



General Guidelines for the CAx Implementor Forum

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Contents:

| | | |
|-------|---|----|
| 1.0 | Introduction | 3 |
| 2.0 | Test Campaigns..... | 3 |
| 2.1 | Prerequisites for Participation | 4 |
| 2.2 | File Naming Conventions..... | 5 |
| 2.2.1 | For STEP Files | 5 |
| 2.2.2 | For native and target Models | 5 |
| 2.2.3 | For any other files | 5 |
| 2.3 | Vendor Codes..... | 6 |
| 2.4 | Checking of STEP Files for Syntax and Structure | 7 |
| 2.5 | File Transmission..... | 7 |
| 2.5.1 | Distribution and Confidentiality of Test Models..... | 7 |
| 2.5.2 | STEP Files..... | 8 |
| 2.5.3 | Native and target Statistics | 8 |
| 2.5.4 | Native and target Models..... | 8 |
| 3.0 | Communication Platforms..... | 8 |
| 3.1 | Web sites..... | 8 |
| 3.2 | Mailing Lists | 9 |
| 3.3 | Conference Calls | 9 |
| 3.4 | CAESAR..... | 9 |
| 3.4.1 | Register | 9 |
| 3.4.2 | Using CEASAR..... | 9 |
| 3.5 | File Repository..... | 10 |

1.0 Introduction

The CAx Implementor Forum is a joint testing effort between PDES, Inc. and the ProSTEP iViP association. The objective of the forum is to accelerate CAx translator development and ensure that user's requirements are satisfied. The goals of the CAx Implementor Forum are to:

- Implement functionality for today's needs
- Identify functionality for tomorrow's needs
- Avoid roadblocks by establishing agreed upon approaches
- Increase user confidence by providing system and AP interoperability testing
- Ensure new functionality does not adversely impact existing implementations

2.0 Test Campaigns

There are two test campaigns each year, so each campaign is about six months in duration. The test campaigns begin in April and October. In general, a test campaign is:

- A round of distributed testing
- Followed by a test review meeting. This typically covers:
 - Detailed discussion of the results
 - Discussion of technical and standardization issues
 - Definition of the following round's scope and schedule
 - Joint meeting with users
 - Joint meeting with related project teams

Each campaign consists of a number of individual tests designed to meet / prove out STEP requirements identified by the member companies for interoperability testing. Each test campaign is comprised of:

- Definition of testing scope
- Development of testing instructions
- Selection of test cases
- Modeling of the test parts
- Preprocessing
- Transmission of files to the CAx Implementor Forum
- Checking files for syntax and structure
- Distribution of "checked" files
- Post-processing
- Transmission of results
- Discussion of issues

An overview of an arbitrary test round looks as follows:

CAx-IF: 1 Test round ~ 6 months

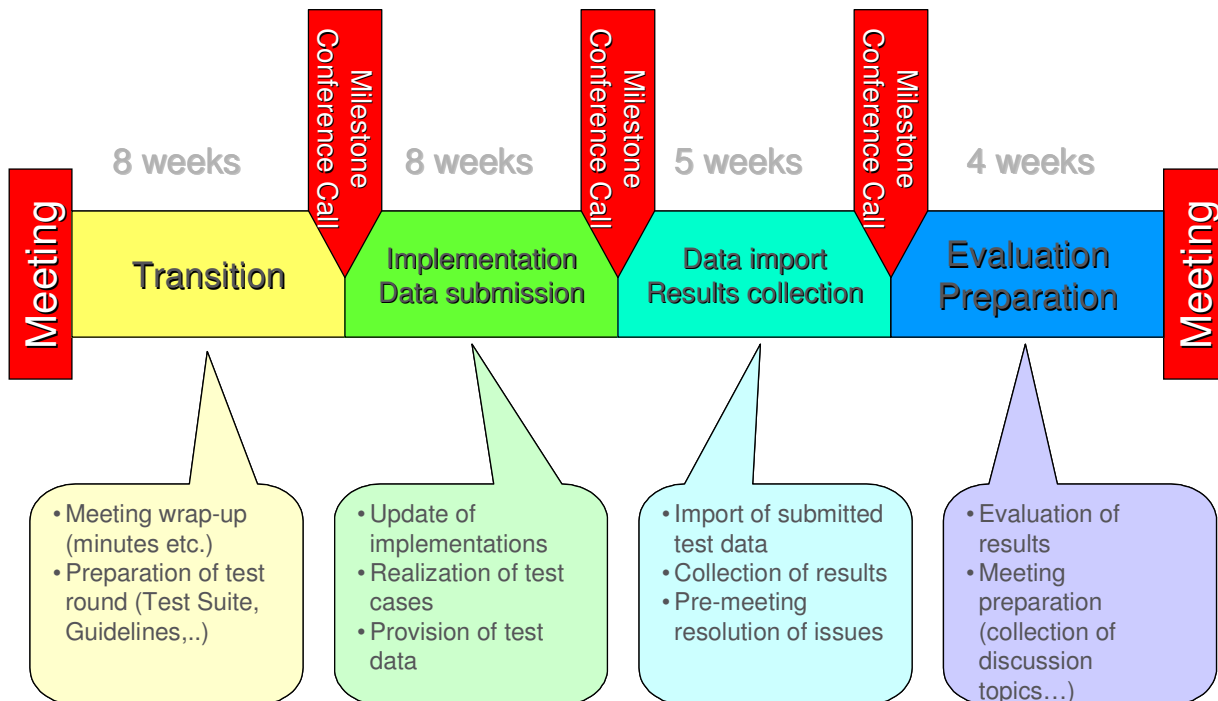


Figure 1: Schematic course of a CAx-IF Test Round

2.1 Prerequisites for Participation

A number of prerequisites have to be met before a CAx vendor can participate in the Implementor Forum. They are:

- The vendor must have a relatively mature STEP translator for either AP 203 or 214, i.e. be able to:
 - post-process a test suite of representative STEP files successfully
 - provide STEP files which pass syntax and structure checking
- The vendor must sign a non-disclosure agreement with PDES, Inc. and the ProSTEP iViP associations
- The vendor must agree to actively participate in the testing, which includes:
 - Pre- and post-processing test cases
 - Participating in conference calls
 - Identifying and discussing issues
 - Attending the meetings at the culmination of a round of testing

2.2 File Naming Conventions

2.2.1 For STEP Files

To insure proper configuration management of the test files, the following naming conventions are to be used for the STEP files from each vendor:

| | |
|-------------------------|---|
| “ccc-xx-yyy.stp” | ccc = test case identifier per testing instructions |
| | xx = vendor code of creating system |
| | yyy = 203 or 214 |

So for instance for the submitted STEP file from Autodesk Inventor for the solid assembly test case AS1 conforming to AP214, the proper file name would be:

as1-in-214.stp

Either the “stp” or “step” file extensions are permissible, but “stp” is recommended.

2.2.2 For native and target Models

Native and target models (i.e. models in the native format of the target system importing a STEP file) need to be exchanged to enable data transfer quality validation. Since many CAD system automatically generate the file names from the id of the contained parts, no naming convention for the models themselves is given. It is however recommended to rename the files (if possible) so that it becomes clear from the file name which system generated the model on base of what STEP file.

However, it is recommended to ZIP to model files before submitting them. The naming convention for these ZIP files is:

| | |
|--------------------------|---|
| “ccc-nnn-ttt.zip” | ccc = test case identifier per testing instructions |
| | nnn = vendor code of the system that created the models |
| | ttt = use 'nat' for native models, 'tgt' for target models. |

So for instance the target models for the Production Models imported into Theorem's Cadverter for CATIA V5 would be contained in the archive named

pm14-t5-tgt.zip

Note: For Unix based systems it is allowed to submit .tgt.gz formatted archives instead of .zip.

2.2.3 For any other files

Since the introduction of CAESAR (see section 3.3), it is no longer necessary to provide statistics (either native or target), or screenshots, to the facilitators, since these can be uploaded directly to the web database. If any files are submitted to additional information, the following naming convention is suggested:

| | |
|--------------------------|---|
| “ccc-nnn-ttt.ext” | ccc = test case identifier per testing instructions |
| | nnn = vendor code of the system that created the native model / STEP file |
| | ttt = 'nat' for native models, 'tgt' for target models, or the target system's code |
| | ext = extension according to file type |

So for instance for a PNG-formatted screenshot showing the import of a PTC Pro/Engineer production model into Adobe Acrobat 3D, the proper file name would be:

pm20-pe-a3.png

2.3 Vendor Codes

For the vendor codes used in the file naming conventions and further documentation, the following two letter designations are to be used:

| Code | System | Vendor |
|-----------|----------------------------|----------------------|
| a3 | Acrobat 3D | Adobe |
| a5 | Acrobat 3D (CATIA V5) | Adobe |
| al | AliasStudio | Autodesk |
| ap | Acrobat 3D (Pro/Engineer) | Adobe |
| au | Acrobat 3D (UG) | Adobe |
| c4 | CATIA V4 | Dassault Systèmes |
| c5 | CATIA V5 | Dassault Systèmes |
| cm | CoCreate Modeling | PTC |
| d5 | CrossCad (CATIA V5) | DataKit |
| dp | CrossCad (Pro/Engineer) | DataKit |
| du | CrossCad (UG) | DataKit |
| eb | <i>(for AP209 testing)</i> | Electric Boat |
| i4 | CADfix (CATIA V4) | ITI Transcendata |
| i5 | CADfix (CATIA V5) | ITI Transcendata |
| id | I-DEAS NX Series | Siemens PLM Software |
| in | Inventor | Autodesk |
| ip | CADfix (Pro/Engineer) | ITI Transcendata |
| iu | CADfix (UG) | ITI Transcendata |
| kc | KeyCreator | Kubotek |
| kr | REALyze | Kubotek |
| mp | <i>(for AP209 testing)</i> | MSC Patran |
| oc | CrossCad (OpenCascade) | DataKit |
| pc | CADDS | PTC |
| pe | Pro/Engineer | PTC |
| s4 | COM/STEP (CATIA V4) | T-Systems |
| s5 | COM/FOX (CATIA V5) | T-Systems |

| Code | System | Vendor |
|------|-------------------------|----------------------|
| se | SolidEdge | Siemens PLM Software |
| sw | SolidWorks | Dassault Systèmes |
| t4 | Cadverter (CATIA V4) | Theorem Solutions |
| t5 | Cadverter (CATIA V5) | Theorem Solutions |
| tc | Cadverter (CADDS) | Theorem Solutions |
| tj | Cadverter (JT) | Theorem Solutions |
| ts | Cadverter (I-DEAS) | Theorem Solutions |
| tp | Cadverter (Pro/E) | Theorem Solutions |
| tu | Cadverter (Unigraphics) | Theorem Solutions |
| ug | Unigraphics NX Series | Siemens PLM Software |

2.4 Checking of STEP Files for Syntax and Structure

STEP files from the various vendors will be checked for syntax and structure by the CAX-IF facilitators. Syntax checking tools used in this context are, among others, STEPcheck (developed by ERIM under contract to NIST), the EXPRESS Data Manager provided by EPM, and the Express Engine available on SourceForge (originally developed as “NIST Espresso”).

Validation of the structure versus the respective Recommended Practices will be done manually by the facilitators as required.

The formerly available online STEP checkers (both standalone and integrated into the PDM test environment) are no longer maintained. Please send any files to be checked to cax-test-admin-l@scra.org (see section 2.5.1) or use the file upload area for large files (see section 3.3).

2.5 File Transmission

2.5.1 Distribution and Confidentiality of Test Models



Many aspects of the CAX Implementor Forum are closed to the outside world. This means that all information including test models (native CAD and STEP), results, and issues, remain within the group and shall not be used for any other purpose than CAX-IF testing. Adhering to this rule on the one hand allows the members of the group to openly discuss their findings in order to help to advance their development activities, and on the other hand enables user companies to provide test models which may contain intellectual property in a way that ensures that access to this data is strictly limited. All detailed information will be handled within the password-protected member area of the CAX-IF web sites.

The only exception to this rule are screenshots, management summary presentations, recommended practices and synthetic STEP files the group agrees on publishing in the public area of the CAX-IF web site, or during meetings.

2.5.2 STEP Files

Any STEP files to be tested in a CAx-IF Test Round need to be sent to the testing administrators. E-mail the files to cax-test-admin-l@scra.org.

The files will be run through the syntax and structure checks by the facilitators to confirm the correctness of the file (see 2.4). In case there are issues with the STEP files, the testing administrators will get in touch with the originating vendor.

Once all files for a test round are submitted and checked, they will be made available in the member area of the CAx-IF web sites.

2.5.3 Native and target Statistics

For each test case, a set of statistics to validate the success of the exchange will be defined in the corresponding test suite document. There are two types of statistics:

- native statistics are submitted along with the STEP files and contain the key values as calculated by the native system.
- target statistics are generated after importing a STEP file, and represent the key values as calculated by the target system.

From Round20J on, all statistics are handled by the CAx-IF Evaluation, Statistics And Results (CAESAR) system; an online web data base which collects the statistics and renders immediate results for the submitted test cases.

The statistics may be entered manually using a web form, or by uploading a .csv file (text file with comma-separated valued) in the format specified in the test suite document. For registration and use of CAESAR, see section 3.3.

2.5.4 Native and target Models

The native and target models required for data transfer quality validation will be exchanged using the joint up- and download area described in section 3.4.

3.0 Communication Platforms

The CAx-IF provides a number of communications platforms to keep its members and associated working groups up to date on current testing activities and agreements.

3.1 Web sites

The CAx Implementor Forum maintains an internet homepage, which is mirrored at two URLs:

- <http://www.cax-if.de/>
- <http://www.cax-if.org/>

The contents at both locations is identical. Only in the context of updates it may happen that the two sites are out of sync, depending on the availability of the respective web master.

The main sections of the homepage relevant for testing are:

- **Joint Testing Information:** This section contains all public documentation produced or required by CAx-IF testing. This includes schedules and test suites, Recommended Practices, and EXPRESS schemas.

- **Model to be Tested:** Screenshots of all models tested in the current round of testing.
- **Member area:** All information to current and past rounds of testing. STEP files, statistics and detailed results are published here. This section is available only to active participants of the CAx-IF.

3.2 Mailing Lists

The following mailing have been established in the context of CAx-IF testing:

- cax-test-admin-l@scra.org – The PDES, Inc. and ProSTEP iViP facilitators of the CAx-IF
- cax-forum-l@scra.org – The general mailing list. All CAx-IF participants, as well as members of associated working groups are on that list.
- cax-current-round-l@scra.org – Closed mailing list exclusively for the active participants of the current round of testing.

3.3 Conference Calls

Conference calls are scheduled on a regular basis as part of the Test Round progress. They are announced in the respective schedule.

A few days before the call, the necessary information, such as exact time and date, number to dial in, conference code, and a tentative agenda, are sent out via the general CAx-IF mailing list.

3.4 CAESAR

CAESAR is a web database which handles all statistics as defined in the respective test suite documents, and derives the test results in a comprehensive and compact way. CAESAR is available in the member area of the CAx-IF homepage (see Figure 2 below). The direct URL is:

<http://www.cax-if.de/secure/caesar/>

Note that since it depends on the database server, this system is available on the .DE domain only. A link is available on the .ORG site.

CAESAR stores all CAx-IF statistics and results starting in Round20J. For detailed information on prior test rounds, please contact the facilitators.

3.4.1 Register

In addition to the member area login, CAESAR requires an individual login for each user. To register, go to the link mentioned above, and use the “[Register]” link. After activating the account via a confirmation email, all statistics and additional information stored in CAESAR can be accessed.

In case of problems while registering or using CAESAR, please contact the CAx-IF facilitators at cax-test-admin-l@scra.org.

3.4.2 Using CEASAR

After registering to CAESAR, a detailed user documentation is available on the start page (main menu) section 4.

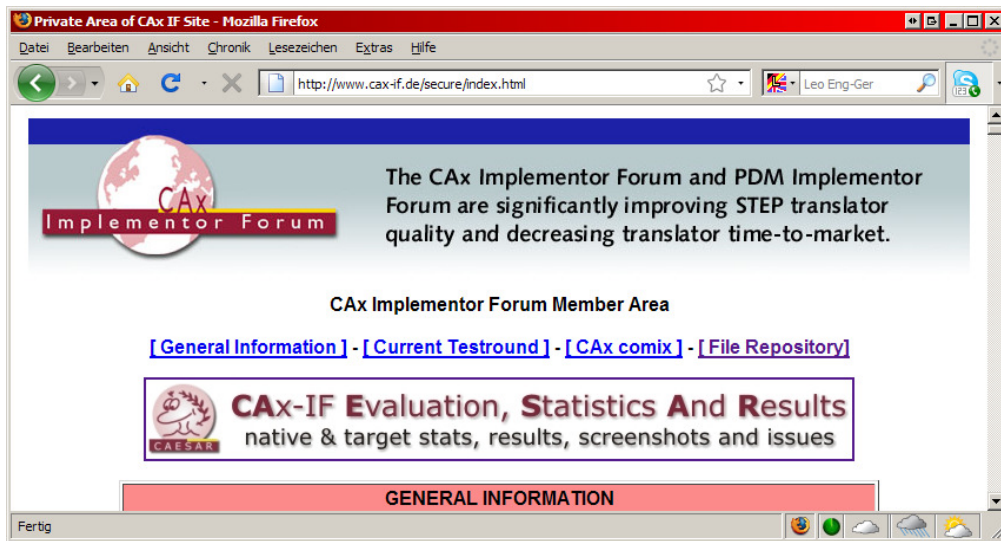


Figure 2: CAX-IF Member Area with links to the File Repository and CAESAR

3.5 File Repository

A joint file repository has been set up to simplify the exchange of files among the CAX-IF members. This applies especially to the native and target models necessary to be exchanged for data transfer quality validation.

The link to the file repository can be found in the member area of both CAX-IF web sites (see section 3.1 or Figure 2 above). The direct URL is:

<http://www.cax-if.org/ecfm/default.asp>

Note that if you logged in to the member area of the .DE site first, you will be queried for the login again when going to the file repository, since the files are hosted on the .ORG site only.

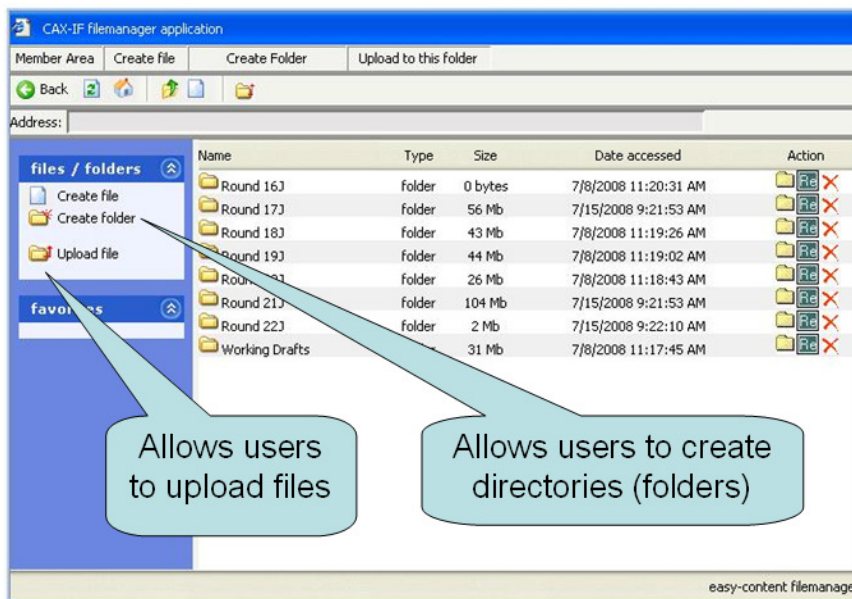


Figure 3: The CAX-IF File Repository