

# Step by step instructions for how to run a PunchScan election on your own computer

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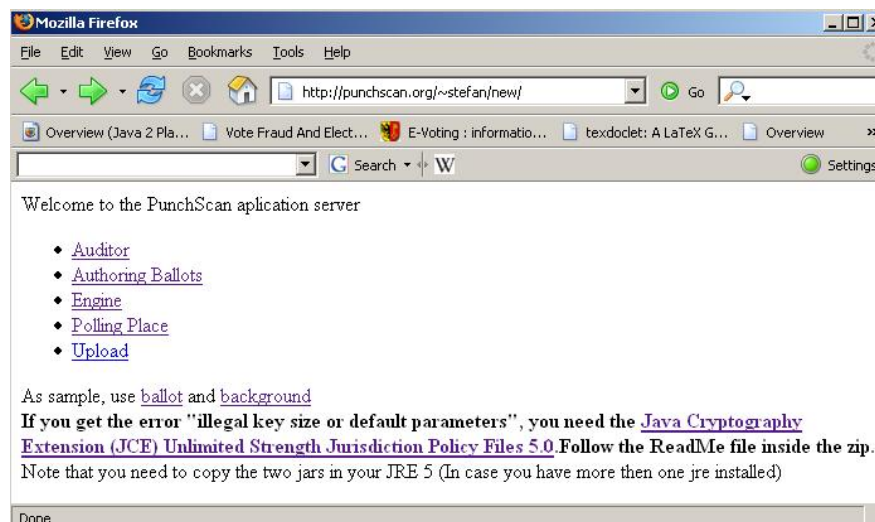


Figure 1: The webpage showing the ballot and background for download.

## 0.1 Preparation

1. In the `C:\` directory, create a folder called `MockPunchScanElection`.
2. Go to the following webpage:  
`http://punchscan.org/~stefan/new/`
3. Download the "ballot" and the "background" from the webpage to:  
`C:\MockPunchScanElection`

## 0.2 Producing the Layout Of the Ballot

1. On the web page, click on the **Authoring Ballots** link. Instruct the browser to open the link with Java(TM) Web Start Launcher (see Figure 2). If you do not have this option, then download and install Java 5.0 (which includes the needed Java JRE 1.5). If you have another version of Java already installed, it will prompt you to install the Java 1.5 JRE. This version



Figure 2: The JNLP dialogue.

is required. After JRE 1.5 has been installed, download and install the Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files 5.0 from: [http://java.sun.com/javase/downloads/index\\_jdk5.jsp](http://java.sun.com/javase/downloads/index_jdk5.jsp)  
Follow the instructions in the ReadMe file.

2. Through the menus, choose **File**→**Load Fully Marked Ballot**. Go to the `MockPunchScanElection` directory and choose `ballot.jpg`. A PunchScan Ballot will appear in the main window (if no image initially appears, resize the window slightly to force a repaint).
3. Choose the requested colors by checking the radio button and then clicking on the picture in the main window (e.g., click on the alignment radio button and click where the alignment mark is on the picture in the main window, etc.). See Figure 3. Click **Done** when finished.
4. Enter 1 when asked how many columns (see Figure 4).
5. When the “Done” message appears, two files have been created in `C:\MockPunchScanElection`. `ElectionSpec.xml` represents the types of questions the ballot has and `geometry.xml` contains the layout of the ballot.
6. Go to **Tools**→**Form Maker**. For the background, choose `background.pdf` from the `MockPunchScanElection` directory and as the destination folder, choose `MockPunchScanElection` directory. A PDF called `javaCreatedForm.pdf` is created in the directory.
7. Close the Authoring Ballots program.

### 0.3 Running Meeting One

1. Create two folder in `MockPunchScanElection`: one called `public` and the other `private`.
2. Go to the web page and click on **Engine**. The screen in Figure 5 should appear.
3. Click on **Initialize Election (Meeting One)**. As the private folder, choose `C:\MockPunchScanElection\private`.

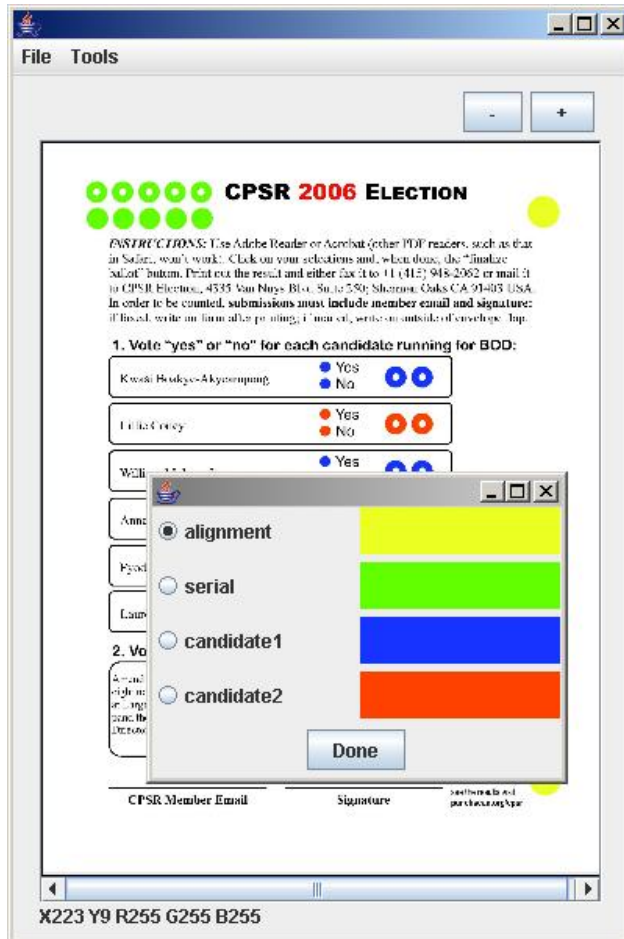


Figure 3: The color selection dialogue.

As the public folder, choose:

C:\MockPunchScanElection\public

4. If you get the error “illegal key size or default parameters,” make sure you have completed Step 1 of Section 0.2.
5. If no input file for Meeting One is found, the software will ask for the information needed to create it. As a public constant, enter “PunchScanElection,” enter 100 for the number of ballots, and 3 for the number of D-tables (see Figure 6). To choose the election specification, click **Browse** and select:  
C:\MockPunchScanElection\ElectionSpec.xml
6. Click save and exit. A file called MeetingOneIn.xml is created in:  
C:\MockPunchScanElection\public
7. Enter “PunchScan” as the username and “1234” as the password, and click done.
8. The message ”Running Meeting 1...Done” will appear after a few seconds (see Figure 7). A file named MeetingOneOut.xml will be created in the public directory.

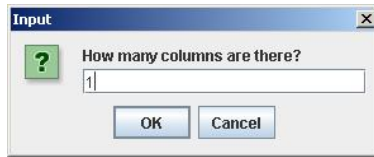


Figure 4: The column number dialogue.

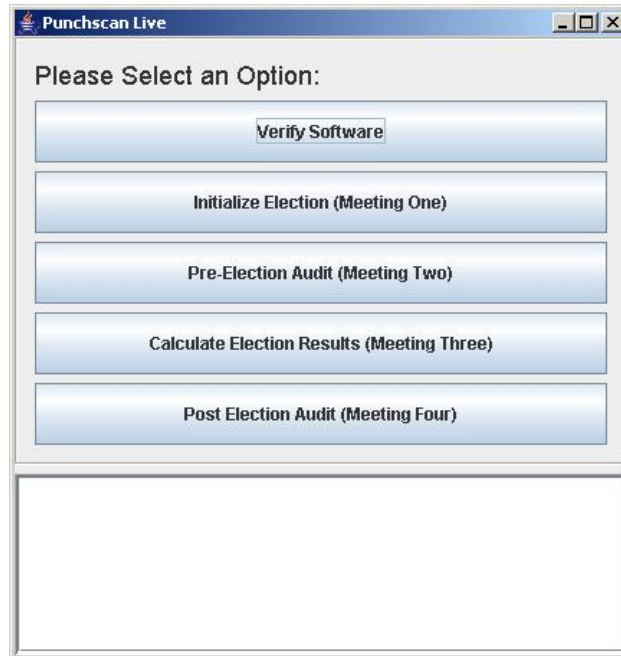


Figure 5: The Punchscan Engine menu.

## 0.4 Running Meeting Two

1. In the Engine window, click on Pre-election Audit (Meeting Two). For the private folder, choose:  
C:\MockPunchScanElection\private
2. For the public folder, choose:  
C:\MockPunchScanElection\public
3. Enter “PunchScan” as the username and “1234” as the password and click done.
4. If no input file for Meeting Two is found, the software will ask if you want to generate random input (the challenged ballots are chosen by a random number generator). See Figure 8. Select yes.
5. In a couple of seconds, the message “Running Meeting 2...Done” will appear. The files MeetingTwoOut.xml and SerialMap.xml will appear in:  
C:\MockPunchScanElection\public

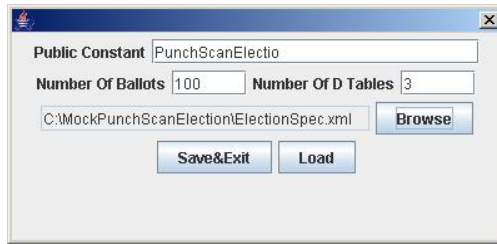


Figure 6: The Meeting 1 Configuration Dialogue.

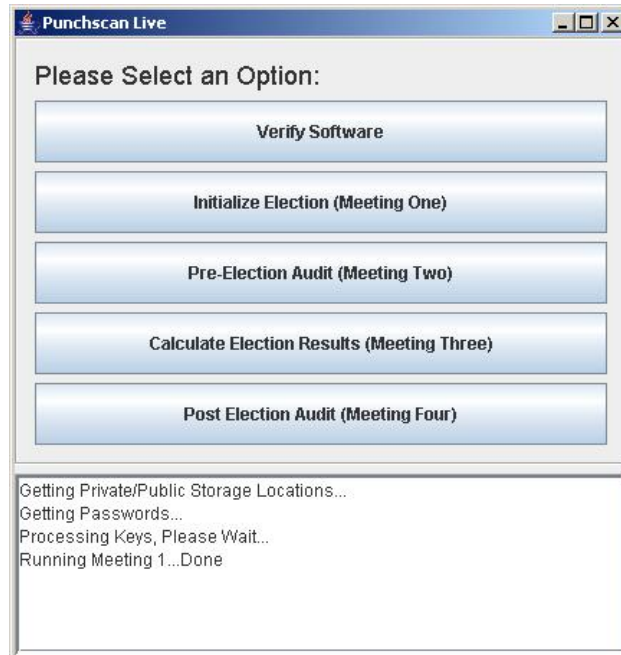


Figure 7: After successful completion of Meeting 1.

6. A file named `Prints.xml` will appear in:  
`C:\MockPunchScanElection\private`

7. Close the engine.

### 0.5 Running the pre-election audit

1. Go to the web page and click on Auditor.

2. As MeetingOneIn, select:

`C:\MockPunchScanElection\public\MeetingOneIn.xml`

3. Do likewise for meeting 1 out and meeting 2 in and out (see Figure 9). Leave meetings 3 and 4 empty.

4. Click PreElection Audit.



Figure 8: The option to generate random input for Meeting 2.

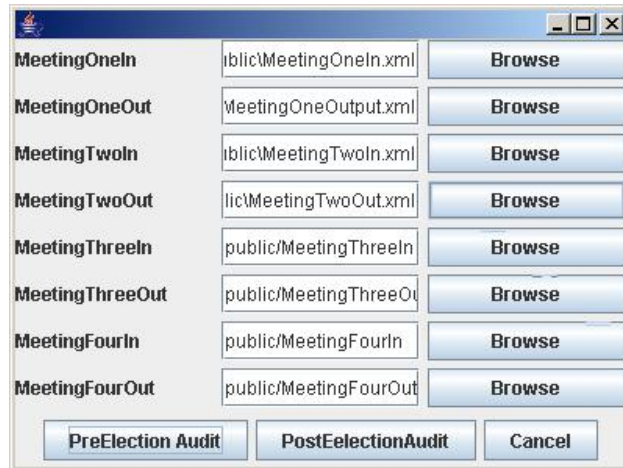


Figure 9: The Auditor interface.

5. When complete, the message “The auditor was successful” will appear.
6. Close the auditor.

## 0.6 Creating Ballots

1. Go to the web page and click on **Authoring Ballots**.
2. Select from the menu **File**→**Load PDF Form** and select:  
C:\MockPunchScanElection\javaCreatedForm.pdf
3. A PunchScan ballot will appear.
4. For the election spec, choose: C:\MockPunchScanElection\ElectionSpec.xml
5. For the prints file, choose: C:\MockPunchScanElection\private\Prints.xml
6. Select from the menu **Tools**→**Ballot Maker**.
7. Enter “0-10” when asked for the serial numbers (see Figure 10).
8. For the output folder, choose:  
C:\MockPunchScanElection\private
9. 11 PDF ballots will appear in:  
C:\MockPunchScanElection\private



Figure 10: The serial numbers to be produced on the ballots.

## 0.7 Voting

1. We now need scanned images of voted ballots. The ballots can be printed, and then scanned after voting for a real election. However for testing the software, it is easier to use a virtual printer capable of printing documents to images. We recommend PdfCreator <sup>1</sup>.
2. Create a folder called `scannes` in:  
`C:\MockPunchScanElection\`
3. Open:  
`C:\MockPunchScanElection\private\2.pdf`
4. Vote on the ballot by clicking over Yes or No for each contest. You may leave some contests unvoted. See Figure 11
5. When done selecting choices, click Finish Selection. Choose left or right (see Figure 12. Print the ballot using PDF creator as a bmp (see Figure 13), and save it in:  
`C:\MockPunchScanElection\scannes`
6. Do likewise with three other ballots.

## 0.8 Scanning Ballots

1. Go to the web page and click on Polling Place.
2. Create the two folders `ballots` and `ballotsBackup` in:  
`C:\MockPunchScanElection`
3. Leave the password fields blank.
4. For “The images from the scanner will appear in,”  
Browse→`C:\MockPunchScanElection\scannes`
5. Check “Scan existing images.”
6. For “The scanned ballots will appear in the following folder,”
  - (a) Browse→`C:\MockPunchScanElection\ballots`
  - (b) Browse→`C:\MockPunchScanElection\ballotsBackup`
7. For “Geometry,”  
Browse→`C:\MockPunchScanElection\geometry.xml`
8. For “Election Specification,”  
Browse→`C:\MockPunchScanElection\ElectionSpec.xml`

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<sup>1</sup><http://sourceforge.net/projects/pdfcreator/>

Finish Selection

0 0 0 0 2 **CPSR 2006 ELECTION**

0 0 0 0 2

**INSTRUCTIONS:** Use Adobe Reader or Acrobat (other PDF readers, such as that in Safari, won't work). Click on your selections and, when done, the "finalize ballot" button. Print out the result and either fax it to +1 (415) 948-2062 or mail it to CPSR Election; 4335 Van Nuys Blvd Suite 250; Sherman Oaks CA 91403 USA. In order to be counted, submissions must include member email and signature: if faxed, write on form after printing; if mailed, write on outside of envelope flap.

**1. Vote "yes" or "no" for each candidate running for BOD:**

Kwasi Boakye-Akyeampong	A Yes <input checked="" type="checkbox"/> No	<input type="radio"/> A
Lillie Coney	D Yes <input checked="" type="checkbox"/> No	<input type="radio"/> D
William McIver, Jr.	E Yes F No	<input type="radio"/> E <input type="radio"/> F
Annalee Newitz	<input checked="" type="checkbox"/> Yes G No	<input type="radio"/> G
Fyodor Vaskovich	J Yes <input checked="" type="checkbox"/> No	<input type="radio"/> J
Lauren Gelman	K Yes L No	<input type="radio"/> L <input type="radio"/> K

**2. Vote "yes" or "no" for the proposed bylaw change:**

Amend the Bylaws of CPSR to state that the Board shall consist of not less than eight nor more than fourteen Directors. Eight to ten shall be elected as Directors at Large by the membership. The Board of Directors shall have the power to expand the Board by appointing up to four additional Directors, known as Special Directors.

N M

Yes    N No

\_\_\_\_\_

CPSR Member EmailSignature

Finish Selection

To check that your vote is included correctly & see the results visit: [punchscan.org/cpsr](http://punchscan.org/cpsr)

Figure 11: A Punchscan virtual ballot.



Figure 12: Choosing which layer of the ballot to keep.

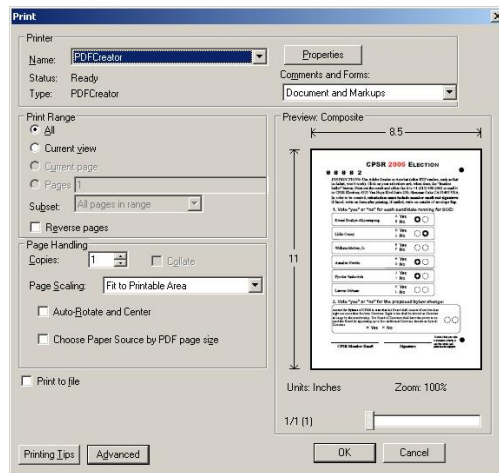


Figure 13: The Print dialogue showing PDFCreator.

9. See Figure 14. Click OK.
10. The four ballots that you voted appear one after the other on the voter screen (see Figure 15). Verify if the marks and the serial number have been detected correctly and cast them.
11. Close the Polling place program.

## 0.9 Running Meeting Three

1. Go to the web page and click on **Engine**.
2. Click on **Calculate Election Results (Meeting Three)**. As the private folder, choose: `C:\MockPunchScanElection\private`
3. As the public folder, choose: `C:\MockPunchScanElection\public`
4. Enter "PunchScan" as the username, "1234" as the password, and click done.

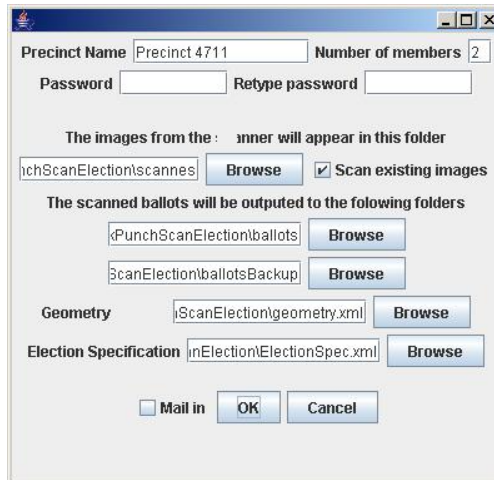


Figure 14: Polling Place configuration dialogue.

5. If no input file for Meeting Three is found, select “Read Ballots from Folder” (see Figure 16) and select:  
C:\MockPunchScanElection\ballots
6. After a few seconds, the message “Running Meeting 3...Done” will appear. A file named MeetingThreeOut.xml will appear in:  
C:\MockPunchScanElection\public

## 0.10 Running Meeting Four

1. In the Engine window, click on Post Election Audit (Meeting Four). For the private folder, choose:  
C:\MockPunchScanElection\private
2. For the public folder, choose: C:\MockPunchScanElection\public
3. Enter “PunchScan” as the username, “1234” as the password, and click done.
4. If no input file for Meeting Four is found, the software will ask you if you want to generate random input (see Figure 17). Select yes. In this case, each row in the D table will have either its left or right side opened, as selected by a random number generator.
5. You will be asked if you want to open all the unused ballots. Select yes. This is used as an extra check.
6. Momentarily, the message “Running Meeting 4...Done” will appear. A file named MeetingFourOut.xml will appear in:  
C:\MockPunchScanElection\public
7. Close the engine.

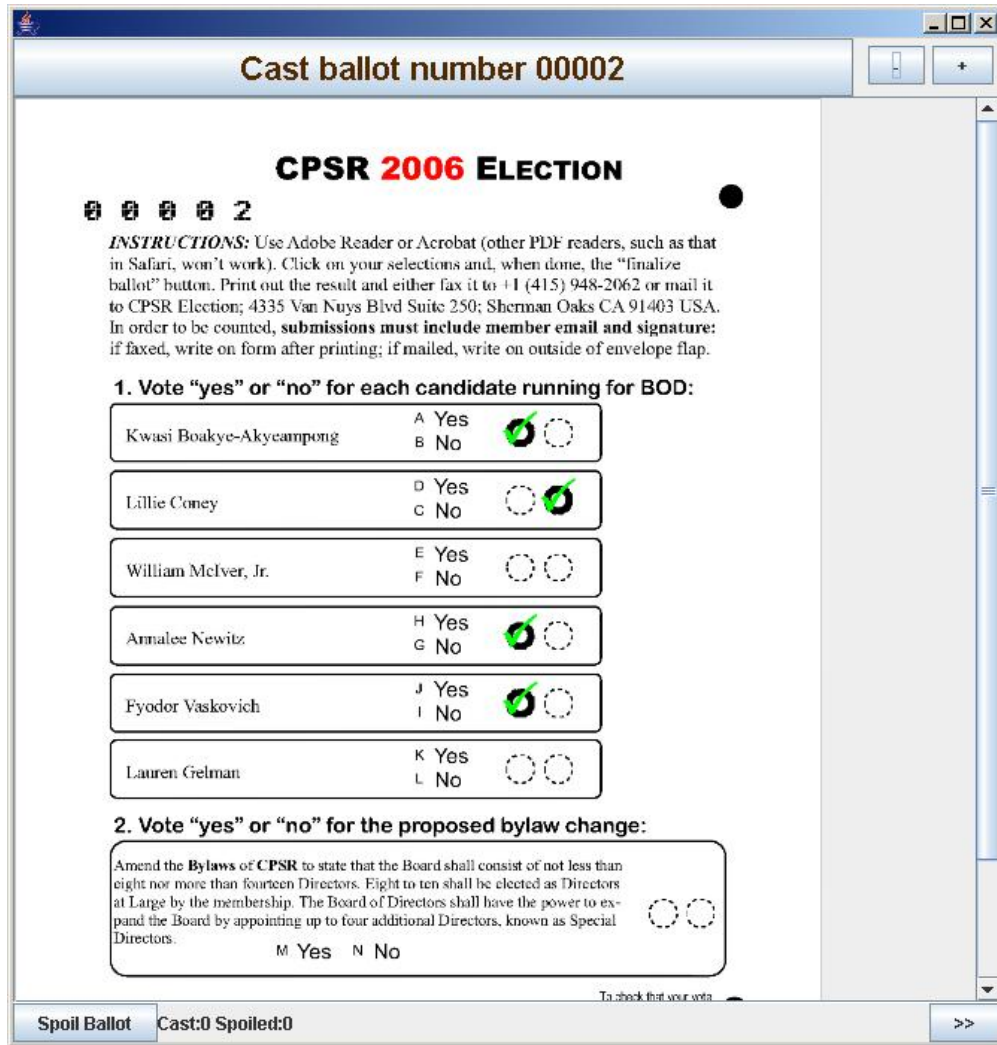


Figure 15: OCR recognition of a scanned ballot.



Figure 16: Meeting 3 input generator.



Figure 17: Meeting 4 random input generator.

## 0.11 Running the Post Election Audit

1. Go to the web page and choose Auditor.
2. For MeetingOneIn, select:  
C:\MockPunchScanElection\public\MeetingOneIn.xml
3. For MeetingOneOut, select:  
C:\MockPunchScanElection\public\MeetingOneOut.xml
4. Delete everything in MeetingTwoIn.
5. For MeetingTwoOut, select:  
C:\MockPunchScanElection\public\MeetingFourAllUnvotedRevealed.xml
6. For MeetingThreeIn, select:  
C:\MockPunchScanElection\public\MeetingThreeIn.xml
7. For MeetingThreeOut, select:  
C:\MockPunchScanElection\public\MeetingThreeOut.xml
8. For MeetingFourIn, select:  
C:\MockPunchScanElection\public\MeetingFourIn.xml
9. For MeetingFourOut, select:  
C:\MockPunchScanElection\public\MeetingFourOut.xml
10. Click **PreElection Audit**, which checks that the unused ballots have been correctly opened.
11. Click **PostElection Audit**, which checks if the voted ballots have been correctly tallied.
12. Momentarily, the message “The auditor was successful” will appear.
13. Close the auditor.