NSI QA Development Process 1.0

Applicant Checklist

March 2017
Version 1.0.5

# Introduction

This checklist applies to the assessment of material submitted in connection with registration by an organization for certification against the NSI Development Process 1.0 Conformance Requirements.

This checklist is available on the NSI web-based certification/verification website. Each certification applicant will be required to complete a checklist that identifies the various documents that are to be uploaded with its certification registration. This must also include information where in each of these documents there is evidence that the applicant has correctly deployed the best practice requirements.

The purpose of the checklist is to guide the assessor and make the assessment process more efficient. The result is that there will be fewer demands on the organization's staff members to provide clarification and additional information, and increased likelihood that the assessors will be able to establish an organization's conformance.

Please do not change the format of this document.

# Documentation Checklist

The documents to be submitted for certification against the Development Process Conformance Requirements include both process documentation related to the organization’s development processes and documentation from recent projects. The specific documentation requirements are:

Process documentation

* Detailed design process
* Implementation approach and supporting practices
* Internal testing process
* Change control management process
* Problem reporting process

From recent projects

* Vendor’s internal test plan
* Release notes
* Integration plan
* Test Summary report

## Process Documentation

Applicants have some latitude as to how they meet the documentation submission requirements with respect to the exact form and number of files submitted to satisfy the document requirements identified above.

For each process document submitted, the applicant must identify the applicable development process from the menu in the “Process” column. For each project document submitted, the applicant must indicate the relevant in the project in the “Project Identifier” column and select the applicable document type from the menu in the “Document Category” column.

The name of the document should be listed in the "Document Title" column. Applicants may enter any relevant comment concerning the document in the "Comments" column; its use is discretionary.

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| Process | Document Title | Comments |
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## Project Documentation

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| Project Identifier | Document Category | Document Title | Comments |
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# Assessment Checklist

Each applicant will be required to complete the tables below. Please complete the information for as many requirements as possible, leaving blank only those requirements for which there is no evidence available in the submitted documents. The assessors will follow up on requirements with no documentary evidence provided, during either the telephone assessment or the on-site assessment.

Requirement Numbers correspond to the numbers in the Requirements Checklist of the Development Process Best Practice. For each number, there follows a summary of the Base Requirement, its Level ("Must", "Should", "May", etc.) and a pointer to the Reference in the Best Practice where the requirement is specified.

As each organization must provide documents from two projects, applicants must specify for each project where evidence of meeting each requirement may be found. The document identifiers from the Document Checklist should be used in the "Document in which evidence is found" columns. "Reference within Document" should be a section number or other pointer indicating where in the document such evidence may be found. If the document providing evidence of meeting the best practice is a process document, then it should apply to both projects and the applicant may in this case indicate “Same” in the “Document in which evidence is found” column under Project 2 and the leave the “Reference within Document” column blank.

## Requirements from NSI Development Process Best Practice

### Development Process: Detailed Design

All of these requirements are germane to every verification registration.

|  | Project 1 | Project 2 |
| --- | --- | --- |
| Rqmt. # | Base Requirement  | Level | Reference in Best Practice | Document in which evidence is found | Reference within Document | Document in which evidence is found | Reference within Document |
| 1 | The vendor must have a documented process for performing detailed design. | Must | 4.3.1.1 |

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| 2a | The design process should include standards for the format and content of the design description. | Should | 4.3.1.1 |

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| 2b | The design process should include traceability to the system design description and requirements. | Should | 4.3.1.1 |  |  |  |  |
| 2c | The design process should include technical review of the detailed design. | Should | 4.3.1.1 |  |  |  |  |
| 2d | The design process should include procedures for tracking and managing changes to the design throughout the product development lifecycle. | Should |  4.3.1.1 |  |  |  |  |
| 2e | The design process should include procedures for ensuring that design constraints or other areas of risk have been considered and assessed. | Should | 4.3.1.1 |  |  |  |  |
| 3 | Detailed design must be performed in accordance with the vendor’s documented design process. | Must | 4.3.1.1 |  |  |  |  |

### Development Process: Implementation

All of these requirements are germane to every verification registration.

|  | Project 1 | Project 2 |
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| Rqmt. # | Base Requirement  | Level | Reference in Best Practice | Document in which evidence is found | Reference within Document | Document in which evidence is found | Reference within Document |
| 4 | The vendor’s approach to implementation must be documented | Must | 4.3.2.1 |

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| 5 | Any processes or technical criteria used to support the implementation process, such as checklists, should be formally documented. | Should | 4.3.2.1 |

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| 6 | For software component implementation, the software development practices employed should include one or more of the following practices:-Coding is done in accordance with the vendor’s documented coding standards.-Code walkthroughs, inspections, or reviews are performed.-Formal methods are used as a software development method to establish the correctness of the implementation of each requirement.-Other specified methods are used to ensure the correctness of the implementation. | Should | 4.3.2.1 |  |  |  |  |

### Development Process: Internal Testing

All of these requirements are germane to every verification registration.

|  | Project 1 | Project 2 |
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| Rqmt. # | Base Requirement  | Level | Reference in Best Practice | Document in which evidence is found | Reference within Document | Document in which evidence is found | Reference within Document |
| 7 | The vendor’s internal testing must be performed according to a defined testing process. | Must | 4.3.3.1 |

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| 8 | The defined testing process should include test planning, test specification, test execution, and test reporting. | Should | 4.3.3.1 |

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| 9 | The defined testing process may include root cause analysis. | May | 4.3.3.1 |  |  |  |  |
| 10 | The internal testing process should be based on, and closely tied to, the specifications for the system and its various components. | Should | 4.3.3.1 |  |  |  |  |
| 11 | The internal testing process must be documented in a vendor’s internal test plan. | Must | 4.3.3.1 |  |  |  |  |
| 12 | Internal testing must be executed in accordance with this test plan. | Must | 4.3.3.1 |  |  |  |  |
| 13 | The vendor’s internal test plan must define the method and processes that the vendor will employ during internal testing to assure that the requirements have been correctly implemented and that the system is suitable for delivery to the lottery. | Must | 4.3.3.1 |  |  |  |  |
| 14a | The vendor’s internal test plan must cover how the vendor intends to test each new component, and each significant software or hardware change. | Must | 4.3.3.1 |  |  |  |  |
| 14b | The vendor’s internal test plan should cover the following levels of testing: unit testing, integration testing, system testing, and regression testing. | Should | 4.3.3.1 |  |  |  |  |
| 14c | For each level of testing to be performed, the vendor’s internal test plan must cover the specific types of testing to be performed: Appendix C of the Development Process Best Practice defines the various types of testing options that may be employed during system testing. | Must | 4.3.3.1 |  |  |  |  |
| 14d | The vendor’s internal test plan must cover the exit criteria that must be fulfilled in order for the vendor to declare the system components suitable for delivery to the lottery. | Must | 4.3.3.1 |  |  |  |  |
| 14e | The vendors internal test plan must cover test reporting. Test reports that summarize the results of testing must include any deviation between observed and expected behavior of the system components and any defects identified. | Must | 4.3.3.1 |  |  |  |  |
| 15 | Final system testing should not be performed by the same people who designed the hardware or wrote the software being tested. | Must | 4.3.3.1 |  |  |  |  |

### Development Process: Acceptance Test Readiness Review

All of these requirements are germane to every verification registration.

|  | Project 1 | Project 2 |
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| Rqmt. # | Base Requirement  | Level | Reference in Best Practice | Document in which evidence is found | Reference within Document | Document in which evidence is found | Reference within Document |
| 16 | Representatives from the vendor and lottery organizations must hold a review meeting to determine whether the product is ready to transition to Acceptance Testing. | Must | 4.3.4.1 |

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| 17a | The acceptance test readiness review meeting must include a review of the vendor’s test summary report, which must include a summary of the types of testing performed and a summary of the results of that testing. | Must | 4.3.4.1 |

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| 17b | The acceptance test readiness review meeting must include a review of the open defects and issues. | Must | 4.3.4.1 |  |  |  |  |
| 18 | At the conclusion of the acceptance testing readiness review, either the lottery must authorize the handover for Acceptance Testing, or the vendor and lottery must agree what steps are required for the product to be approved for Acceptance Testing. | Must | 4.3.4.1 |  |  |  |  |

### Development Process: Release Process

All of these requirements are germane to every verification registration.

|  | Project 1 | Project 2 |
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| Rqmt. # | Base Requirement  | Level | Reference in Best Practice | Document in which evidence is found | Reference within Document | Document in which evidence is found | Reference within Document |
| 19 | The plans for the release of the system or system components must be documented. | Must | 4.3.5.1 |

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| 20a | The release plans should address the means of delivery. | Should | 4.3.5.1 |

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| 20b | The release plans should address the delivery medium. | Should | 4.3.5.1 |  |  |  |  |
| 20c | The release plans should address the lottery acceptance process and acceptance test period. | Should | 4.3.5.1 |  |  |  |  |
| 20d | The release plans should address the knowledge transfer from the vendor to the lottery regarding the use and operation of the system | Should | 4.3.5.1 |  |  |  |  |
| 20e | The release plans should address the problem reporting mechanism to be used after delivery; that is, during Acceptance Testing and post-installation (integration). In some lottery domains, the problem report is referred to as a Testing Incident Report (TIR). | Should | 4.3.5.1 |  |  |  |  |
| 20f | The release plans should address the release notes. | Should | 4.3.5.1 |  |  |  |  |
| 21a | The release notes should include a formal build description for the software portion of the release that includes all of the following:- System version- Version of all component modules- Version of all deliverable documents | Should | 4.3.5.1 |  |  |  |  |
| 21b | The release notes should include a list of any known problems in the release and the plans for resolving them. | Should | 4.3.5.1 |  |  |  |  |
| 21c | The release notes should include any limitations in the scope of the system, or any requirements that were included in the specifications but were deferred or eliminated and will not be implemented as a part of this release | Should | 4.3.5.1 |  |  |  |  |
| 21d | The release notes should include a definition of any additional functionality that is being delivered but was not defined in the Requirements Specification (i.e. enhancements); this must include a reference to where the functionality is documented. | Should | 4.3.5.1 |  |  |  |  |
| 21e | The release notes should include a list of all deliverables that includes all of the following:- A description of and identifying serial and part numbers for all hardware components- Software components and associated software modules- Documents- Tools | Should | 4.3.5.1 |  |  |  |  |
| 21f | The release notes should include a test report that summarizes the test results of internal testing. | Should | 4.3.5.1 |  |  |  |  |
| 21g | The release notes should include any known usability constraints (for example, performance limitations). | Should | 4.3.5.1 |  |  |  |  |
| 21h | The release notes should include any known portability constraints | Should | 4.3.5.1 |  |  |  |  |
| 21i | The release notes should include any known interoperability constraints. | Should | 4.3.5.1 |  |  |  |  |
| 22 | The lottery and the vendor must work together to produce an integration plan. | Must | 4.3.5.1 |  |  |  |  |
| 23 | The lottery and vendor should produce the integration plan during Requirements Definition. | Should | 4.3.5.1 |  |  |  |  |
| 24a | The integration plan should account for reviewing the business processes impacted by the changes. | Should | 4.3.5.1 |  |  |  |  |
| 24b | The integration plan should account for ensuring that people responsible for the affected business functions know of the changes. | Should | 4.3.5.1 |  |  |  |  |
| 24c | The integration plan should account for ensuring that the people responsible for the affected business functions are notified in advance of what business process changes need to be made (if any). | Should | 4.3.5.1 |  |  |  |  |
| 24d | The integration plan should account for ensuring that non-software issues are resolved in time to support the installation of the new software or hardware. | Should | 4.3.5.1 |  |  |  |  |
| 25 | The integration plan must include information that covers the complete environment into which the product will be integrated and deployed. | Must | 4.3.5.1 |  |  |  |  |
| 26a | The integration plan must identify the impact of the product release on the overall lottery system. | Must | 4.3.5.1 |  |  |  |  |
| 26b | If any security changes are required, the security changes must be identified in the integration plan together with assigned actions for the responsible parties from either the vendor or the lottery. | Must | 4.3.5.1 |  |  |  |  |
| 26c | If any data conversion is necessary, the vendor must provide details and assigned actions in the integration plan for execution of the data conversion. | Must | 4.3.5.1 |  |  |  |  |
| 26d | The integration plan must include identification of platform variations that may occur at different lottery or retail sites and document assigned actions to address them. | Must | 4.3.5.1 |  |  |  |  |
| 26e | The integration plan must include identification of deployment variations that may occur at different lottery or retail and document assigned actions to address them. | Must | 4.3.5.1 |  |  |  |  |
| 27 | The integration plan must be approved by both the lottery and vendor. | Must | 4.3.5.1 |  |  |  |  |
| 28 | The integration plan may be refined during Acceptance Testing. | Must | 4.3.5.1 |  |  |  |  |
| 29 | Integration must be performed in accordance with the agreed plan. | Must | 4.3.5.1 |  |  |  |  |
| 30a | The vendor must provide an installation guide that is unambiguous and includes installation instructions as well as instructions for backup and back-out procedures where appropriate. | Must | 4.3.5.1 |  |  |  |  |
| 30b | The vendor must thoroughly test the installation procedures defined in the installation guide prior to release. | Must | 4.3.5.1 |  |  |  |  |

### Development Process: Change Control Management

All of these requirements are germane to every verification registration.

|  | Project 1 | Project 2 |
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| Rqmt. # | Base Requirement  | Level | Reference in Best Practice | Document in which evidence is found | Reference within Document | Document in which evidence is found | Reference within Document |
| 31 | The vendor must have a documented change control management process that defines that requirements and process for making modifications to items under change control. | Must | 4.3.6.1 |

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| 32a | The vendor’s documented change control management process should address identification of the items under change control. | Should | 4.3.6.1 |

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| 32b | The vendor’s documented change control management process should address the relationship between problem tracking and change control. | Should | 4.3.6.1 |  |  |  |  |
| 32c | The vendor’s documented change control management process should address mechanisms for change control (e.g., most software development projects use an automated system such as CVS). | Should | 4.3.6.1 |  |  |  |  |
| 32d | The vendor’s documented change control management process should address document modification (in particular, it is essential that modifications to requirements are tracked). | Should | 4.3.6.1 |  |  |  |  |
| 32e | The vendor’s documented change control management process should address build status tracking (i.e., the relationship between module version and the system version). | Should | 4.3.6.1 |  |  |  |  |
| 32f | The vendor’s documented change control management process should address contract modification (a special case of change control requiring formal approval by both the lottery and vendor). | Should | 4.3.6.1 |  |  |  |  |
| 32g | The vendor’s documented change control management process should address criteria for approval of different change control elements. | Should | 4.3.6.1 |  |  |  |  |
| 33 | The change control management process should include procedures for submitting change requests and tracking the progress of a change request. | Should | 4.3.6.1 |  |  |  |  |
| 34 | A change request must include the following:- A unique tracking number provided by the change management system- Description of the change requested- Reason for the request- Date of the request- Who requested the change- Component or system which is effected | Must | 4.3.6.1 |  |  |  |  |
| 35 | A change request should pass through defined stages as it is being addressed. | Should | 4.3.6.1 |  |  |  |  |
| 36 | The change request tracking mechanism must provide all relevant parties with access to the status of defects which: In the case of products under development, are adversely affecting milestone delivery dates or: In the case of products in the field, are adversely affecting operations. | Must | 4.3.6.1 |  |  |  |  |
| 37 | When a change request is approved that requires software modification, the change control process should require use of a software and documentation modification tracking mechanism. | Should | 4.3.6.1 |  |  |  |  |
| 38 | The change control tracking mechanism must require certain information including:- Module- Version- Code modification linked to the version | Must | 4.3.6.1 |  |  |  |  |
| 39 | The change control tracking mechanism may includeadditional information including:- Check out date- Engineer- Size- Check in date | May | 4.3.6.1 |  |  |  |  |
| 40 | The change control process should require that code modifications be versioned and documented before they are checked back into a library. | Should | 4.3.6.1 |  |  |  |  |
| 41 | If a source code modification alters the system functionality, the change control process should require that the system functional specifications be updated and versioned. | Should | 4.3.6.1 |  |  |  |  |

### Development Process: Problem Reporting

All of these requirements are germane to every verification registration.

|  | Project 1 | Project 2 |
| --- | --- | --- |
| Rqmt. # | Base Requirement  | Level | Reference in Best Practice | Document in which evidence is found | Reference within Document | Document in which evidence is found | Reference within Document |
| 42 | The problem reporting process must provide a mechanism that allows each issue to be submitted in a standardized format with standard content, and provides all relevant parties with access to the most current data. | Must | 4.3.7.1 |

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| 43 | Each problem reporting issue must have a unique tracking identifier. | Must | 4.3.7.1 |

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| 44 | Submission of an issue must include the following information:- Description of the issue- The component or system in which the issue was found- Severity of the problem- Date the issue was submitted- The submitter of the issue- Phase in which the issue was reported, such as vendor internal testing, acceptance testing, or production- Product version in which the issue was found | Must | 4.3.7.1 |  |  |  |  |
| 45 | Information included in the submission of an issue may include a suggestion of how to recreate the issue; for example, pay a ticket after the pay out period expiration. | May | 4.3.7.1 |  |  |  |  |
| 46 | The problem reporting process must include a defined process for reviewing and resolving problems. | Must | 4.3.7.1 |  |  |  |  |
| 47 | A team of representatives from each key party should perform review of problem reports. | Should | 4.3.7.1 |  |  |  |  |
| 48a | The problem review team may include representatives from the lottery quality assurance team. | May | 4.3.7.1 |  |  |  |  |
| 48b | The problem review team may include representatives from the development team. | May | 4.3.7.1 |  |  |  |  |
| 48c | The problem review team may include representatives from the project management. | May | 4.3.7.1 |  |  |  |  |
| 49 | Each problem submission should be reviewed by the review team to determine whether it requires immediate action or if it may be deferred to a future release. | Should | 4.3.7.1 |  |  |  |  |
| 50a | The review of a problem report should consider the overall risk associated with fixing the problem (this may increase or decrease risk). | Should | 4.3.7.1 |  |  |  |  |
| 50b | The review of a problem report should consider the cost associated with fixing the problem. | Should | 4.3.7.1 |  |  |  |  |
| 50c | The review of a problem report should consider the impact on the lottery system or system component associated with fixing the problem. | Should | 4.3.7.1 |  |  |  |  |
| 51 | The problem reporting process should include mechanisms that prevent any one individual or group from moving an issue from initial submission to closure. | Should | 4.3.7.1 |  |  |  |  |
| 52 | A problem report should flow through distinct, defined stages. | Should | 4.3.7.1 |  |  |  |  |
| 53 | At the completion of each stage in the problem reporting process, the responsible individual should update the problem report with the action taken and a time and date stamp. This ensures that the current status of any issue is available at any time. | Should | 4.3.7.1 |  |  |  |  |
| 54 | The problem reporting mechanism should provide a means to track issues and their resolution to ensure that critical problems found during one stage are fixed and integrated prior to delivery to the next phase. | Should | 4.3.7.1 |  |  |  |  |
| 55 | The problem reporting process must ensure that the fixes are integrated following the change management system guidelines. | Must | 4.3.7.1 |  |  |  |  |

# Requirements from NSI Acceptance Testing Best Practice

### Development Process: Problem Reporting

All of these requirements are germane to every verification registration.

|  | Project 1 | Project 2 |
| --- | --- | --- |
| Rqmt. # | Base Requirement  | Level | Reference in Best Practice | Document in which evidence is found | Reference within Document | Document in which evidence is found | Reference within Document |
| 3 | The Acceptance Test Plan must be reviewed with the vendor. | Must | 4.3.1.1 |

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| 4 | The vendor should especially review the Acceptance Test Plan with respect to any dependencies on the vendor. | Should | 4.3.1.1 |

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