line or 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. This unified data model and federated repository houses all processes, activities, assets and source code.

Items

The basic building blocks of the Integrity data model, items represent the information assets and process objects associated with development (e.g., requirements, specifications, test cases, source code, change requests, etc.). Standard items in Integrity 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 needs.

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 (e.g. a test case relates 'upstream' to an originating requirement). Each organization can configure relationships to reflect its own unique needs – and add new relationships as required – relationships can be used to group items for management and impact analysis, as well as to drive 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. This capability spans all major enterprise platforms, including distributed, IBM i and System z/mainframe. 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 & 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's process automation.

Configuration Management: Every item (not just source code) can be versioned, branched, merged and baselined as part of a configuration. This capability 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 (e.g., change requests, change orders, change packages, etc.) can be applied to any item in Integrity, 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 such as CMMI or ITIL.

Viewsets: Integrity offers configurable views for every type of user so that authoring and interaction can be performed in the appropriate context. Document views, list views, tree views and detail views – as well as integrations into productivity apps (e.g., Word, Excel, Project) and IDEs (e.g., Eclipse, Visual Studio) – ensure that each contributor can participate in development in a manner that reflects their discipline/responsibilities.

Security & Permissions: Integrity enables centrally administered enterprise-class security and audits, including domain-based authentication, item-level access permissions, attribute control (viewing, editing), e-signatures, state-based approvals and full audit reporting and control capabilities.

Reporting & Metrics: As a unified platform, Integrity 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.

World-Class Functionality Throughout the Lifecycle

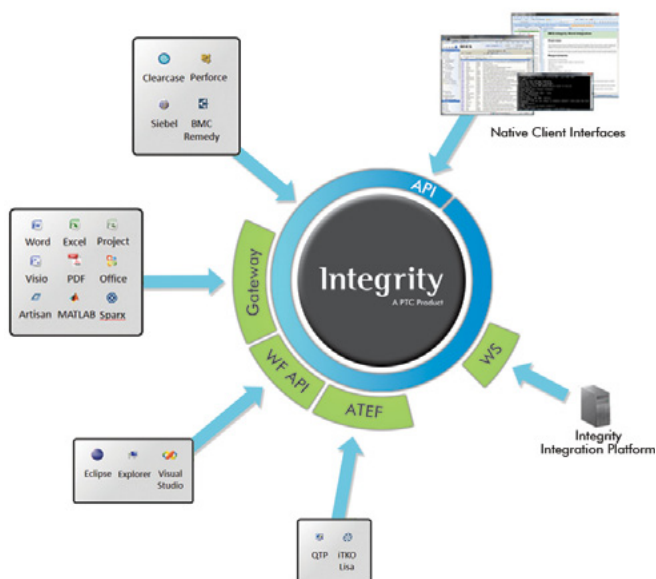
Ranked highly in reports by industry analysts, Integrity can be deployed to address the individual needs of any of the domains traditionally addressed by stand-alone point tools. The value to your organization accelerates as the number of functional areas managed by Integrity increases, particularly since the unified platform helps you avoid the 'silo' effect created when development assets and activities are managed with disparate tools.

Standard functionality within the Integrity platform includes: Change Control, Configuration Management, Requirements Management, Test & Quality Management, Source Code Management, Build/Release/Deployment Management, Issue & Defect Management, Process & Workflow Management and Project & Portfolio Management.

Connecting the Technology Value Chain – Integrations

Incumbent point tools and adjacent systems are a reality in enterprise-class development, so Integrity is designed to integrate as needed to these other systems – ensuring seamless connections across all assets and activities.

The Integrity architecture for integrations can be broken down into two main classes: interactive tool integrations – and process – or event-driven server-to-server integrations.



Under these two categories, Integrity provides standards-based solutions that enable organizations to:

- Integrate point tools across the development lifecycle
- Integrate with other enterprise applications
- Connect partners and suppliers

Our Integration Technologies

PTC Gateway: A robust, full-featured client-side integration technology that builds on the core APIs; it provides a basis on which to standardize existing point tool integrations and enable the creation of new point tool integrations within the field.

Integrity Integration Platform: A standard and generally available server-side integration technology for system-to-system-based integrations that include process-based transformations and data manipulation.

Base Product APIs: A rich and comprehensive set of interfaces for Java and C programming as well as Web Services-based communications.

Automated Test Execution Framework: Working in conjunction with the Integrity Agent, this framework provides a set of callback APIs and example connectors to ensure that solution developers can launch test execution products and capture results within the PTC repository.

Solutions

The end-to-end lifecycle management capabilities in the platform, coupled with the powerful integration toolsets available, mean that Integrity 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/governance frameworks.

Aerospace/Defense: We enable managed innovation and collaboration among large global teams – often facing regulatory or export-control scrutiny – to produce systems and products with unprecedented levels of complexity and interdependence.

Electronics: We ensure that mobile device manufacturers and other electronics manufacturers with embedded software 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 on board today's automobiles, we help solve challenges related 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: Our customers in this market significantly 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.

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 automates 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 across all system transactions and activities. This is reflected in solution templates for processes and methodologies, including Agile Development, CMMI, ITIL, Sarbanes-Oxley and ISO/IEC 15504 or SPICE.

Disciplines

Integrity offers deep, rich functionality to support all the traditional disciplines across the development lifecycle. This functionality includes: Change Control, Configuration Management, Requirements Management, Test & Quality Management, Source Code Management, Build/Release/Deployment Management, Issue & Defect Management, Process & Workflow Management, and Project & Portfolio Management.

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