

IFC CERTIFICATION 2.0: Specification of Certification Process

1 Origin and Authority

1.1 The Certificationⁱ process describes the certification of IFCⁱⁱ interfaces for software products using the IFC interoperability schema, named here “IFC Certification 2.0”.

1.2 The certification process is carried out by the Implementer Support Group (ISG)ⁱⁱⁱ and Model Support Group (MSG)^{iv} of buildingSMART International (bSI) under the authority of bSI’s International Council (IC)^v.

1.3 The “IFC Certification 2.0” is an improved implementation of the former “IFC2x^{vi} Certification” process. The most important achievement of the “IFC Certification 2.0” process is a detailed quality control approach for the IFC interfaces on top of the self check performed by the software developer. The former “IFC2x Certification” only had an ability check, proving that the software developer was in principal able to implement the IFC standard properly by following the procedures outlined.

1.4 The “IFC Certification 2.0” process is a one-step approach to certification, based on the web-documentation platform Global Testing and Documentation Server (GTDS)^{vii}. The achievable depth of quality control takes into account the bSI’s available resources and will be documented on the platform.

2 Scope and Responsibility

2.1 The IFC interface of a developer’s software product has to be checked by the manual testing instructions and automated testing tools, which are provided via the web-based GTDS platform. The scope of testing is based on an agreed subset of the full IFC2x3 schema. The subset has to be defined as a Model View Definition (MVD)^{viii} that is accepted by the relevant groups of bSI. As a result the Model View Definition has to be copyrighted to bSI before certification starts.

2.2 It still is and always remains the responsibility of the software developer to ensure the quality of the IFC interface that is part of its product. It is the responsibility of the end users to determine how they use the IFC interface within their projects and to take liability for that usage.

3 Disclaimer

3.1 bSI and its representatives are providing services for the certification and for facilitating the approval process, but they are not responsible for the quality of the implementation of the IFC interface or how it is used. bSI and its representatives for the certification process explicitly disclaim liability for any defects that may result from

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using the IFC interfaces in software products before, during and after the certification process.

4 Methodology

4.1 The certification will be provided for a particular software product and version, and not for all the products of a software developer, or all versions of that product.

4.2. The certification platform GTDS provides test instructions, calibration files and automated testing tools. These are specific to the MVD selected for certification. The GTDS also serves as the repository for the test results. This environment is already available for participating software developers during the preparation phase, prior to the actual certification approval.

4.3 Authorised Testers will approve the test results and their documentation in GTDS. Testers will be authorised by bSI's ExCom^{ix}, as needed.

4.4 Software developers seeking certification have to register at least 4 weeks in advance. The certification approval will then be carried out on the principle "first come - first served" as it depends on the available resources for maintaining the certification environment, for providing the automated testing rules, and on the availability of authorised testers.

4.5 The registration should include the model view definition and the type of certification (e.g. import and/or export) which is sought by the implementer and should state any limitations arising from the nature of the application. The format of the announcement will be provided by the facilitator.

4.6 In addition to the functional tests, the certification will ascertain whether the vendor provides explanatory documentation on how to use IFC with his specific application.

4.7. When a software product has passed the certification process successfully, the *Certification Certificate* will be awarded by bSI. The use of the *Certification Certificate* and the accompanying *Certification Logo* is subjected to rules issued by bSI.

4.8 Depending on the maturity of the software product's IFC Interface it may take more than one run through the certification process to achieve the required quality for awarding the *Certification Certificate*. Each run is to be paid for separately.

5. Open Certification Approval

5.1 The testing activities of the authorised testers are open and can be witnessed by members of the bSI community. Certification approvals will be scheduled and announced on bSI websites at least four weeks in advance.

5.2 A description of the certification procedure and the MVDs available for certification are published on bSI's website.

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6. Calibration Files, Test Instructions, and Views

6.1 A set of appropriate calibration files has to be generated for use during the certification process (predominately for import tests). The content of the test files is based on the MVD of IFC that is selected for the certification.

6.2 A set of appropriate test instructions has to be generated for use during the certification process (predominately for export tests). The content of the test instructions is based on the MVD of IFC that is selected for the certification.

6.3 The certification is only given for the part of the IFC model which is specified in the MVD.

7. Conditions for Certification

7.1 The results of a complete self testing have to be documented by the participants in the GTDS platform, prior to the actual certification testing.

7.2 The authorised testers will approve the results of the self testing.

7.3 Under the certification process, the certification certificate will only be supplied when the software has passed successfully through all the tests provided through GTDS.

7.4 If a problem should occur during approval, it will be documented. Any certification given will specify the limitations attributable to the problem. As soon as the software developer is able to demonstrate that the problem is solved, full certification will be given.

8. Further Development

8.1 If all software developers who achieved certification based on a specific MVD agree, calibration files and testing instructions may be added to the official set of test files after the first certification. The reason is that the quality of the calibration files and testing instructions can be improved from experience in daily practice. The set of test instructions and calibration files is not only very valuable for the actual certification, but also for the ongoing quality assurance process of each software developer as and when they release new updates (regression tests).

9 Role of Model Support Group (MSG) and Implementer Support Group (ISG)

9.1 Representatives of MSG and ISG will facilitate the certification by:

- verifying that the agreed MVD is consistent to the IFC specification for which the certification is organised (Only an official bSI MVD can be selected for a bSI certification)
- discussing the MVD with the participating software developers and facilitating the definition of further implementer agreements

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- announcing the MVD publicly through ISG, so that all implementers are aware of them
- defining the contents and necessary number of calibration files and test instructions so that they cover the MVD
- attending meetings of implementers who seek certification in order to help them to define the MVDs properly
- providing the GTDS platform
- including automated testing tools in GTDS.

9.2 Representatives of MSG / ISG facilitate the certification but do not represent the certification agency^x.

10 Preparation for Certification

10.1 Announcement of a certification shall be made as set out in 5.1 and 5.2 above.

11 Export Test

11.1 GTDS provides specific test instructions how to produce export files. In addition GTDS provides automated testing of exported files after they are uploaded into GTDS.

11.2 Export test files have to be provided at least 4 weeks in advance of the certification approval date. They have to be developed strictly according to the published test instructions.

11.3 Participants are expected to test their applications by themselves prior to a certification. The documented results of the self-testing have to be provided at least two weeks in advance of the certification approval date in GTDS.

12 Import Test

12.1 GTDS provides specific test instructions and calibration files for import testing.

12.2 Participants are expected to test their applications by themselves prior to a certification. The documented results of the self-testing have to be provided at least two weeks in advance of the certification approval date in GTDS.

13 Payment

13.1 Applicants for a certification shall pay for the following costs incurred:

- tools for checking test files
- setting up and provision of calibration files
- setting up and provision of test instructions
- setting up and provision of the web-based GTDS platform

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- facilitating the review and final approval of the MVD for certification
- attendance of certification meetings by MSG
- arbitration by MSG when implementation conflicts arise
- documentation of test results by authorised testers.

13.2 A schedule of charges for software developers will be published on bSI's website. The charge depends on the effort which is required depending on the type of the software product, on scope (import and/or export) and on the complexity of the MVD. The cost reflects the effort for the service the software developers receive during certification.

13.3 Any interested software developers should send an application for participating certification via e-mail to the ISG and MSG leads, with a copy to the Business Manager of bSI, who will invoice him for the appropriate sum of money. As soon as the money is deposited in the trust account (details below), the Business Manager will inform the ISG and MSG leads so that they can initiate the process of certification.

13.4 Access to the testing instructions, calibration files and full release of the testing tool is subject to payment of the certification fees.

13.5 The monies collected are held on trust within a bSI Euro account and used solely to fund efforts for current and future certification processes.

14 Additional Certifications

14.1 An implementer who has already passed an IFC Certification 2.0 for one MVD and wants the same application to be certified for more MVDs can do so on payment of an extra fee, as declared on bSI's website.

14.2 A certification will expire after two years. This is to ensure that updates and upgrades of an application still meet the required quality. Reduced fees will be declared for re-certification of one application within the two and a half years. Full fees will be charged for a recertification after two and a half years.

15 Certification Certificate and Logo

15.1 Successful implementers will receive an official buildingSMART certification certificate and as an abridgement a buildingSMART certification logo.

15.2 The certification certificate has the following information displayed

- Name and address of the software developer
- Name and version number of the software product
- Name and version number of the MVD
- (Optional) Name of the exchange requirement(s)
- Mode of support (Export/Import/Both)
- Date of certification
- Date until which the certification is valid.

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15.2 A copy of the certificate is permanently displayed on the certification page of the official bSI website. A permanent web link is generated for each software developer who has obtained certification.

15.2. Successful software developers will be entitled to display the certification logo based on the specimen shown below. The software developer is requested to publish the web link together with the logo.

16 Specimen of Certification Certificate and Logo

16.1 The certification certificate



16.2 The certification logo



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ⁱ These notes explain some terms in brief, in order to make this as a stand-alone document. However further details can be found on buildingSMART International websites <http://www.buildingsmart.com> . This site also contains references to bSI's technical website, where technical groups like ISG and MSG (see later) can be contacted.

ⁱⁱ IFC – Industry Foundation Class - is the standard data schema developed by buildingSMART. The schema represents buildings, structures of buildings, components of buildings and abstract objects of buildings such as quantities, costs or schedules. IFC allows representing explicit and semantic building data and is supposed to be used for interoperable file exchange as well as data sharing with data bases and middleware.

ⁱⁱⁱ ISG – Implementer Support Group - monitors software implementation of IFC and provides a platform for interested software implementers, where they can share experience. ISG represents the interests of software vendors in bSI and also organises meetings and other events in order to support IFC software implementation.

^{iv} MSG – Model Support Group - is responsible for any technical development around the IFC data schema.

^v IC- International Council - is bSI's highest decision-making body.

^{vi} IFC2x, IFC2x2, IFC2x3, IFC2x4, ... are names of different IFC releases.

^{vii} GTDS – Global Testing and Documentation Server, <http://gtds.buildingsmart.com> - is a web application offering a set of functionality. On the one side it is a meeting point for software developers and software users, where they can sort out issues regarding IFC. On the other side it provides automated online testing of IFC files and the documentation of certifications.

^{viii} MVD – Model View Definition - describes a certain subset of the overall IFC data schema, which represents specific exchange requirements of a business process. It serves the communication needs between certain experts, e.g. between architect and structural engineer, structural engineer and building service engineer and so on. Each type of communication requires a specific MVD.

^{ix} ExCom – Executive Committee - is bSI's business management for the organisation between IC meetings.

^x In general bSI represented by the IC is regarded to be the certification agency. IC may consider sub-contracting qualified regional certification agencies.

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