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**Title:** Software Quality Requirements for MAG  
Software Subcontractors

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## 1 Part A: Software Development Process Requirements

### 1.1 Preparations and Development Planning

1. The subcontractor shall prepare a Software Development Plan (SDP) for each purchase order / Computer Software Configuration Item (CSCI), and have the plan approved by the contractor's SQA personnel.

- This purchase order requires approval of the SDP by an IAI representative  
[Acquirer shall check this box according to decision]

The SDP shall address, at a minimum, the following topics (in accordance with requirements listed in this document):

- Applicable Documents (procedures, guidebooks, standards)
- Stakeholders and project staff
- Plan for development deliverables, including:
  - 1..1. Identification of software components
  - 1..2. Description of the development process from requirements reception to final product delivery and project termination
  - 1..3. Release process and delivery to IAI
  - 1..4. Software defects handling process, including defects identified by the subcontractor and defects identified by IAI
- Identification of required development infrastructure and tools
- Method of configuration management for SW components and process deliverables

2. The subcontractor shall prepare a detailed work plan, covering all required development phases, all required contents, internal reviews (peer reviews, code reviews etc.), static analysis running and findings handling, testing, etc.

3. The subcontractor shall update the development procedures and development tools as a part of continuous improvement of the development process.

4. The subcontractor shall assure timely readiness of static analysis tools.

### 1.2 Requirements Definition

5. The subcontractor shall construct a Software Requirements Specifications (SRS) document for each CSCI. The SRS shall demonstrate full traceability to IAI requirements.

Note: In the case of a purchase order comprising an update to existing software, the updated SRS shall contain a full product requirements specification, not only changes.

6. The subcontractor shall formally release the requirements specification, using a process which contains approval by relevant professionals (as a minimum – professionals from the subcontractor's side) and relevant stakeholders (as a minimum – one relevant IAI representative). The requirements must be kept up to date.

### 1.3 Design and Implementation

7. The subcontractor shall perform Peer Reviews for the software design and Code Reviews for the code, with the participation of relevant subcontractor personnel. Review findings shall be documented.



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Note: In case of a purchase order comprising of an update of existing software, this requirement shall apply to software components modified as part of the purchase order, and to affected components.

8. The subcontractor shall perform static analysis to evaluate compliance of the code with defined coding standards, and shall fully address the analysis findings, including appropriate code fixes.
9. Project documents shall be kept up to date and under configuration control.

#### 1.4 Testing

10. The subcontractor shall plan software tests for all relevant purchase order contents, and shall document the plan in a Software Test Description (STD) document. The STD shall be formally released, kept up to date and under configuration control. The test plan shall demonstrate full coverage of requirements by planned tests.

Note: Test procedures shall address the full product (not only changes)

- This purchase order requires approval of the STD by an IAI representative  
*[Acquirer shall check this box according to decision]*

11. The subcontractor shall demonstrate correct functioning of the software on the target hardware according to the following guidelines:
  - 11.1. If the software is a standalone delivery (i.e., is not dependent on other subcontractor components) - the subcontractor shall test the software in a hardware environment agreed upon with IAI (in particular, the target computer for the testing shall comply with IAI definitions).
  - 11.2. If the software is a part of an overall product under the subcontractor's responsibility - the subcontractor shall test the software in an environment comprising of usable hardware which had successfully passed acceptance testing and which includes all the capabilities defined in the purchase order.
12. The subcontractor shall perform all planned software tests and document them in a Software Test Report (STR). Each test report shall include:
  - 12.1. A full description of test configurations, as used in practice, designating all software/firmware versions actually loaded into the product in each configuration
  - 12.2. Descriptions of the tests
  - 12.3. Actual results vs. expected results
  - 12.4. SQA personnel approval

#### 1.5 Defect and Change Management

13. The subcontractor shall perform defect management, for defects uncovered during their own work as well as for defects reported by IAI.
14. The subcontractor shall avoid double management of defects
15. The subcontractor shall hold a change control board meeting for release approval prior to delivery to IAI. Release approval shall be performed in accordance with subcontractor procedures, with the participation of appropriately authorized personnel, and shall be documented.

#### 1.6 Quality Management

16. The subcontractor shall define quality metrics, evaluate them at different development stages, and shall conduct documented discussions on the findings.



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## 1.7 Software Configuration Management

17. The subcontractor shall manage the following data items in a configuration management system, in a manner that enables their reconstruction for different points in time during the project:
- 17.1. Software releases (including all elements)
  - 17.2. All files relevant to the correct functioning of the software (e.g., parameter files)
  - 17.3. Software development process products (test scenarios, design models, version delivery contents, etc.)

## 1.8 Software Version Delivery

18. Prior to delivery of a software version the subcontractor shall conduct a meeting with IAI. In the meeting the value of the version to IAI as well as IAI's willingness to accept it - shall be evaluated, considering the following:
- 18.1. Requirements not implemented yet in the version
  - 18.2. Open defects
19. Software delivery shall include, in addition to the software items:
- 19.1. The relevant software test plan (STD)
  - 19.2. The relevant software test report (STR)
  - 19.3. The relevant Version Description Document (VDD), containing all changes introduced since the previous version was delivered to IAI, defects closed in accordance with said changes, and known defects for the version.
  - 19.4. Subcontractor approval for releasing the software using a formal process, an approved Engineering Change Request (ECR), including the documented meeting minutes of the Change Control Board which approved the release

## 1.9 Subcontractor Collaboration with IAI

20. The subcontractor shall support and participate in product integration with other products performed by IAI, in accordance with IAI's needs.
21. SQA reviews for the subcontractor shall be conducted on behalf of IAI. The subcontractor shall participate in said reviews and cooperate fully, submitting any documentation required regarding work contents and processes. Said reviews may constitute a prerequisite for product delivery approval by IAI.



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## 2 Part B: General Software Requirements

This part contains standard requirements for contents that need to be included in any software supplied by a subcontractor (Even if not mentioned in other contractual documents)

1. The software shall report all software, component and firmware revisions actually contained in the product<sup>1</sup> to the user or to an interfacing system, in a manner agreed upon with a relevant IAI representative.
2. The software shall compare all software, component and firmware revisions actually contained in the product<sup>1</sup> against a database of approved revisions, and report any discrepancy between actual revision and expected revision to the user or to an interfacing system, in a manner agreed upon with a relevant IAI representative.

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<sup>1</sup> "In the product" meaning the product in which the software is contained according to the purchase order. If the software is a standalone item – the software itself is considered to be the product