

Software Configuration Management (SCM) Procedures, Continued

Documented procedures, continued

The table below lists the recommended documented procedures for the software configuration management process, continued from the previous page.

√	Documented Procedures	References
	<p>The status of configuration items/units is recorded according to a documented procedure. (L2-80, A8)</p> <p>This procedure typically specifies that:</p> <ul style="list-style-type: none"> <input type="checkbox"/> The configuration management actions are recorded in sufficient detail so that the content and status of each configuration item/unit are known and previous versions can be recovered. <input type="checkbox"/> The current status and history (i.e., changes and other actions) of each configuration item/unit are maintained. 	
	<p>Software baseline audits are conducted according to a documented procedure. (L2-81, A10).</p> <p>This procedure typically specifies that:</p> <ul style="list-style-type: none"> <input type="checkbox"/> There is adequate preparation for the audit. <input type="checkbox"/> The integrity of software baselines is assessed. <input type="checkbox"/> The structure and facilities of the configuration management library system are reviewed. <input type="checkbox"/> The completeness and correctness of the software baseline library contents are verified. <input type="checkbox"/> Compliance with applicable SCM standards and procedures is verified. <input type="checkbox"/> The results of the audit are reported to the project software manager. <input type="checkbox"/> Action items from the audit are tracked to closure. 	

Software Configuration Management (SCM) Procedures

Documented procedures

The table below lists the recommended documented procedures for the software configuration management process.

√	Documented Procedures	References
	<p>A SCM plan is prepared for each software project according to a documented procedure. (L2-76, A1)</p> <p>This procedure typically specifies that:</p> <ul style="list-style-type: none"> <input type="checkbox"/> The SCM plan is developed in the early stages of, and in parallel with, the overall project planning. <input type="checkbox"/> The SCM plan is reviewed by the affected groups. <input type="checkbox"/> The SCM plan is managed and controlled. 	
	<p>Change requests and problem reports for all configuration items/units are initiated, recorded, reviewed, approved, and tracked according to a documented procedure. (L2-79, A5)</p>	
	<p>Changes to baselines are controlled according to a documented procedure. (L2-80, A6)</p> <p>This procedure typically specifies that:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Reviews and/or regression tests are performed to ensure that changes have not caused unintended effects on the baseline. <input type="checkbox"/> Only configuration items/units that are approved by the SCCB are entered into the software baseline library. <input type="checkbox"/> Configuration items/units are checked in and out in a manner that maintains the correctness and integrity of the software baseline library. 	
	<p>Products from the software baseline library are created and their release is controlled according to a documented procedure. (L2-80, A7)</p> <p>This procedure typically specifies that:</p> <ul style="list-style-type: none"> <input type="checkbox"/> The SCCB authorizes the creation of products from the software baseline library. <input type="checkbox"/> Products from the software baseline library, for both internal and external use, are built only from configuration items/units in the software baseline library. 	

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Software Quality Assurance (SQA) Procedures

Documented procedures

The table below lists the recommended documented procedures for the software quality assurance process.

√	Documented Procedures	References
	<p>A SQA plan is prepared for the software project according to a documented procedure. (L2-63, A1)</p> <p>This procedure typically specifies that:</p> <ul style="list-style-type: none"> <input type="checkbox"/> The SQA plan is developed in the early stages of, and in parallel with, the overall project planning. <input type="checkbox"/> The SQA plan is reviewed by the affected groups and individuals. <input type="checkbox"/> The SQA plan is managed and controlled. 	
	<p>Deviations identified in the software activities and software work products are documented and handled according to a documented procedure. (L2-67, A7)</p> <p>This procedure typically specifies that:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Deviations from the software development plan and the designated project standards and procedures are documented and resolved with the appropriate software task leaders, software managers, or project manager, where possible. <input type="checkbox"/> Deviations from the software development plan and the designated project standards and procedures not resolvable with the software task leaders, software managers, or project manager are documented and presented to the senior manager designated to receive noncompliance items. <input type="checkbox"/> Noncompliance items presented to the senior manager are periodically reviewed until they are resolved. <input type="checkbox"/> The documentation of noncompliance items is managed and controlled. 	

Software Subcontract Management (SSM) Procedures, Continued

Documented procedures, continued

The table below lists the recommended documented procedures for the software subcontract management process, continued from the previous page.

√	Documented Procedures
	<p>The prime contractor's software configuration management group monitors the subcontractor's activities for software configuration management according to a documented procedure. (L2-54, A11)</p> <p>This procedure typically specifies that:</p> <ul style="list-style-type: none"> <input type="checkbox"/> The subcontractor's plans, resources, procedures, and standards for software configuration management are reviewed to ensure they are adequate. <input type="checkbox"/> The prime contractor and the subcontractor coordinate their activities on matters relating to software configuration management to ensure that the subcontractor's products can be readily integrated or incorporated into the project environment of the prime contractor. <input type="checkbox"/> The subcontractor's software baseline library is periodically audited to assess how well the standards and procedures for software configuration management are being followed and how effective they are in managing the software baseline.
	<p>The prime contractor conducts acceptance testing as part of the delivery of the subcontractor's software products according to a documented procedure. (L2-55, A12)</p> <p>This procedure typically specifies that:</p> <ul style="list-style-type: none"> <input type="checkbox"/> The acceptance procedures and acceptance criteria for each product are defined, reviewed, and approved by both the prime contractor and the subcontractor prior to the test. <input type="checkbox"/> The results of the acceptance tests are documented. <input type="checkbox"/> An action plan is established for any software product that does not pass its acceptance test.

Software Subcontract Management (SSM) Procedures, Continued

Documented procedures, continued

The table below lists the recommended documented procedures for the software subcontract management process, continued from the previous page.

√	Documented Procedures
	<p>Formal reviews to address the subcontractor's software engineering accomplishments and results are conducted at selected milestones according to a documented procedure. (L2-53, A9)</p> <p>This procedure typically specifies that:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Reviews are preplanned and documented in the statement of work. <input type="checkbox"/> Reviews address the subcontractor's commitments for, plans for, and status of the software activities. <input type="checkbox"/> Significant issues, action items, and decisions are identified and documented. <input type="checkbox"/> Software risks are addressed. <input type="checkbox"/> The subcontractor's software development plan is refined, as appropriate.
	<p>The prime contractor's software quality assurance group monitors the subcontractor's software quality assurance activities according to a documented procedure. (L2-53, A10)</p> <p>This procedure typically specifies that:</p> <ul style="list-style-type: none"> <input type="checkbox"/> The subcontractor's plans, resources, procedures, and standards for software quality assurance are periodically reviewed to ensure they are adequate to monitor the subcontractor's performance. <input type="checkbox"/> Regular reviews of the subcontractor are conducted to ensure the approved procedures and standards are being followed. <ul style="list-style-type: none"> <input type="checkbox"/> The prime contractor's software quality assurance group spot checks the subcontractor's software engineering activities and products. <input type="checkbox"/> The prime contractor's software quality assurance group audits the subcontractor's software quality assurance records, as appropriate. <input type="checkbox"/> The subcontractor's records of its software quality assurance activities are periodically audited to assess how well the software quality assurance plans, standards, and procedures are being followed.

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Software Subcontract Management (SSM) Procedures, Continued

Documented procedures, continued

The table below lists the recommended documented procedures for the software subcontract management process, continued from the previous page.

√	Documented Procedures
	<p>The software subcontractor is selected based on an evaluation of the subcontract bidders' ability to perform the work, according to a documented procedure. (L2-49, A2)</p> <p>This procedure covers the evaluation of:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Proposals submitted for the planned subcontract. <input type="checkbox"/> Prior performance records on similar work, if available. <input type="checkbox"/> The geographic locations of the subcontract bidders' organizations relative to the prime contractor. <input type="checkbox"/> Software engineering and software management capabilities. <input type="checkbox"/> Staff available to perform the work. <input type="checkbox"/> Prior experience in similar applications, including software expertise on the subcontractor's software management team. <input type="checkbox"/> Available resources.
	<p>Changes to the software subcontractor's statement of work, subcontract terms and conditions, and other commitments are resolved according to a documented procedure. (L2-51, A6)</p> <p>This procedure typically specifies that:</p> <ul style="list-style-type: none"> <input type="checkbox"/> All affected groups of both the prime contractor and the subcontractor are involved.

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Software Subcontract Management (SSM) Procedures

Documented procedures

The table below lists the recommended documented procedures for the software subcontract management process.

√	Documented Procedures
	<p>The work to be subcontracted is defined and planned according to a documented procedure. (L2-47, A1)</p> <p>This procedure typically specifies that:</p> <ul style="list-style-type: none"> <input type="checkbox"/> The software products and activities to be subcontracted are selected based on a balanced assessment of both technical and nontechnical characteristics of the project. <ul style="list-style-type: none"> <input type="checkbox"/> The functions or subsystems to be subcontracted are selected to match the skills and capabilities of potential subcontractors. <input type="checkbox"/> The specification of the software products and activities to be subcontracted is determined based on a systematic analysis and appropriate partitioning of the system and software requirements. <input type="checkbox"/> The specification of the work to be subcontracted and the standards and procedures to be followed are derived from the project's: <ul style="list-style-type: none"> <input type="checkbox"/> statement of work, <input type="checkbox"/> system requirements allocated to software, <input type="checkbox"/> software requirements, <input type="checkbox"/> software development plan, and <input type="checkbox"/> software standards and procedures. <input type="checkbox"/> A subcontract statement of work is: <ul style="list-style-type: none"> <input type="checkbox"/> prepared, <input type="checkbox"/> reviewed, <input type="checkbox"/> agreed to, <input type="checkbox"/> revised when necessary, and <input type="checkbox"/> managed and controlled. <input type="checkbox"/> A plan for selecting a subcontractor is prepared concurrent with the subcontract statement of work and is reviewed, as appropriate.

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Software Project Tracking & Oversight (SPTO) Procedures

Documented procedures

The table below lists the recommended documented procedures for the software project tracking and oversight process.

√	Documented Procedures	References
	<p>The project's software development plan is revised according to a documented procedure. (L2-33, A2)</p> <p>This procedure typically specifies that:</p> <ul style="list-style-type: none"> <input type="checkbox"/> The software development plan is revised, as appropriate, to incorporate plan refinements and incorporate plan changes, particularly when plans change significantly. <input type="checkbox"/> The software development plan is updated to incorporate all new software project commitments and changes to commitments. <input type="checkbox"/> The software development plan is reviewed at each revision. <input type="checkbox"/> The software development plan is managed and controlled. 	
	<p>Software project commitments and changes to commitments made to individuals and groups external to the organization are reviewed with senior management according to a documented procedure. (L2-35, A3)</p>	
	<p>Formal reviews to address the accomplishments and results of the software project are conducted at selected project milestones according to a documented procedure. (L2-39, A13)</p>	

Software Project Planning (SPP) Procedures, Continued

Documented procedures, continued

The table below lists the recommended documented procedures for the software project planning process, continued from the previous page.

√	Documented Procedures	References
	<p>Estimates for the project's critical computer resources are derived according to a documented procedure. (L2-23, A11)</p> <p>This procedure typically specifies that:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Critical computer resources for the project are identified. <input type="checkbox"/> Estimates for the critical computer resources are related to the estimates of: <ul style="list-style-type: none"> <input type="checkbox"/> The size of the software work products. <input type="checkbox"/> The operational processing load. <input type="checkbox"/> The communications traffic. <input type="checkbox"/> Estimates of the critical computer resources are documented, reviewed, and agreed to. 	
	<p>The project's software schedule is derived according to a documented procedure. (L2-23, A12)</p> <p>This procedure typically specifies that:</p> <ul style="list-style-type: none"> <input type="checkbox"/> The software schedule is related to: <ul style="list-style-type: none"> <input type="checkbox"/> The size estimate of the software work products (or the size of changes). <input type="checkbox"/> The software effort and costs. <input type="checkbox"/> The software schedule is based on past experience. <ul style="list-style-type: none"> <input type="checkbox"/> Similar projects are used when possible. <input type="checkbox"/> The software schedule accommodates the imposed milestone dates, critical dependency dates, and other constraints. <input type="checkbox"/> The software schedule activities are of appropriate duration and the milestones are of appropriate time separation to support accuracy in progress measurement. <input type="checkbox"/> Assumptions made in deriving the schedule are documented. <input type="checkbox"/> The software schedule is documented, reviewed, and agreed to. 	

Software Project Planning (SPP) Procedures, Continued

Documented procedures, continued

The table below lists the recommended documented procedures for the software project planning process, continued from the previous page.

√	Documented Procedures	References
	<p>Estimates for the size of the software work products (or changes to the size of software work products) are derived according to a documented procedure. (L2-21, A9)</p> <p>This procedure typically specifies that:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Size estimates are made for all major software work products and activities. <input type="checkbox"/> Software work products are decomposed to the granularity needed to meet the estimating objectives. <input type="checkbox"/> Historical data are used where available. <input type="checkbox"/> Size estimating assumptions are documented. <input type="checkbox"/> Size estimates are documented, reviewed, and agreed to. 	
	<p>Estimates for the software project's effort and costs are derived according to a documented procedure. (L2-22, A10)</p> <p>This procedure typically specifies that:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Estimates for the software project's effort and costs are related to the size estimates of the software work products (or the size of the changes). <input type="checkbox"/> Productivity data (historical and/or current) are used for the estimates when available; sources and rationale for these data are documented. <ul style="list-style-type: none"> <input type="checkbox"/> The productivity and cost data are from the organization's projects when possible. <input type="checkbox"/> The productivity and cost data take into account the effort and significant costs that go into making the software work products. <input type="checkbox"/> Effort, staffing, and cost estimates are based on past experience. <ul style="list-style-type: none"> <input type="checkbox"/> Similar projects should be used when possible. <input type="checkbox"/> Time phasing of activities is derived. <input type="checkbox"/> Distributions of the effort, staffing, and cost estimates over the software life cycle are prepared. <input type="checkbox"/> Estimates and the assumptions made in deriving the estimates are documented, reviewed, and agreed to. 	

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Software Project Planning (SPP) Procedures

Documented procedures

The table below lists the recommended documented procedures for the software project planning process.

√	Documented Procedures	References
	<p>Software project commitments made to individuals and groups external to the organization are reviewed with senior management according to a documented procedure. (L2-17, A4)</p>	
	<p>The project's software development plan is developed according to a documented procedure. (L2-18, A6)</p> <p>This procedure typically specifies that:</p> <ul style="list-style-type: none"> <input type="checkbox"/> The software development plan is based on and conforms to: <ul style="list-style-type: none"> <input type="checkbox"/> the customer's standards, as appropriate; <input type="checkbox"/> the project's standards; <input type="checkbox"/> the approved statement of work; and <input type="checkbox"/> the allocated requirements. <input type="checkbox"/> Plans for software-related groups and other engineering groups involved in the activities of the software engineering group are negotiated with those groups, the support efforts are budgeted, and the agreements are documented. <input type="checkbox"/> Plans for involvement of the software engineering group in the activities of other software-related groups and other engineering groups are negotiated with those groups, the support efforts are budgeted, and the agreements are documented. <input type="checkbox"/> The software development plan is reviewed by: <ul style="list-style-type: none"> <input type="checkbox"/> the project manager, <input type="checkbox"/> the project software manager, <input type="checkbox"/> the other software managers, and <input type="checkbox"/> other affected groups. <input type="checkbox"/> The software development plan is managed and controlled. 	

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Requirements Management (RM) Procedures

**Documented
procedures**

There are no recommended documented procedures for the requirements management process.

Level 2 Procedure Checklists

Overview

Introduction This section describes all the explicit documented procedures recommended in the Capability Maturity Model for maturity level 2.

Purpose The purpose of the procedure checklists is to provide:

- Guidance in identifying which procedures are recommended by the CMM at level 2.
- Criteria that an organization can use to evaluate its software procedures to determine if those procedures are consistent with the CMM at level 2.
- Information that can be used to develop software procedures that are consistent with the CMM at level 2.

In this section This section covers the following documented procedures:

CMM Level 2 Procedures	See Page
Requirements management procedures	L2-Procedures-2
Software project planning procedures	L2-Procedures-3
Software project tracking & oversight procedures	L2-Procedures-6
Software subcontract management procedures	L2-Procedures-7
Software quality assurance procedures	L2-Procedures-11
Software configuration management procedures	L2-Procedures-12
