

# CyberChair

## User Guide and Installation Manual

[www.cyberchair.org](http://www.cyberchair.org) [1]

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**Abstract** - This document describes the use and installation of *CyberChair*, *An Online Paper submission and reviewing system (A.k.a. A Program Chair's Best Friend)*. The core of CyberChair is the so-called review part (based on the paper *Identify the Champion* [2]), with which the Program Committee Members ('reviewers') can indicate their opinion about papers that were submitted by authors. Initially created to support the decision process for submission of papers for the European Conference on Object-Oriented Programming (ECOOP) in 1996, CyberChair has gradually grown into a complete system that deals with all administrative tasks concerning paper selection for conferences, such as paper submission, paper assignments to reviewers, review submission and comparison, categorization of reviews, generating overviews of reviews, sending notifications, and generating proceedings. The authors, reviewers and the chair use CyberChair through the World Wide Web. CyberChair is written in the programming language Python [3]. The version described in this document was developed for ECOOP 2000 and also used for IWSSD-10. The previous version of CyberChair has been and is used for other conferences. Currently these are ECOOP'97, ECOOP'98, ECOOP'99, FSE/ESEC'99, ICSE 2000, IWPC 2000, SAS 2000 and FSE 8.

This document describes CyberChair's functionality and its installation. At the CyberChair homepage a demonstration system is available. A more detailed overview of CyberChair's functionality can be found in a paper [4]. To understand the features provided by CyberChair it would be wise to read Oscar Nierstrasz' paper mentioned above.

## Using CyberChair

There are 4 kinds of users of CyberChair: Authors, reviewers, the chair, and the maintainer. In the following section the various views these users have on CyberChair are explained.

### **Authors**

Authors use CyberChair in 2 or 3 phases to submit abstracts and papers. After submitting an abstract (phase 1), in which they indicate the main topics of their paper, they get feedback by email and on screen. The email message contains a login and password which they need to submit their paper by uploading it via a web page (phase 2). Authors of accepted papers have to submit the source and final file of their camera-ready paper (phase 3). After the review process, which takes place after phase 2, the authors are sent the reviews of the reviewers that they can use to improve their paper. If invited speakers' papers should be included in the proceedings, the maintainer can go through phases 1 and 2 (to submit a bogus abstract and paper) and provide the invited speaker with the url and the password to submit the camera-ready paper.

### **Reviewers**

Based on the abstracts, reviewers use CyberChair to select the papers they would like to review. This is called 'bidding'. The papers are categorized by the topics (keywords) that the authors indicated when submitting their abstract. The reviewers can browse through the various categories and select the papers they would like to review. They also have to indicate a priority level (high or low) for these selections. The reviewers can select papers as often as they want. The new selections are added to the previous selection. Reviewers are shown which papers they have selected on screen and by email. The overview of all abstracts shows the number of bids for each paper, which may help to get a more even distribution of selections.

### **Chair**

The chair does not really have much to do, except for checking the review process, through various overviews:

- The number of reviews submitted of each reviewer (also available to all reviewers)
- A one-page overview of all reviews and their status.
- An overview with categories of papers, based on their classification:
  - A: "I will champion this paper at the PC meeting (Advocate/Accept)".
  - B: "I can accept this paper, but I will not champion it (accept, but could reject)".
  - C: "This paper should be rejected, though I will not fight strongly against it (reject, but could accept)".
  - D: "Serious problems. I will argue to reject this paper (Detractor)".
- An overview of 'champions' of papers, i.e. reviewers who indicate they would like these papers to be accepted.
- Low expertise reviews: Papers that have only been reviewed by reviewers who indicated that they are no expert on the subject area(s) of the paper. The chair may ask additional reviewers to read the paper and submit a review.

CyberChair supports the assignment of papers to reviewers. The chair can assign papers to reviewers, using 2 webpages: One webpage shows the preferences of the reviewers pre-filled in a webform, which can be changed, when needed. The other webform can be used to check the number of reviewers assigned to each paper. Optionally, CyberChair can make an initial proposal for the assignment, based on the reviewers' preferences and expertise.

### ***Maintainer***

The maintainer (who could of course be the same person as the chair) is the one to set things up, check the feedback of submissions (of which copies are sent by email), run scripts by crontab or by hand occasionally and prepare the proceedings.

## **Installation**

Previous versions of CyberChair have been installed by others without decent documentation and without us being aware of it, so we assume it is not that difficult. The few things that are essential are a webserver and at least version 1.5.1 of the Python programming language [3], which is freely available for several platforms. If you got a copy of CyberChair via its homepage

### ***Server Configuration***

For ECOOP and IWSSD-10, CyberChair has been installed on a virtual webserver, with domain name ecoop.cs.utwente.nl and iwssd.cs.utwente.nl respectively. The webserver runs the Apache http daemon. Every virtual webserver has its own so-called DOCUMENTROOT (the homepage) and CGI-BIN alias (the directory in which the cgi scripts are located). Further, the server should be enabled to use password-protected access. Your webmaster should be able to provide these for you to use CyberChair.

### ***Unpacking the tar file containing the source***

In our opinion, the easiest way to use CyberChair, is by using the same directory structure as used for ECOOP. On a Unix system this can be accomplished by first gunzip-ing the file CyberChair.tar.gz, and then untar-ing the file CyberChair.tar using the command `tar tvx CyberChair.tar`. This requires the least number of changes of pathnames in the configuration files.

### ***Directory Structure***

This is the current directory structure:

```
CyberChairHomeDir/  
  adm/  
    crontab/  
  basicinfo/  
  cgi/      (CGIBIN alias for webserver)  
  html/    (DOCUMENTROOT for webserver)  
  chair/  
    CommentsSent/  
  graphics/  
  Gifs/  
  overviews/
```

```

        abstracts/
        papers/
        camerareadyabstracts/
        camerareadypapers/
        reviews/
reviewers/
    1/ (*)
    2/ (*)
    ... (*)
submit/
submitted/
    abstracts/ (*)
    bids/ (*)
    camerareadypapers/
        authorinfo/ (*)
        files/
            final/ (*)
            source/ (*)
    keys/ (*)
    PaperReviewerDir/ (*)
        PaperReviewers.backupdir/ (*)
    papers/
        authorinfo/ (*)
        files/ (*)
    reviews/ (*)
tmp/ (*)

```

The directories marked with (\*) must allow the http-daemon to write files in them. On Unix systems this can be accomplished by setting the mode of the directories to 1777, using the `chmod` command.

### **Configuration of CyberChair**

At the moment of writing, CyberChair lacks a *local* installation script. But in order to get CyberChair you filled in a form in which you were asked for specific settings, to ease the configuration. CyberChair generates webpages with links in it, which, when clicked, may activate cgi scripts. The information required for this to work are in the file *constantsNew.py*. As much as possible, all dependencies have been put in this file, based on the input you provided. You may want to check the file. It should be rather obvious which other lines in *constantsNew.py* have to be changed.

Currently, the following files need to be adapted by hand:

- .../basicInfo/ReviewerInfo.txt
- .../basicInfo/passwd (using the standard program `htpasswd`)
- .../basicInfo/group
- .../basicInfo/reviewform\_main\_fields.txt
- .../basicInfo/required\_reviewform\_fields.txt
- .../basicInfo/ReviewerExpertise.txt

After the accept/reject decisions have been made, the following files need to be created or changed:

- .../basicInfo/OrderOfPapersForProceedings (to get and ordered overview of submitted camera-ready papers)
- .../basicInfo/acceptedPapers (used in several overviews)

Below, the contents of the files mentioned above, and some others, is explained

*ReviewerInfo.txt*, which contains information about the program committee members, separated by '#':

- Email address
- First name
- Last name
- Password (just to remember)
- A random string used for protection of the reviewers' pages
- Name as spelled in LaTeX (for the proceedings)
- URL of homepage (currently not used for CyberChair)

*passwd*, which contains the passwords for the personal reviewers' pages and those of the chair and the system maintainer. The entries contain per line the login name (=first name in lowercase) of the reviewers and the password, which is typically created with the (standard) program *htpasswd*. The login names appear in the files called *.htaccess*, which is the standard way to password-protect directories on websites. A small problem occurs if members of the PC have the same first name...

*group*, which contains the group name followed by all login names. This is used in directories that are accessible by all reviewers, such as the overviews of all abstracts, all papers and all camera-ready papers.

*acceptedpapers*, empty, until the accepted papers are known. From that point on, it should contain the numbers of the accepted papers, separated by spaces. This must be done manually. Several scripts use this list: *genCameraReadyOverview*.

*required\_reviewform\_fields.txt* - Contains the fields that the review form consists of. This is used by the script that generates the review forms for the reviewers.

*ReviewerExpertise.txt* - Contains the expertise of reviewers and their willingness to review papers on certain conference topics. Together with the pre-selection of papers based on the abstracts (called *bidding*) this is used to generate a distribution of the papers over the reviewers. Possible values are one of X, Y or Z, with an optional R or W attached. Note that with the ZR combination there is still a chance that a reviewer might be assigned papers of that specific conference topic, whereas the XW will block such a paper assignment.

X: I am an expert on the topic

Y: I'm no expert, though knowledgeable

Z: I'm an informed outsider

R: I'd rather not review papers on this topic

W: I will not (or don't want to) review papers on this topic

There should be a web page with which the reviewers can indicate this. This will be in the next version. For now, this file must be made by hand (after asking the reviewers e.g. by email).

*paperDistribution.txt* - The file which is generated by *genPapDist.py*. This file contains 3 lines per reviewer. The first line contains the papers that were assigned. The second line contains the high bids, while the third line contains the low bids.

The paper distribution script (*genPapDist.py*) is explained in another part of this document.

*reviewform\_main\_fields.txt* - Contains the list of main fields (or conference topics), which are used in several scripts. These topics are used in the overviews of abstracts, which the reviewers use to indicate their preference for papers.

### **Cgi scripts**

Directory *.../cgi-bin*, for which a so-called cgi-alias should be in the httpd configuration file (consult your webmaster for this), contains the scripts that deal with the input from webforms, or which are activated by clicking links on webpages. This is an overview of the scripts and their use. The first line of all scripts should be changed and set to the location of the python executable.

*constantsNew.py* - contains all directory names and file names that are used in all cgi scripts.

*generic.py* - contains a lot of functions. Can be seen as a library of general functions.

*genphase1.py* - generates the submission form for phase 1, the submission of abstracts and author information.

*genphase2.py* - generates the submission form for phase 2, the submission of papers.

*genphase3.py* - generates the submission form for phase 3, the submission of camera-ready papers.

*revinfoatafieldnames.py* - contains a description of the fields of the file *.../basicInfo/ReviewerInfo.txt*.

*bid4papers.py* - The script that deals with the input from *.../html/overviews/abstracts/index.html*. On that page, reviewers can read all abstracts, which are categorized by conference topics, so that the reviewers can easily find those interesting for them, and make a selection of the papers they would like to review. A high or low bid can be indicated for as many papers as they want. For each reviewer a file is generated in directory *.../submitted/bids/*. The file names start with "sel\_" and have the reviewer number appended.

*datafieldnames.py* - Not really a script, but a list of constants that describe the data fields of the files that are submitted in the phases 1 (abstract), 2 (paper) and 3 (camera-ready paper).

*submit\_\** - several scripts that deal with the feedback after abstract or paper submission by authors, or review submissions by reviewers.

*showReviewTable.py* - shows a review from a certain reviewer in an html table. This script is called from the reviewOverview page that is generated for the chair's sake.

*show.py* - a wrapper for several functions that are available to reviewers.

### **Administrative Scripts**

Several supporting scripts are part of CyberChair that produce all kinds of overviews (typically periodically through Unix's crontab facility), or help to send messages. The scripts that periodically generate overviews are in the `.../adm/crontab` directory. Like the scripts in the `cgi-bin` directory, the first line of all scripts should be changed and set to the location of the python executable. Below is an example of a crontab file for scripts that should be started by crontab:

```
3 * * * * /home/trese/www/wwwcyb/adm/crontab/genabstracts.py
57 * * * * /home/trese/www/wwwcyb/adm/crontab/genpaperoverview.py
55 * * * * /home/trese/www/wwwcyb/adm/crontab/copySubmittedPapersToDownloadLocation.py
0,10,20,30,40,50 * * * * /home/trese/www/wwwcyb/adm/crontab/genReviewers.py
55 * * * * /home/trese/www/wwwcyb/adm/crontab/genReviewOverviewForChair.py
55 * * * * /home/trese/www/wwwcyb/adm/crontab/genCategories.py
55 * * * * /home/trese/www/wwwcyb/adm/crontab/genChampions.py
55 * * * * /home/trese/www/wwwcyb/adm/crontab/genLowExpertise.py
55 * * * * /home/trese/www/wwwcyb/adm/crontab/genAllReviews.py
55 * * * * /home/trese/www/wwwcyb/adm/crontab/genCameraReadyOverview.py
```

The maintainer should turn on and off scripts when appropriate (by putting the comment sign (#) in front of a crontab entry. E.g., the `genabstract.py` script no longer needs to be run when the abstract submission deadline has passed, while the `genCameraReadyOverview.py` script should not be run before the camera-ready submission phase starts.

*genabstracts.py* - Generates several overviews of abstracts, sorted by conference topic. The overviews are used by reviewers to indicate which papers they would like to review.

*genCategories.py* - Generates an overview of reviews, categorized based on the classification awarded by the reviewers.

*genChampions.py* - Generates an overview of champions, which are reviewers that classify papers as "A".

*genLowExpertise.py* - Generates an overview of papers that were only reviewed by reviewers who indicated that they are non-experts on the topic(s) of the paper.

*copySubmittedPapersToDownloadLocation.py* - Submitted papers are initially stored in `.../submitted/papers`, with the assigned key/password as the filename. At this location they cannot be accessed via the web. This is done to prevent erroneous files to be spread before checking them. To make the papers available to the reviewers for downloading, they need to be copied from that directory to the paper overview directory (`.../html/overviews/papers`). The filenames of the papers are converted to paper numbers. These numbers are assigned when the abstracts are submitted. When papers are not submitted, those numbers are just discarded, so, when the reviewing process starts, the numbers of those papers are simply not used. If you don't allow submission of files that can contain viruses, the script can be run by crontab periodically.

*genPapDist.py* - Generates a (proposal for a) paper assignment, based on the preferences of the reviewers (indicated by their bidding) and their expertise. Currently the script is tuned to assign as much as possible papers to reviewers based on their preferences, provided that all papers are assigned to exactly 4 reviewers and all reviewers are assigned approximately the same number of papers. The script is currently optimally tuned for ECOOP 2000. For each conference/workshop the tuning should be considered carefully, since it heavily depends on the number of submissions, the number of reviewers and the number of papers per reviewer. Conflicts of interest are also taken into account. As long as there is no webform for the reviewers to submit their expertise, these conflicts of interests have to be included in the script.

*genPCpaperList.py* - Generates a list of papers submitted by the reviewers themselves. These papers usually require special attention. In the overviews, these papers are marked with an asterisk.

*genPaperOverview.py* - Generates an overview of all submitted papers, with links to their abstracts and links to download them. Papers for which only abstracts and no papers were submitted are shown in a color which is difficult to read.

*genCameraReadyPaperOverview.py* - Generates an overview of submitted camera-ready papers.

*genAllReviews.py* - Generates overviews of reviews, to be used for the PC meeting. It generates per paper 1 file containing all reviews, and per reviewer all his/her reviews. In each reviewer's directory, a file will be created that contains all reviews of the reviewers. Further, for each paper the reviewer submitted a review, there will be a file that contains all reviews for that paper. This allows a reviewer to easily make printouts of the reviews he or she is involved in.

*email2form.py* - Converts reviews that were sent by email into a format that can be used by CyberChair's reviewing part, so that the review can be accessed via the web to update or read.

*genReviewers.py* - See it's description in the next section.

### ***Scripts for the reviewers' pages***

When all papers have been submitted and assigned to reviewers, each reviewer gets his/her own reviewer page, which consists of several dynamically generated html frames. The top frame shows all paper numbers in colored boxes, which indicate their status. This status is based on the classification that was given to the paper. Only when a reviewer has submitted a review for a paper is the status shown. The following statuses exist:

White: Review not yet submitted

Pink: Only your review has been submitted

Light green: No classification conflict - A and B only

Orange: No classification conflict - B and C only

Green: No classification conflict - C and D only

Light yellow: Classification conflict - both A and C

Yellow: Classification conflict - both B and D

Red: Serious classification conflict - both A and D

Gold: Accepted Paper

The following cgi scripts are involved with the generation of the reviewers' pages:

- genTargetFrames.py
- genOneRevPage.py
- genPaperBar.py
- genReviewers.py
- genLinksBar.py

The file genReviewers.py is also listed in the ../adm/crontab directory and started through crontab. This is just to be sure that the reviewers' directories will reflect the up-to-date state of the process. It may not be necessary to run this script if all reviewers have a browser that understands the meta tag that contains code to automatically refresh the contents of pages.

### **Proceedings**

Several scripts support the preparation for the proceedings, which in ECOOP's case are printed by Springer Verlag. The following scripts are involved:

- *genCameraReadyOverview.py* - Generates the filenames for the papers so that they can be uploaded to Springer's ftp site. The filename of a paper must contain of the volume number (4 positions), followed by the starting page number (4 positions) of the paper.
- *getCoReviewers.py* - Extracts all co-reviewers (referees) from the review forms.
- *getCoReviewersPerReviewer.py* - Extracts, per reviewers, all his/her co-reviewers from the review forms. This list is then sent to the reviewers to check its correctness.
- *genContentsAuthorIndex.py* - Generates the table of contents and the author index, from the data as supplied by the authors during the camera-ready paper submission. It uses the file *sessions.txt* as input. This file contains the session headings of the proceedings and the numbers that correspond to the papers in those session.
- *genProceedings.py* - Generates a TeX file (latex2e), based on various templates, which are not supplied with this distribution, since the only example we can supply is that of ECOOP 2000, which has not yet been published. It contains the program committee, the organizing committee, logos of the organization institutes and sponsors, the preface (supplied by the chair), the table of contents and the author index. This file must be uploaded to Springer's ftp site, together with the papers. The table of contents is generated by another script, *genContentsAuthorIndex.py*, which needs the names of the authors in TeX style, to get the spelling correctly. Therefore, in the current version, the author information files (that were submitted with the camera-ready paper) must be edited by the maintainer before the proceedings can be generated.

### **Future enhancements**

- As time permits, an installation script will be provided to automate as much of the manual installation as possible.

- The reviewers should be able to submit their expertise of the conference topics through a webpage.
- During the bidding, the reviewers should not only be able to indicate high or low priority, but also conflict of interests. Currently this must be asked by email.
- Generation of the proceedings in other formats. Currently only the LNCS series of Springer Verlag is supported.
- An easier way to provide overviews of reviews for the PC meeting. Currently each overview (1 per paper and 1 per reviewer) is listed in a separate file, which must be printed from within a web browser. Preferably one (pdf or postscript) file should be produced, with all text formatted like the reviewer submitted.
- Allow/request submissions of names in TeX-style (author information, but also co-reviewers' names), to ease the generation process of the proceedings.
- Some conferences/journals include pictures of the authors. This could be added.
- A conference registration component will be added.

### **Bugs**

I know of one: When none of the conference topics is selected by authors during phase 1, and only 'other' is filled in, the submitted data is stored. However, no confirmation is sent by email and must thus be done 'by hand', because else the authors do not know the key which they need to upload their paper.

### **Availability**

CyberChair is free software. You may redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or (at your option) any later version.

If you like CyberChair and use it for a workshop or conference, I would appreciate it very much if you would mention CyberChair in the proceedings and send me a copy of those proceedings. My address information is

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### **References**

- [1] The CyberChair homepage: <http://www.cyberchair.org>  
 [2] O. Nierstrasz, *Identify the Champion*: <http://iamwww.unibe.ch/~oscar/champion/>

[3] The Python homepage: <http://www.python.org>

[4] R. van de Stadt, *CyberChair: A Web-Based Groupware Application to Facilitate the Paper Reviewing Process*, submitted

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