DASSAULT SYSTEMES

QUALITY BY DESIGN
THE 3DEXPERIENCE® QUALITY MANAGEMENT SYSTEM

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INTRODUCTION

Dassault Systèmes is a catalyst for human progress. We empower businesses and individuals with collaborative virtual universes to envision and manifest sustainable innovations. Internally, we cultivate a culture of inquiry and exploration, encouraging our employees to challenge the status quo and collaborate to drive meaningful change. As a proud pioneer in computer-aided design since 1981, our nearly 24,000 team members provide value to over 370,000 customers.

Our sectors:

- Life Sciences & Healthcare
- Infrastructure & Cities
- Manufacturing

Disclaimer

This content represents the quality management practices at Dassault Systèmes as of April 2025. The content of our practices set forth herein is subject to change at the sole discretion of Dassault Systèmes. "We" and "our" as used throughout this document refer specifically to Dassault Systèmes.

Virtual Twin Experiences

Our virtual experience platform is called **3D**EXPERIENCE®. It provides a collaborative environment where individuals and businesses can capture knowledge and envision new experiences—specifically products and services—by generating virtual twins of these experiences.

Clients use the 3DEXPERIENCE platform to design and test their ideas in a virtual space, enabling them to excel in today's experience-driven economy. This groundbreaking approach allows for precise, safe, and effective testing. By creating virtual twins of the real world, our customers push the boundaries of innovation.

3D Modeling, Simulation, Intelligence, Collaboration

The 3DEXPERIENCE platform integrates applications across our brands, covering domains such as 3D modeling, simulation, information intelligence, and social collaboration. Users benefit from a unified environment that supports the design and development of innovative solutions.

The platform is available on the cloud (public or private) or on premise.

Our 3DEXPERIENCE platform brands:

COMMITMENT TO QUALITY

This whitepaper outlines the quality management processes used to develop the **3D**EXPERIENCE platform, plus legacy offers such as: SIMULIA's structural simulation offerings (Abaqus, fe-safe, and Tosca) and SOLIDWORKS solutions. Our multi-faceted and proactive approach is based on industry best practices and designed to manage risk and enable the regulatory commitments of our customers.

Our Quality Philosophy

Planned and systematic quality management is the mechanism to create value, satisfy customer needs, and drive continuous improvement. By embedding quality into every level of the organization, each stage of the software development lifecycle (SDLC), and every software release, we help ensure that our solutions meet and exceed customer expectations.

Quality Management System

Our Quality Management System (QMS) is based on an established process model that allows us to effectively manage risk and produce products and services that meet customer requirements. Our QMS is centrally administered through a global operational model and is subject to routine auditing. Central to our QMS is the integration of customer feedback and best practices to maintain the highest standards of quality and reliability.

ISO 9001:2015

Our QMS is certified to ISO 9001:2015 by SGS International Certification Services for the design, development, delivery, deployment, cloud operations, and support of software portfolios. This standard is foundational to the Dassault Systèmes QMS, underscoring our dedication to providing superior products and services. The framework guides our processes, ensuring consistency, reliability, and continuous improvement while mitigating risks.

Embracing ISO 9001:2015 empowers us to enhance operational efficiency, meet evolving customer needs, and maintain high performance standards. It also fosters a company culture of quality and accountability, engaging all team members in the pursuit of excellence. Through established performance metrics, internal and external audits, and proactive feedback, we continuously identify and address areas for improvement.

Download our ISO 9001:2015 certificate

Defining Elements

Our QMS is defined by a quality policy, quality objectives, and a quality manual.

The **Quality Policy** outlines the critical factors for achieving customer success and organizational effectiveness. It is shared with employees during onboarding and remains accessible internally. This policy serves as the cornerstone of our quality approach, defining expectations such as:

- Delivering solutions that consistently meet stakeholder expectations and fulfill expectations for quality, content, and cloud deployment.
- Leveraging data-driven decision-making via the **3DEXPERIENCE** platform.
- Cultivating a skilled workforce committed to innovation and collaboration.
- Meeting Service Level Agreements (SLAs) for cloud deployments.
- Enhancing operational efficiency to better serve customers.
- Maintaining the ISO 9001 QMS certification.

Our **Quality Objectives** and Key Performance Indicators (KPIs) provide measurable goals that guide software and quality engineering teams. These objectives are reviewed annually to help ensure relevance and continuous improvement.

The **Quality Manual** maps the processes of the QMS to the ISO 9001:2015 requirements and is available to all employees. An annex to the quality manual maps the requirements of ASME NQA-1 for nuclear quality assurance.

Continuous Improvement

Dassault Systèmes constantly refines its processes to improve performance and meet customer expectations. We identify opportunities for improvement through operational performance metrics, audits, data analysis, corrective actions, and feedback. Operational teams drive KPIs to enhance effectiveness, efficiency, and customer satisfaction. When significant issues arise, teams perform root cause analyses to address problems and implement Corrective and Preventative Actions (CAPAs) to prevent recurrence. This iterative approach improves practices, increases efficiency, and helps ensure high-quality outcomes, while keeping Dassault Systèmes compliant to the QMS.

Security & Privacy

In addition to our QMS, we run a proactive Information Security and Privacy Management System (ISPMS) that is based on the core values of confidentiality, integrity, availability and accountability. It is ISO/IEC 27001:2022 and ISO/IEC 27701:2019 certified and subject to routine auditing.

Learn more:

- Cloud Security and Privacy
- Application Security Program
- ISO/IEC 27001:2022 Certificate
- ISO/IEC 27701:2019 Certificate

AN ORGANIZATION BUILT FOR QUALITY

Dassault Systèmes maintains an enterprise model that defines the mission, description, deliverables, KPIs, profile, and skills associated with each employee's role. Global process and operational leaders are responsible for establishing, maintaining and enforcing policies, standards, guidelines and procedures at a global level.

R&D Executive Committee

The Research & Development (R&D) Executive Committee is responsible for defining strategic objectives and ensuring their alignment with the organization's goals.

They oversee resource allocation, integration of quality initiatives, and effectiveness of the QMS.

The executive committee's responsibilities in regards to quality include:

- Ensuring quality objectives are compatible with the strategic direction of the organization.
- Ensuring QMS requirements are integrated into the organization's business processes.
- Ensuring the QMS is adequately resourced.
- Communicating the importance of the QMS.
- Ensuring the QMS achieves its intended outcomes.
- Promoting continuous improvement.

R&D GOVERNANCE

A robust governance framework helps ensure accountability and continuous improvement across our R&D organization. Each team has explicit deliverables and KPIs related to quality management.

Strategic Planning

The strategic planning teams develop a comprehensive three-year strategic plan, incorporating customer insights, competitive analysis, and value proposition assessment to address business challenges. This plan is further broken down into actionable initiatives for the coming years.

Our strategic planning process includes a structured approach for requesting new features or enhancements. Justifications for each request are essential for approval and each feature is monitored through our internal system as they are built and released.

Processes

The R&D process team defines and manages formal processes and procedures. They work closely with process owners to understand business needs, resolve compliance challenges, and drive continuous improvements to the QMS.

Release Operations

R&D release operations teams help ensure each release meets its KPIs for quality, scope, and schedule while mitigating risks. Their responsibilities include:

- Creating release schedules with clear gates and deliverables.
- Monitoring adherence to these gates and addressing risks promptly.
- Adjusting design and development activities or modifying release content when necessary.

These teams hold ultimate responsibility for the overall quality of releases. They approve final releases and provide regular updates to the R&D executive committee on release progress and status.

Compliance & Risk

An independent R&D compliance and risk team runs a formal audit program to evaluate Dassault Systèmes' adherence to internal processes and industry standards such as ISO 9001, ISO 27001, and ISO 27701. Key activities include:

- Verifying that processes are managed, monitored, and effective.
- Conducting annual internal audits and hosting second-party audits.
- Managing third-party audits.
- Conducting management reviews of audit results.

Audit findings and Corrective and Preventative Actions (CAPAs) are tracked through a formal governance program and information system. This compliance and risk program supplements internal control and auditing activities managed by the Dassault Systèmes Risk and Internal Control organization, ensuring robust oversight across the organization.

Software Engineering

Our software engineers focus on designing, developing, and enhancing software to deliver applications, services, and technologies that provide valuable user experiences. They implement functional enhancements to help ensure end-user satisfaction and productivity, continuously refining the solutions based on industry needs and user feedback.

Quality Engineering

Operating independently from software engineering teams, the quality engineering teams conduct comprehensive quality assessments to help ensure software reliability and performance. Their primary objectives include:

- Enhancing test coverage to improve product quality and meet customer expectations.
- Optimizing test cycles to accelerate delivery.
- Utilizing automation tools to increase efficiency and reliability.
- Applying a risk-based approach to testing.

To achieve these goals, these teams leverage methodologies such as automated testing, performance testing, and load testing. This systematic approach helps ensure rigorous validation processes, supporting the delivery of high-quality solutions.

User Assistance

User assistance (UA) teams focus on creating and continuously improving resources that empower users to effectively engage with our solutions. Their work includes:

- Developing comprehensive support materials such as UA guides and in-app assistance.
- Regularly updating content based on user feedback and evolving product features.
- Collaborating closely with product development teams, UX designers, and customer success teams to help ensure alignment with the overall user experience.

By integrating user assistance content seamlessly into the platform, we enhance usability and satisfaction, ensuring clients can maximize the value of **3DEXPERIENCE** solutions.

EMPLOYEE COMPETENCE

Hiring

Dassault Systèmes uses a global framework for job roles to define the competency requirements for each position. These defined competencies guide human resource processes to help ensure the selection of qualified candidates and to support employees in achieving excellence through targeted objectives and certification plans.

Hiring plans are developed through an annual planning process, ensuring alignment with organizational goals. The recruitment process adheres to formal procedures, incorporating local practices to meet statutory requirements and help ensure compliance.

Onboarding and Training

All new employees at Dassault Systèmes must agree to abide by the company's Code of Business Conduct, IT charter, and data protection policies. Mandatory ethics and compliance training, including information security and privacy, is required for all employees during onboarding.

Managers play a key role in evaluating employee competencies and developing personalized training plans tailored to job roles and skill levels. These plans are implemented and tracked through our proprietary **3D**EXPERIENCE University.

Third-Party Supplier Management

Products and services procured by Dassault Systèmes are governed by formal policies and procedures established by the Global Procurement team. These policies include selection criteria based on business risk, and guide the sourcing teams to find the most suitable supplier for meeting the organization's requirements in terms of price, quality, quantity, timing, sustainability, and risk management.

Critical suppliers—those providing goods or services essential to our operations and regulatory compliance—are closely monitored by business teams to help ensure that supply chain disruptions do not compromise the company's ability to meet customer and regulatory requirements.

DEVELOPMENT PROCESSES AND TOOLS

The software development lifecycle (SDLC) is the foundation of our QMS. It provides a vehicle for upholding quality at every stage—design, development, delivery, deployment, and support. Our SDLC is a process-based approach that provides a seamless flow of deliverables that adhere to established quality criteria to manage risk and deliver high-quality, dependable solutions.

Our well-established, quality-centric SDLC helps to ensure our solutions meet customer expectations and satisfy industry standards. Our R&D processes and tools are carefully managed to facilitate the SDLC and monitor the scope, schedule and quality of each release.

A Fully-Traceable QMS Powered By The 3DEXPERIENCE Platform

At Dassault Systèmes, we use our own solutions to manage our QMS. Our software development and testing activities are managed using the **3D**EXPERIENCE platform allowing for complete traceability, covering everything from requirements to testing to release approval. Operational teams use the **3D**EXPERIENCE platform to plan releases, generate dashboards with multi-layered status data, and depend on a single source of truth for monitoring, controlling, and making data-driven decisions.

PLANNING

For every release, we adhere to well-established planning processes for determining release content, defining clear release plans and quality criteria to mitigate risk.

Content

Business goals, enhancement requests and defect reports inform the changes we make to our product portfolio and drive what will be included in and excluded from each release. Our planning processes govern the review, evaluation and approval of all enhancements and changes to **3D**EXPERIENCE roles and services in alignment with our strategic direction. We define release content through use cases, business requirements, functional specifications, and service design documents.

Schedule

A well-defined master schedule helps us monitor and manage each release. Master release plans include firm gates and milestones throughout the release cycle that each team (software engineering, quality engineering, user assistance, etc.) must meet to control for quality. The gates act as decision points, enabling teams to refine activities or adjust content as needed.

Controls

Our operational governance model is in place to manage our SDLC activities and KPIs and provides an escalation path to top management.

Enhancements & Defects

Enhancement and defect management processes govern enhancement requests from functional specifications through release approval.

Enhancement requests may arise externally from customers or partners, or internally from anyone within the organization. The prioritization and selection of enhancements for inclusion in a release or service involves the consideration of multiple factors such as alignment with overall strategy, market relevance, impact, effort, and risk. Clients can submit an enhancement request through their Dassault Systèmes representative.

Defects can emerge at any stage of the development lifecycle. Defects include product flaws, user interface issues, security vulnerabilities, and data privacy risks. Both internally and externally reported issues are assessed, prioritized, and resolved based on severity, urgency, and impact of the proposed fix.

Specifications

For each enhancement, the scope of implementation is outlined in a specification document. The enhancement specification outlines the functional approach to meeting expected requirements, including the acceptance test plan, expected outcomes for each test, and security and privacy considerations. This document guides the quality engineering team in creating the testing scenarios and aids the user assistance team in documenting any new or modified functionality. A more detailed logical design document may be created at the product development manager's discretion.

Source Code & Tests

We develop source code and automated tests based on detailed functional and logical specifications (for enhancements) or incident reports (for defects). Regression testing and execution of the acceptance test plan in a dedicated test environment help ensure that the new code meets established quality expectations.

Dassault Systèmes uses a proprietary software configuration management system to oversee and control source code, automated tests, and end-user documentation. An industry-standard source code management application is used to manage service promotions.

An extensive and continually evolving suite of automated tests runs nightly. This process helps ensure consistent behavior across the system and promptly identifies any regression errors.

Restricted Environments

Access to development, testing, and production environments is role-based and strictly controlled. Permissions to modify code, tests, and documentation are carefully controlled and authenticated.

Progressive Controls

As we approach final qualification stages, only high-importance, low-risk changes are permitted. All changes to code, tests, and documentation are rigorously controlled, tracked, and fully traceable.

Integration Assessments

Code, tests, and end-user documentation are initially developed and tested in localized workspaces. Integration is validated progressively through intermediate workspaces, where integrated code undergoes rigorous assessment using established algorithms and automated tests. Static source code checks confirm proper use of references, pointers, constructs, callbacks, and exceptions, and adherence to coding standards.

Continuous Delivery

Continuous delivery pipelines automatically trigger code checks, security assessments, automated tests, and other validations whenever code is promoted. These pipelines help ensure that no code is merged unless it passes all required checks. Once integrated, dynamic code checks evaluate memory management, parameter matching, exception handling, and other critical aspects.

Third-Party Component Management

Open source and commercially licensed third-party components are incorporated into the **3D**EXPERIENCE platform to provide additional functionality. Before adoption, these components go through a formal intellectual property approval process managed by the Legal team. Once integrated, R&D teams apply rigorous checks and validations to third-party components, adhering to the same standards used for internal source code.

Code Verification

Verification activities check that the implemented functionality aligns with its specifications and complies with corporate standards and industry best practices. Static and dynamic code checks confirm adherence to coding standards. Tool-assisted code reviews are conducted at the development team's discretion.

Validation by Quality Engineers

Validation processes, overseen by the quality engineering team, confirm that functionality works as intended in real-world scenarios. It consists of exploratory hands-on testing, execution of manual and automated validation test suites, integration testing, and quality assessments using dedicated testing environments. Functional tests focus on completeness and reliability. Non-functional tests focus on efficiency, compatibility, performance, and scalability. Aggregated results are stored in the **3D**EXPERIENCE platform for traceability.

Security & Performance Testing

Vulnerability and penetration tests are performed at predetermined stages of the SDLC with the ability to stop deployment if a security risk is discovered.

Before each annual General Availability deployment, the **3D**EXPERIENCE platform undergoes a comprehensive third-party security assessment. We also regularly commission external testers to challenge the deployed releases against OWASP risks and CWE/SANS vulnerabilities.

Performance, scalability, and capacity exercises are conducted on all releases to determine readiness for production environments. Our testing practices are continuously evaluated and updated to stay current with industry standards and best practices.

Learn more:
Cloud Security and Privacy Whitepaper

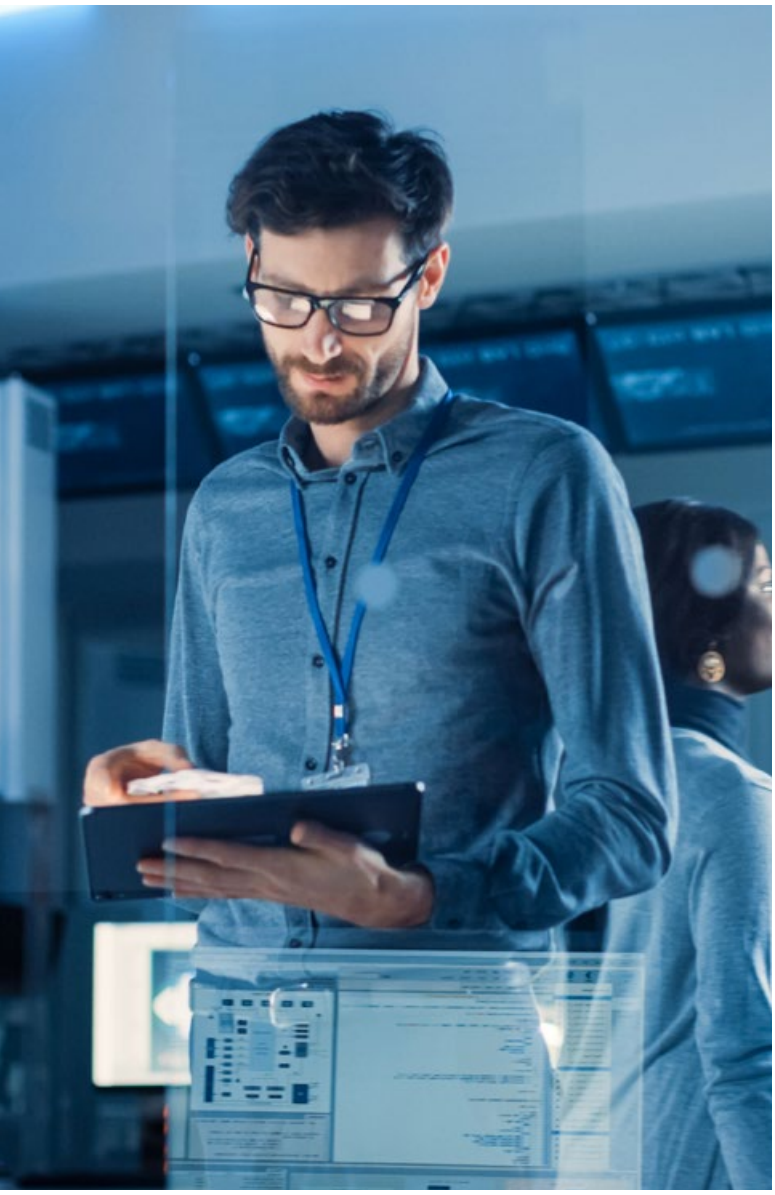
RELEASE MANAGEMENT

Release Operations

Our release operations teams evaluate the quality of each release against predefined objectives and KPIs. They continuously monitor both release content and overall quality to identify risks early, strictly adhering to the release gates and deliverables outlined in the release schedule.

Any deviations from the schedule require detailed explanations and mitigation plans from development and quality teams, which must be approved by Brand and Global R&D operations leaders. Additional controls are implemented as the SDLC progresses to the final stage.

The final release version must be approved by the Global R&D operations leaders, ensuring only content that meets established quality criteria will be included.



Release Documentation

Each release includes a "What's New" update within the online **3D**EXPERIENCE User Assistance section, summarizing new functionality. Additional release notes and system documentation hold information on:

- Hardware and software requirements
- Certified configurations
- Installation guidelines
- Licensing details
- New features
- Known issues and solutions
- Newly resolved issues

Post-deployment, our customer success team manages customer interactions, service requests, and issue resolutions.

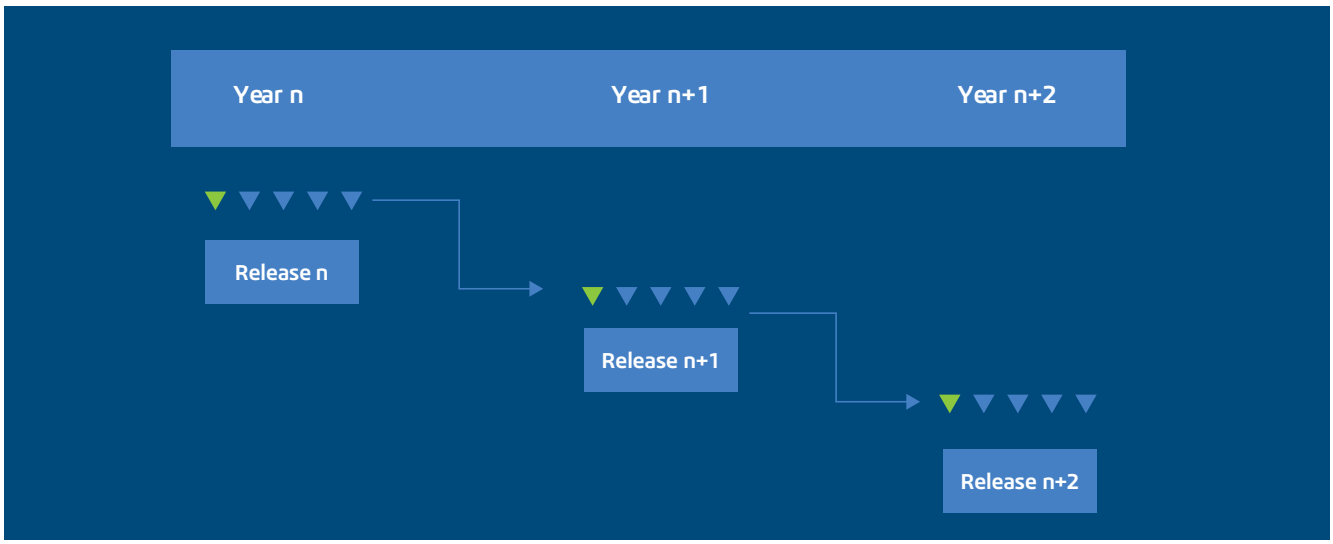
Our support website (www.3ds.com/support/) offers links to download software, user guides, developer guides, certified hardware and software configurations, onboarding materials, best practices, and more.

Release Schedule

A reliable release cadence supports customer operations and builds trust in the quality of updates. Each year, Dassault Systèmes delivers:

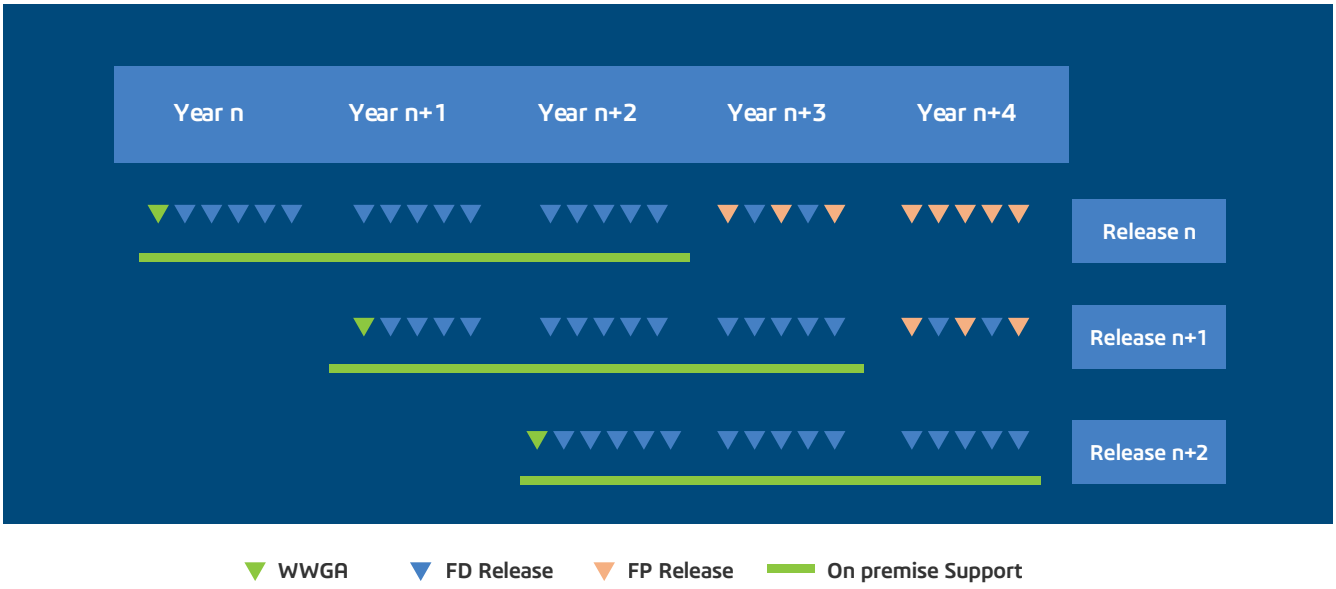
- 1 Worldwide General Availability (WWGA) release, our major annual product update.
- 4 Functional Delivery (FD) releases, with new functionality and fixes. Each FD release has cumulative content building on the previous WWGA.
- Emergency fixes (continuous).

ON THE CLOUD (SAAS) RELEASE SCHEDULE



Only the current release version is supported on the cloud and upgraded with a new FD every nine weeks up to FD04, after which it is upgraded to the next WWGA release. Emergency fixes for critical issues are continuously released.

ON-PREMISE RELEASE SCHEDULE



All on-premise customers that are current with their maintenance contract receive FD releases at approximately nine-week intervals for two years after the initial installation, switching to approximately sixteen-week intervals in the third year. A pinpoint release for critical issues can be deployed at any time.

In the third year, a Fix Pack is released between FDs with bug fixes and non-functional updates. The support period for on premise releases is three years, with an optional one-year extension.

CLOUD DEPLOYMENT AND OPERATIONS

The **3D**EXPERIENCE platform, deployed on a secure cloud environment, provides real-time access to releases with new functionality and security upgrades. Our committed team of Cloud Operations Engineers helps ensure platform availability, prioritizing reliability and security.

In line with our Service Level Agreements (SLAs), we run daily back-ups of customer and user data using continuous hot and cold backup strategies to minimize downtime. Our Business Continuity Plan (BCP) and Disaster Recovery Plan (DRP) help ensure service restoration and data protection in the event of a disruption. For more details on our BCP and DRP, please refer to our Cloud Security & Privacy Whitepaper.

In the case of a service outage or other issue, processes are in place for promptly alerting customers who may be affected. Once an issue is identified, periodic updates are sent to customers until the issue is resolved, and actions are taken to prevent recurrences of the same issue.

The cloud production environment is upgraded with each WWGA and FD release. We communicate with customers before, during, and after each upgrade to help ensure a smooth transition and minimize disruptions.

CUSTOMER SUCCESS

Customer Success plays a critical role in ensuring smooth deployments, successful implementations, and maintaining system health. They adhere to established procedures for resolving quality issues, handling service requests, addressing critical situations, and managing escalations requiring executive attention. Documented processes help ensure timely communication of critical software issues to affected customers.

Support operations teams actively monitor customer support requests. Each inquiry generates a unique service request number, which is tracked through the analysis, clarification, and resolution phases.

If a software anomaly or defect is identified, it is logged in a global defect tracking system. This system generates incident reports with responsibilities and supporting documentation, and tracks the evaluation, validation, and resolution process.

For transparency, defect reports are published on the Dassault Systèmes website. Emergency fixes are applied directly to the **3D**EXPERIENCE platform on the cloud, and released through pinpoint fixes for on-premise deployments.

INDUSTRY-SPECIFIC REGULATORY ENABLEMENT

LIFE SCIENCES

GxP Validation

For customers in life sciences and other regulated industries, we perform risk-based assessments and prepare validation documents aligned with **GAMP5** guidelines. An optional regulated cloud environment, that includes a pre-release test environment, is available to highly-regulated customers to perform validation testing of new releases. Note that the GxP cloud environments are always a release behind the **3DEXPERIENCE** cloud environment to allow for validation testing. This supports compliance for GxP-regulated computerized systems and expedites customers' validation processes.

Learn more:
Risk-Based Approach to Software Quality Assurance

Electronic Records & Signatures

The integrity and reliability of electronic records and signatures is critical for compliance with FDA 21 CFR Part 11 and EU Annex 11. We produce a detailed inventory of how the **3DEXPERIENCE** platform on the cloud assists customers in achieving compliance with these regulations, and the roles and responsibilities of the customer and of Dassault Systèmes.

Learn more:
Guidelines for Electronic Records and Electronic Signatures

ENERGY

Nuclear Quality Assurance (NQA-1) Certification

For customers who operate in the highly-regulated nuclear energy sector, this certification verifies adequacy, compliance, and effectiveness of the Dassault Systèmes Quality Management System to the American Society of Mechanical Engineers (ASME) NQA-1:2022 standard. The scope of the certification includes NQA-1 requirements applicable to software providers and requirements of US 10 CFR Part 21.

Download our NQA-1 certificate

CONCLUSION

Dassault Systèmes actively fosters a vision of quality and systematically delivers high-quality solutions through its people management strategies, SDLC and release processes, security and compliance programs, and collaboration with partners and customers. Our dedication to quality management helps our clients innovate in their sectors like never before.

Dassault Systèmes is a catalyst for human progress. Since 1981, the company has pioneered virtual worlds to improve real life for consumers, patients and citizens.

With Dassault Systèmes' **3D**EXPERIENCE platform, 370 000 customers of all sizes, in all industries, can collaborate, imagine and create sustainable innovations that drive meaningful impact.

For more information, visit: **www.3ds.com**

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Virtual Worlds for Real Life

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