

Examination Regulations

Certified Professional for Software Architecture (CPSA)[®] *Expert Level*

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1. Definitions

1.1. Involved Parties

People involved in the examination process

Name of the role	Description, position, task
Expert Level Candidate	Advanced-Level architect aiming for the Expert Level certificate CPSA-E
iSAQB	iSAQB e. V. makes the following artifacts available: <ul style="list-style-type: none"> • List of (open) topics, on the website • Yearbook (collects, binds, publishes, and translates papers that were finally worked on in the topic working groups) • Completed topics for download • Website for registration for EL candidates
iSAQB Expert Level WG	Working group for the Expert Level at iSAQB The working group organizes and oversees the implementation of the processes.
Examiner	Examiners work for the certifying body and assess the results of a topic working group. The Expert Level WG provides the certifying body with examiners from its own working group. Other iSAQB members can also register as examiners and are included in the Expert Level WG for this purpose. Examiners must have the following characteristics: <ul style="list-style-type: none"> • They are members of the Expert Level WG. • They are recognized experts in software architecture. • They have extensive and in-depth knowledge in the field of software architecture. • They work as examiners on a fee basis. • They have sufficient time to perform their work as examiners.
Topic working group	Working group formed to work on an EL topic. The topic working group is composed of accepted candidates for a topic.
Person submitting a topic	Submits a (possible) topic, which should be worked on within the scope of an Expert Level certification.
Topic moderator	Each topic working group is guided by a topic moderator. They guide the topic working group, take delivery of the roadmap, answer questions, and assess the results based on formal criteria. They may organize rooms and presentation materials for in-person meetings.
Topic administrator	The topic administrator checks new topics and manages topics in the list of topics. They are an active member of iSAQB.
Training provider	Training providers are “training facilitators” accredited by iSAQB who appoint the topic moderator.

Name of the role	Description, position, task
Certifying body	Certifying bodies are institutes accredited by iSAQB that organize the examination of a topic working group's results and issue the CPSA Expert Level certificate.

2. Examination Information

2.1. Purpose and Intent

During the CPSA-E, you and other candidates bring together experience-based knowledge from your project work. Together, you supplement this with additional expert knowledge, research, and a discussion between yourselves. You then present this knowledge via publications within the scope of the CPSA-E. You thus actively help to disseminate expert knowledge and improve software quality through your contribution, even in other projects.

The topics were submitted in advance via the iSAQB website. Following approval by the topic administrator, the topics are available to be worked on.

2.2. Objectives

- You show that you are an expert in a specialist field of software architecture.
- You develop new knowledge with other experts.
- You show the ability to work in a team.
- You interact with other experts, thereby building a network for your professional future.
- You present the results at conferences or publish them in trade magazines.

2.3. Preconditions

As a qualification requirement, an Expert Level candidate must have successfully acquired the iSAQB Advanced-Level certification. There are no other qualification requirements. However, you should have extensive project experience and in-depth knowledge in the field of your chosen software architecture topic, which you would like to work on with the topic working group.

The practical experience does not need to be proven as it is already a requirement for the iSAQB Foundation and Advanced-Level certifications. There is also no minimum amount of time that must have passed between the Advanced and the Expert Level certification.

2.4. Examination Duration

The topic working group has 12 months from the first meeting with the topic moderator to submit the results to the certifying body for the first time. A period of 3 to 9 months is recommended. With valid justification, the topic working group can extend the period by individual months. The justification must be submitted to and accepted by the topic moderator.

2.5. Examination Costs

The costs of certification at the Expert Level comprise the costs for the selected topic moderator and the certification body. The prices can vary depending on the size of the group. Rough cost estimate for the whole topic working group:

- Costs for certification body: € 2600
- Costs for the topic moderator: approx. € 8000 (quotations for the training providers accredited for the EL can vary)
- Possible additional costs, e.g., for travel within the scope of the collaboration or extra costs due to corrections are not included and are to be borne by the topic working group itself.

2.6. Registration for the Examination

The topic working group seeks and engages the certifying body and informs the topic moderator about the chosen certifying body. You can find available certifying bodies under “Certification bodies” on the iSAQB website. The topic moderator formally accepts the results and passes them on to the certifying body.

3. Examination Procedure

3.1. Submit Topic (optional)

The submission of a topic takes place on the iSAQB website via a form. The topic administrator assesses the submitted topic formally and in terms of content within one month. On acceptance, they approve the topic. The topic is then available for application on the iSAQB website. If a topic is rejected, it can be improved and submitted to the topic administrator again.

Criteria for a new Topic

A new topic must meet the following criteria:

Criterion	Requirement	Description
Originality	Must	Will the topic group provide new knowledge or insights to the community? Is the topic not yet completely and publicly worked on (e. B. Wikipedia)?
Relevance	Must	Is the topic interesting for a larger group of people?
Innovation	Must	Does the topic generate new ideas and new knowledge that are of general interest?
Creativity	Shall	Does the topic show creativity, e.g. through synergies, analogies, ideas?
Effectiveness	Shall	Is it to be expected that the work in software architecture can be simplified or accelerated in the future by working on the topic?
Problem solving	Must	Can recurring and previously insurmountable problems in the software architecture be solved by topic processing? Examples: <ul style="list-style-type: none"> • Improve communication between management and software architects • Introduction of new methods, like e.g. architecture management, Domain-Driven Design, Green-IT, ...

3.2. Step 1: Select Topic

Candidates can apply for approved topics. The application takes place via the iSAQB website and must fulfill the minimum requirements for participation in the CPSA-E. Once the topic working group has reached its target group size, it can begin its work.

3.3. Step 2: Assemble Topic Working Group

The topic administrator ensures that there are sufficient candidates in the topic working group according to the topic submission. They do not need to perform this task alone, but can take advantage of assistance from the candidates already in the topic working group. The topic working group is welcome to promote the topic among colleagues and acquaintances. iSAQB will also regularly draw attention to open topics and encourage participation.

As soon as enough candidates for the topic working group are available, the topic administrator informs

about the start of the topic working group and sends all the members` contact details to the topic working group.

3.4. Step 3: Appoint Trainings Provider with Topic Moderator

The topic working group obtains offers from training providers and selects an appropriate one for them. The training provider makes a topic moderator available. This topic moderator guides the topic working group through the entire working process and approves working steps.

3.5. Step 4: Create Roadmap

The topic working group creates a roadmap, in which they put down in writing their plan for their procedure in terms of content and timescale. The topic moderator can provide assistance here. The roadmap is ultimately submitted to the topic moderator, who assesses this based on specified criteria.

Criteria for a Roadmap

Criterion	Requirement	Description
Objective, mission	Essential	<ul style="list-style-type: none"> • Are the objective and mission of the topic working group described comprehensibly?
Topic working group	Essential	<ul style="list-style-type: none"> • Are the contact details of all members of the topic working group stated?
Procedure	Essential	<ul style="list-style-type: none"> • Are the roles and tasks of the members of the topic working group described? • Is a timetable with milestones provided? • Are the times and locations for the optional in-person meetings stated? • Are the times and resources for the virtual meetings stated? • Are the tools for electronic communication listed? • Are work packages and responsibilities defined? • Is the review process determined?
Literature	Essential	<ul style="list-style-type: none"> • Is there a bibliography? • Does the bibliography comprise at least 7 sources? • Are the sources of academic value?
Results	Essential	<ul style="list-style-type: none"> • Is the mandatory article discussed? • Is at least one additional result stated (e.g., instructions, example, ...)? • Are the form and structure discussed for each result? • Does the topic working group attempt to present the results at at least one conference? • Does the topic working group attempt to publish the results in at least one trade publication?

If the topic moderator approves the roadmap, the topic working group can begin with implementation. If

the roadmap is rejected, the topic working group has one further attempt to improve and re-submit the roadmap.

3.6. Step 5: Develop Topic

The topic working group comes together for meetings, where they coordinate with each other and work on tasks from the roadmap. They are supported in this by the topic moderator. Meetings can also be held online.

The topic working group brings together its experience on the selected topic, consolidates it, and derives new insights from it. The necessary work includes collection of data, literature research or writing. It is recommended that topic working groups publish their results at conferences or in professional journals. iSAQB will support and promote the publications.

4. Examination Procedure

4.1. Submission

Once the roadmap has been fulfilled, the topic working group submits its results to the topic moderator. They assess the results according to formal criteria and, if necessary, request corrections.

With the following criteria the topic moderator checks the results of a topic working group.

Formal Criteria

Criterion	Requirement	Description
Article	Essential	<p>Does the article have the following structure and content?</p> <ol style="list-style-type: none"> 1. Title <ol style="list-style-type: none"> a. Does the title suit the topic discussed? 2. Authors <ol style="list-style-type: none"> a. Are the authors named? b. Are the authors' e-mail addresses listed? 3. Abstract <ol style="list-style-type: none"> a. Is the problem described briefly? b. Does the abstract describe the main theses or results? c. Is the description short and understandable? 4. Introduction <ol style="list-style-type: none"> a. Does the introduction describe the current state of knowledge? b. Is the motivation discussed? c. Is there a description of the existing knowledge gaps that are to be filled by this academic article? d. Is there a description of the research questions that are to be answered in the article?

Criterion	Requirement	Description
		<p>5. Main section (chapter name(s) can be chosen freely)</p> <p>a. Materials and methods</p> <p>i. Is there a description of the information sources?</p> <p>ii. Is there a description of the methods used to answer the research question?</p> <p>b. Results</p> <p>i. Is there a description of the findings?</p> <p>ii. Are the findings substantiated with sufficient plausible data?</p> <p>c. Discussion</p> <p>a. Is there a description of how the findings are interpreted?</p> <p>b. Is there a discussion of questions that arise from the results?</p> <p>c. Is there a discussion of the impacts that the findings have in practice?</p> <p>6. Summary</p> <p>a. Is there a brief summary of all of the research questions and their answers?</p> <p>b. Is there a brief discussion of the effects of the findings?</p> <p>7. Acknowledgments</p> <p>a. Are supporters mentioned?</p> <p>8. Conflicts of interest</p> <p>a. Are conflicts of interest mentioned?</p> <p>9. Bibliography</p> <p>a. Is there a list of all of the literature used?</p> <p>b. Is the literature cited correctly?</p>
Additional result	Essential	<ul style="list-style-type: none"> • Do the form and content fulfill the purpose of the result (e.g., a new pattern according to the pattern language context, problem, solution)? • Is there a comprehensible description of the result? • Is it evident that at least two person weeks were necessary for the creation of the additional result?
Submissions	Desired	<ul style="list-style-type: none"> • Has the topic working group submitted a talk or a workshop to at least one conference? • Has the topic working group attempted to publish the results in at least one trade publication?

Criterion	Requirement	Description
Experience report	Essential	<ul style="list-style-type: none"> • Has each member of the topic working group submitted an experience report? • Are all the points in the experience report completed?
Collaboration	Essential	<ul style="list-style-type: none"> • The topic moderator confirms that, according to their perception, all members of the topic working group have contributed to approximately the same degree. • All members of the topic working group each present a work log, in which they have logged their activities.

If the formal criteria are fulfilled, the topic moderator passes the results on to the certifying body selected by the topic working group.

4.2. Examination Components

For certification, a topic working group must submit the following results:

Result	Requirement	Description
Article	Essential	The article describes the results of the topic working group. iSAQB provides a template.
Additional result	Essential	The topic working group must create at least one freely selectable additional result, such as instructions, best practices, and evaluations of surveys.
Submissions	Desired	The topic working group should submit their results to conferences or publish them in professional journals. As evidence, the topic working group submits an abstract or a copy of the published article.
Experience report	Essential	Each member of a topic working group creates an experience report to enable iSAQB to further develop the processes. iSAQB provides a template for this.

The topic working group permits iSAQB to publish their results. Each member of the topic working group can also use the results freely, stating the collaborators and iSAQB. iSAQB publishes the article on its pages, naming all of those involved, and translates it into various languages.

Assessment

The joint assessment of the examiners takes place according to the following catalog of criteria. At least 20 of the 30 points must be achieved. 4 out of 10 points must be achieved in each category. The examiners can provide justification for each criterion.

Content Criteria

Criterion	Assessment Scheme
Importance for theory and practice	10 - Outstanding importance 08 - Important 06 - Not unimportant 04 - Rather weak importance 02 - Of low importance 00 - Absolutely no relevance
Originality and degree of innovation	10 - An important and meaningful contribution to the topic area 08 - A clear contribution to the topic area. 06 - A small contribution to the topic area. Added value may result from it in the future. 04 - There is better work on this topic. 02 - Already said many times. 00 - Contributes little or nothing at all to the topic area.
Quality of the presentation	10 - Excellently written 08 - Well written 06 - Readable 04 - Should be edited 02 - Still significant work required 00 - Unacceptable

Six weeks after the topic working group has submitted the results, the members are informed of the result by the certifying body: Successful certification, rejection, or correction required. The topic working group gains insight into the justification for the examination results.

4.3. Receipt of the certificate

The result of the whole topic working group is certified and not the individual performance of its members. The certificate is issued for the topic working group's topic. People can obtain several Expert Level certifications by collaborating in several topic working groups. The Expert Level certification is valid for an indefinite period.

4.4. Retry

If the submitted work is not satisfactory, the topic working group can rectify shortcomings and resubmit the work within a maximum of 6 months.

4.5. Appeal

Topic working groups whose submitted work does not pass the examination have the right to submit a written appeal against the assessment within one month of the announcement of the result. The appeal must be justified in writing within two months of the announcement of the result. Only factual objections (e.g., violations of the examination rules and regulations or objective mistakes during the assessment) are taken into consideration. Appeals based on opinions are rejected. The certification body assesses compliance with the formal requirements for the submission and justification of an appeal and can reject the appeal as inadmissible if the deadline for the submission and/or justification of the appeal has not been observed. If all the requirements are fulfilled, the certification body passes on the grounds for the appeal to the examiners who assessed the application. They assess the grounds and submit a written statement. The statement confirms the assessment or delivers a new assessment, which is final and binding and cannot be contested any further.