

Software Development Process Overview

Questions & Answers



Rockwell Automation's Product Lifecycle Process defines the software development processes at the product level. This starts with defining the requirements and proceeds through the entire product lifecycle from concept through design, implementation, production, maintenance and disposal. Development methodologies and tools may vary by team, but the Product Lifecycle Process governs the overall development.

The following are common questions regarding Rockwell Automation's software development process and how we meet the requirements. These answers reflect the overall Rockwell Automation software development process; however, there may be more specific details based on the software product.

An overview of Rockwell Automation's Quality Management System (QMS) can be found at:
http://literature.rockwellautomation.com/idc/groups/literature/documents/ct/qms-ct001_-en-e.pdf

| Question | Answer | Internal Corporate Procedure Reference | Applicable Industry Standard |
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| Software Development Planning | | | |
| Is there a documented Software Plan describing the activities and deliverables to be completed as part of the software development process? | The Common Product Development Process defines the planning and governance to execute the product lifecycle processes. | Common Product Development (900-20-36) | IEC 62443-4-1:2018 SM-1; ISO 9001:2015 8.3.2 |
| Are documents (requirements docs, test plans, test results, etc.) produced as part of the software development lifecycle version controlled and maintained in a document repository? | The Common Product Development Process defines how product deliverables are controlled. | Common Product Development (900-20-36) | IEC 62443-4-1:2018 SM-1; ISO 9001:2015 7.5 |
| Is the Software Plan updated at a regular interval or development milestone? | Planning documentation is maintained per the Common Product Development Process, with defined milestone reviews and approvals. | Common Product Development (900-20-36) | IEC 62443-4-1:2018 SM-1 |
| Software Requirements Management | | | |
| Is there documented Requirement Management Process, covering how requirements are documented, updated, and reviewed? | The process for requirement definition and management is defined within the RA Product Lifecycle. | RA Product Lifecycle Product Requirements Development Process (BSRC-4730); RA Product Lifecycle Functional Requirements Development Process (BSRC-4732) | IEC 62443-4-1:2018 SM-1; ISO 9001:2015 8.3.3 |

Software Development Process Overview Questions & Answers



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| Are software requirements defined and traced from higher level product or business level requirements? | Product and functional requirements are defined per the RA Product Lifecycle. Traceability requirements are defined within the process. Methods and tools used for traceability may vary by team. | RA Product Lifecycle Product Requirements Development Process (BSRC-4730); RA Product Lifecycle Functional Requirements Development Process (BSRC-4732) | IEC 62443-4-1:2018 SM-1 |
| Are different types of software requirements defined based on the software product(s) being developed (functional, interface, environment, usability, user documentation, etc.)? | Product and functional requirements are defined per the RA Product Lifecycle. The process encompasses various requirement categories that are considered as part of requirement development. | RA Product Lifecycle Product Requirements Development Process (BSRC-4730); RA Product Lifecycle Functional Requirements Development Process (BSRC-4732) | IEC 62443-4-1:2018 SR-3; ISO 9001:2015 8.3.3 |
| Are security requirements defined for software products? | Product and functional requirements are defined per the RA Product Lifecycle. The process encompasses the definition of security requirements. | RA Product Lifecycle Product Requirements Development Process (BSRC-4730); RA Product Lifecycle Functional Requirements Development Process (BSRC-4732) | IEC 62443-4-1:2018 SR-3 |
| Are software requirements formally reviewed? | Product and functional requirements are reviewed per the RA Product Lifecycle Review Process. | RA Product Lifecycle Review Process (BSRC-4729) | IEC 62443-4-1:2018 SR-5 |
| Software Architecture & Design | | | |
| Is there a documented Software Design Process including how software design is documented, updated, and reviewed? | The process for design definition and management is defined within the RA Product Lifecycle. | RA Product Lifecycle Design Process (BSRC-4733) | IEC 62443-4-1:2018 SM-1; ISO 9001:2015 8.3.4 |
| Is the software architecture documented, including the interfaces between software items and external components? | Software architecture is defined per the RA Product Lifecycle. Various layers of design are defined within the process. | RA Product Lifecycle Design Process (BSRC-4733) | IEC 62443-4-1:2018 SD-1; ISO 9001:2015 8.3.4 |
| Is the detailed design documented for each software unit, including all interfaces? | Software design is defined per the RA Product Lifecycle. Various layers of design are defined within the process. Methods and tools used for documenting detailed design may vary by team. | RA Product Lifecycle Design Process (BSRC-4733) | IEC 62443-4-1:2018 SD-1; ISO 9001:2015 8.3.4 |
| Is the software design formally reviewed? | Design artifacts are reviewed per the RA Product Lifecycle Review Process. | RA Product Lifecycle Review Process (BSRC-4729) | IEC 62443-4-1:2018 SD-3; ISO 9001:2015 8.3.4 |
| Software Implementation | | | |

Software Development Process Overview

Questions & Answers



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| Is there a documented Software Implementation process, including how software is developed, reviewed and standards applied? | Software is implemented per the RA Product Lifecycle Implementation Process, which defines coding practices, source code control and review. Reviews are conducted per the RA Product Lifecycle Review Process. | RA Product Lifecycle Implementation Process (BSRC-4737); RA Product Lifecycle Review Process (BSRC-4729) | IEC 62443-4-1:2018 SM-1; ISO 9001:2015 8.3.4 |
| What best practices are utilized in developing your software products? | A variety of engineering best practices are utilized by our teams to improve code quality, including, but not limited to, continuous integration, coding standards, peer/code reviews, static analysis, code coverage metrics, traceability, and automated testing. Individual job aids exist (where applicable) that will only be shared under NDA. | Individual job aids exist (where applicable) that will only be shared under NDA. | IEC 62443-4-1:2018 SI-1; IEC 62443-4-1:2018 SI-2 |
| Software Testing | | | |
| Is there a documented Software Testing Process including how software tests are documented, updated, and reviewed? | The software testing process is defined within the RA Product Lifecycle. | RA Product Lifecycle Verification and Validation Process (BSRC-4837) | IEC 62443-4-1:2018 SM-1; ISO 9001:2015 8.3.4 |
| Are software test plans and test results formally documented and reviewed? | Test plans and results are created per the RA Product Lifecycle Verification and Validation Process. Test artifacts are reviewed per the RA Product Lifecycle Review Process. | RA Product Lifecycle Verification and Validation Process (BSRC-4837); RA Product Lifecycle Review Process (BSRC-4729) | IEC 62443-4-1:2018 SVV-1; ISO 9001:2015 8.3.4 |
| What levels/types of tests are completed on your products? | Engineering teams assess and define which testing activities are required for a specific product within the test plan. Test plans are developed per the RA Product Lifecycle Verification and Validation Process. The process defines various testing types that are considered as part of test definition. Planned testing can include, but is not limited to, unit, integration, functional, stress, performance, security, safety, beta, exploratory, regression, etc. | RA Product Lifecycle Verification and Validation Process (BSRC-4837) | IEC 62443-4-1:2018 SVV-1; IEC 62443-4-1:2018 SVV-2; IEC 62443-4-1:2018 SVV-3; IEC 62443-4-1:2018 SVV-4 |
| Are anomalies discovered during test formally documented? | Anomalies discovered during testing activities are documented per the RA Product Lifecycle Verification and Validation Process. Documented anomalies are managed per the Anomaly Management Procedure. | RA Product Lifecycle Verification and Validation Process (BSRC-4837); Anomaly Management Procedure (BSRC-5515) | IEC 62443-4-1:2018 DM-1 |
| Software Release | | | |

Software Development Process Overview

Questions & Answers



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| Is there a documented Software Release Process including the identification of what needs to be completed prior to release (testing completion, defect closure, etc.)? | Software is released per the RA Product Lifecycle Release Process. | RA Product Lifecycle Release Process (BSRC-4742) | IEC 62443-4-1:2018 SM-11; ISO 9001:2015 8.6 |
| Are release notes formally documented and reviewed? | Release notes are generated per the Requirements and Guidelines for Release Notes Content procedure (900-20-66). | Requirements and Guidelines for Release Notes Content (900-20-66) | ISO 9001:2015 8.6 |
| Do release notes include known anomalies for the version being released? | The Requirements and Guidelines for Release Notes Content procedure (900-20-66) requires the inclusion of known anomalies in release notes. | Requirements and Guidelines for Release Notes Content (900-20-66) | IEC 62443-4-1:2018 DM-5 |
| Is user documentation provided with each release of the product(s)? | User information can be found in Rockwell Automation's literature library: https://www.rockwellautomation.com/global/literature-library/overview.page | RA Product Lifecycle Release Process (BSRC-4742) | IEC 62443-4-1:2018 SG-1 |
| Software Patch Management | | | |
| Is there a documented process for managing and releasing software patches? | The process for managing software changes/patches is defined in our Product Change Management procedure. | Product Change Management (I2O-04-04) | IEC 62443-4-1:2018 SUM-1; ISO 9001:2015 8.3.6 |
| Do you provide installation notes, procedures, and guidance to apply patches? | Release notes and supporting documentation are generated and provided to customers per Rockwell's process. | Requirements and Guidelines for Release Notes Content (900-20-66) | IEC 62443-4-1:2018 SUM-2; IEC 62443-4-1:2018 SUM-3; ISO 9001:2015 8.6 |
| Do you provide a secure patch download process? | Patches are provided for secure download via Rockwell Automation's Download Center: https://www.rockwellautomation.com/en_NA/support/download-center/overview.page | Product Change Management (I2O-04-04) | IEC 62443-4-1:2018 SUM-4 |
| Software Anomaly Management | | | |
| Is there a documented process for receiving, documenting, evaluating, and resolving customer feedback and anomalies identified by customers? | Corporate procedures provide guidance for reviewing and assessing post-release anomalies. | Assessment of Post Release Product Anomalies (900-20-15) | IEC 62443-4-1:2018 DM-1; IEC 62443-4-1:2018 DM-2; IEC 62443-4-1:2018 DM-3; IEC 62443-4-1:2018 DM-4; ISO 9001:2015 8.2.1 |
| Is there a documented process for tracking all identified anomalies (found internally and by customers)? | Corporate procedures provide guidelines for reporting and managing anomalies. | Anomaly Management Procedure (BSRC-5515) | IEC 62443-4-1:2018 DM-1; IEC 62443-4-1:2018 DM-2; IEC 62443-4-1:2018 DM-3; IEC 62443-4-1:2018 DM-4 |
| Is there a process in place to communicate critical anomalies discovered in released software to | Corporate procedures define the process for assessing customer impact of post release anomalies and | Assessment of Post Release Product Anomalies (900-20-15); | IEC 62443-4-1:2018 DM-5 |

Software Development Process Overview

Questions & Answers



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| customers using the software version? | determining appropriate field actions based on customer impact. | Field Notifications for Post Release Product Anomalies (900-20-20) | |
| Software Configuration & Change Management | | | |
| Is there a formal configuration / change control procedure for software? | The RA Product Lifecycle Configuration Management Process encompasses practices for managing configuration items, baselines, and change requests. Configuration management tools utilized by teams may vary. | RA Product Lifecycle Configuration Management Process (BSRC-4740) | IEC 62443-4-1:2018 SM-1; ISO 9001:2015 8.3.6 |
| Are changes to the software approved? | Software changes are managed through change requests as defined in the RA Product Lifecycle Change Management Process. | RA Product Lifecycle Change Management Process (BSRC-4743) | IEC 62443-4-1:2018 SM-1; ISO 9001:2015 8.3.6 |
| Customer Support | | | |
| Is customer support provided for product(s)? Are there any user community/support groups for your product(s)? | An overview of Rockwell Automation's technical support can be found on our support page: https://www.rockwellautomation.com/global/support/overview.page Additional support, including customer support groups, can be found through Rockwell Automation's Knowledgebase: https://rockwellautomation.custhelp.com/ | See referenced support page in response | ISO 9001:2015 8.2.1 |
| Is training available for your products? | Training is provided on-site, virtually, and web-based. Available options can be found on the Rockwell Automation's website: https://www.rockwellautomation.com/en-us/support/training.html | See referenced training page in response | ISO 9001:2015 8.2.1 |
| Are older versions of the product(s) supported? | Product lifecycle information can be found at: https://www.rockwellautomation.com/global/solutions-services/capabilities/migration-solutions/product-search/overview.page | See referenced product lifecycle page in response | N/A |
| Security Vulnerability Management | | | |
| Does your company have a documented security policy? | Rockwell Automation has a documented security policy. | RA Product Security Management Policy (980-01-02) | IEC 62443-4-1:2018 SM-1 |
| Is there a documented process for assessing and tracking all identified security-related issues to closure? | For anomalies with potential security vulnerabilities, the anomaly will also go through the Product Security Incident Response Team (PSIRT) triage process where Security SMEs establish a CVSS score, disposition and drive to resolution. | Anomaly Management Procedure (BSRC-5515); RA Security Vulnerability Management Process (BSRC-4741) | IEC 62443-4-1:2018 DM-1; IEC 62443-4-1:2018 DM-2; IEC 62443-4-1:2018 DM-3; IEC 62443-4-1:2018 DM-4 |

Software Development Process Overview

Questions & Answers



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| Is there a process in place to communicate reportable security-related issues to customers? | The RA Security Vulnerability Management Process defines the process for receiving, tracking, investigating, assessing, and communicating security vulnerabilities associated with the use of Rockwell Automation products. | RA Security Vulnerability Management Process (BSRC-4741) | IEC 62443-4-1:2018 DM-5 |
| Risk Management | | | |
| Is there a documented process for risk management, including risk identification, evaluation, and mitigation? | The RA Product Lifecycle Process includes specific processes for general Risk Management and Threat Modeling, specific to cybersecurity. | RA Product Lifecycle Risk Assessment Process (BSRC-4735); RA Product Lifecycle Threat Modeling Process (BSRC-4736) | IEC 62443-4-1:2018 DM-3; ISO 9001:2015 6.1 |
| Software Project Monitoring | | | |
| Are there procedures for tracking project progress and status, including effective issue and risk monitoring? | The Product Planning & Governance Process (i.e., Common Product Development Process) defines the planning and control of all efforts and tasks necessary to execute the product lifecycle processes. Risks are managed per the RA Product Lifecycle Process, which includes specific processes for general Risk Management and Threat Modeling, specific to cybersecurity. | Common Product Development (900-20-36); RA Product Lifecycle Risk Assessment Process (BSRC-4735); RA Product Lifecycle Threat Modeling Process (BSRC-4736) | ISO 9001:2015 9.1 |
| Continuous Improvement | | | |
| Are processes continuously improved? | The RA Product Lifecycle processes are continually improved to include new industry best practices and to meet the needs of Rockwell Automation per the RA Product Lifecycle Governance Process. | RA Product Lifecycle Governance Process (BSRC-4744) | IEC 62443-4-1:2018 SM-13; ISO 9001:2015 9.1.3 |
| Quality Management | | | |
| Is there a process to verify all applicable processes have been completed prior to product release? | Product Quality Plans are developed per the RA Product Lifecycle Quality Verification Process. The Product Quality Plan identifies the assessment/audit plans for the product. | RA Product Lifecycle Quality Verification Process (BSRC-4850) | IEC 62443-4-1:2018 SM-12; ISO 9001:2015 9.1.3 |
| Are quality metrics defined and tracked to monitor software development? | Product Quality Plans are developed per the RA Product Lifecycle Quality Verification Process. Quality Plans identify the product specific quality goals and indicators to monitor throughout the development lifecycle. | RA Product Lifecycle Quality Verification Process (BSRC-4850) | IEC 62443-4-1:2018 SM-12; ISO 9001:2015 9.1.3 |
| Software Development Tools | | | |

Software Development Process Overview

Questions & Answers



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| What tools are used when developing your software products? | A variety of engineering tools are utilized by our teams to improve code quality and control change/configurations, including, but not limited to, JIRA, JAMA, qTest, GIT, SonarQube, CodeCollaborator, Jenkins, Doxygen, etc. | N/A | N/A |
| How is the security of the development environment maintained? | The development environment is controlled and maintained per the Secure Development Environment Policy. | Secure Development Environment Policy | IEC 62443-4-1:2018 SM-5 |
| Software Process Certifications (CMMI, etc.) | | | |
| Is the organization CMMI certified? | Rockwell Automation's product development lifecycle processes are built around industry best practices including those required by CMMI and ISA/IEC 62443-4-1. Rockwell's product development lifecycle processes are ISA/IEC 62443-4-1 certified by TÜV Rhineland. A link to our certificate can be found here - http://literature.rockwellautomation.com/idc/groups/literature/documents/ct/csm-ct001_-en-e.pdf | N/A | N/A |
| Employee Competency & Training | | | |
| How is employee competence assured? | Interview criteria and performance reviews are used to verify that new and existing employees are competent and qualified to perform required tasks. Training, in various forms, is deployed as required to meet the identified needs. | Training and Development (800-09-01) | IEC 62443-4-1:2018 SM-4; ISO 9001:2015 7.2 |
| Is your staff trained on corporate software development procedures? | Management is responsible for assessing training needs and ensuring required training is completed. Training can include on the job training, computer based training, technical certifications/seminars or classroom sessions. Staff is trained to follow the RA Product Lifecycle processes. | RA Product Lifecycle Roles, Responsibilities, and Expertise Process (BSRC-4720) | IEC 62443-4-1:2018 SM-4; ISO 9001:2015 7.2 |
| Are training records maintained? | Training records are documented per the Training and Development Procedure. | Training and Development (800-09-01) | IEC 62443-4-1:2018 SM-4; ISO 9001:2015 7.2 |
| Software Supplier Management | | | |
| How are software suppliers managed? | Product software purchased by Business Units must conform to specified requirements. | Software Supplier Management Process (900-20-73) | IEC 62443-4-1:2018 SM-9; IEC 62443-4-1:2018 SM-10; ISO 9001:2015 8.4 |
| Is any part of the development process outsourced or completed by contract labor? | Contract labor force is seen as an extension of Rockwell Automation's workforce and their work is governed by the same standards and processes, such as the RA Product Lifecycle. | N/A | N/A |

Software Development Process Overview

Questions & Answers



| Open Source Software Management | | | |
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| Is there a defined process for managing open source software that is integrated within your product? | The Open Source Supply Chain Process provides a framework to assess and address risk introduced to products by open source components. | RA Product Lifecycle Open Source Use Process (BSRC-4721) | IEC 62443-4-1:2018 SM-9; ISO 9001:2015 8.4 |
| Is Software Composition Analysis used to manage open source component usage? | Code is scanned using software composition analysis to identify open source components and check vulnerabilities. | RA Product Lifecycle Open Source Use Process (BSRC-4721) | IEC 62443-4-1:2018 SM-9; ISO 9001:2015 8.4 |