

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

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On your C drive create a folder called "MockScantegrityElection".

1. Preparation

Go to the web <http://punchscan.org/~stefan/> and download the Scantegrity template <http://punchscan.org/~stefan/ScantegrityTemplate.jpg> to "C:\MockScantegrityElection"

2. Producing the Ballot Layout

- a. On the web page <http://punchscan.org/~stefan/> click on Authoring Ballots link. Instruct the Browser to open the link with Java(TM) Web Start Launcher. If you do not have this option then download and install Java 5.0. If you have other version of java already installed, it will ask you to install the java 1.5 JRE. Do so.
 - i. after JRE 1.5 has been installed, you need to 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
 - ii. Follow the ReadMe file inside the zip. Note that you need to copy the two jars in your JRE 5 (In case you have more then one jre installed)
- b. File->Load Fully Marked Ballot Go to "C:\MockScantegrityElection" and choose ballot.jpg. You are looking at a Scantegrity Ballot. If no image appears in the main window resize it a little (it will force a repaint)
- c. Choose the Colors asked by first 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. When finished, click Done.
- d. When asked how many columns, enter 1
- e. When message Done appear, two files have been created in "C:\MockScantegrityElection" ElectionSpec.xml representing what types of questions the ballot has and geometry.xml with the layout of the ballot
- f. Go to Tools->Make Pdf Form. As background choose "C:\MockScantegrityElection\background.pdf" and as destination folder choose "C:\MockScantegrityElection". A pdf called javaCreatedForm.pdf is created in "C:\MockScantegrityElection"
- g. Close the Authoring Ballots program

3. Running Meeting One

- a. Create two folders in "C:\MockScantegrityElection" one called "public" and the other "private"
- b. Go to the web page and click on Engine
- c. Click on Initialize Election (Meeting One). As private folder choose "C:\MockScantegrityElection\private" and as public folder choose "C:\MockScantegrityElection\public"
 - i. If you get the error "illegal key size or default parameters" see 2(a)i
- d. If no input file for Meeting One is found, it asks for information to create it. As public Constant enter "PunchScanElectio", Number of Ballots 100 and Number of D tables 3. For the Election Spec, click Browse and select "C:\MockScantegrityElection\ElectionSpec.xml". Click Save and exit. A file called MeetingOneIn.xml is created in "C:\MockScantegrityElection\public"
- e. Enter PunchScan as the Username and 1234 as the password and click Done.
- f. In a couple of seconds the message "Running Meeting 1...Done" appears. A file named "MeetingOneOut.xml" appears in "C:\MockScantegrityElection\public"

4. Running Meeting Two

- a. In the Engine window, click on Pre-election Audit (Meeting Two). As private folder choose "C:\MockScantegrityElection\private" and as public folder choose "C:\MockScantegrityElection\public"
- b. Enter PunchScan as the Username and 1234 as the password and click Done.
- c. If no input file for Meeting Two is found it asks you if you want to generate random input (half of the ballots are challenged). Select yes
- d. In a couple of seconds the message "Running Meeting 2...Done" appears. A file named "MeetingTwoOut.xml" and one "SerialMap.xml" appears in "C:\MockScantegrityElection\public". A file named "Prints.xml" appears in "C:\MockScantegrityElection\private"
- e. Close the engine

5. Running the pre-election audit

- a. Go to the web page and click on Auditor
- b. As MeetingOneIn select "C:\MockScantegrityElection\public\MeetingOneIn.xml" As Meeting OneOut select "C:\MockScantegrityElection\public\MeetingOneOut.xml" As MeetingTwoIn select "C:\MockScantegrityElection\public\MeetingTwoIn.xml" and as MeetingTwoOut select "C:\MockScantegrityElection\public\MeetingTwoOut.xml"
- c. Click PreElection audit
- d. In a couple of seconds the message "The auditor was successful" appears. Close the auditor

6. Creating Ballots

- a. Go to the web page and click on Authoring Ballots
- b. File->Load Pdf form "C:\MockScantegrityElection\javaCreatedForm.pdf"
- c. You are looking at a Scantegrity ballot.
- d. Choose "C:\MockScantegrityElection\ElectionSpec.xml" as the Election Spec and "C:\MockScantegrityElection\private\Prints.xml" as the prints file
- e. Tools->Make Virtual Ballots. Enter 0-10 when asked what serial numbers it should produce. Choose "C:\MockScantegrityElection\private" as the output folder
- f. 11 pdf ballots should appear in "C:\MockScantegrityElection\private"

7. Voting

- a. We need to produce pictures of the voted ballots. We can use a scanner and a printer. More handy is to use a virtual printer that prints to images. We recommend PdfCreator <http://sourceforge.net/projects/pdfcreator/> Download and install it.
- b. Create a folder called "scannes" in "C:\MockScantegrityElection\"
- c. Open "C:\MockScantegrityElection\private\2.pdf" and vote the ballot by clicking over the bubbles. You may leave some contests unvoted
- d. When done, print the ballot using PDF creator as a bmp, in "C:\MockScantegrityElection\scannes"
- e. Vote three more ballots

8. Scanning Ballots

- a. Go to the web page and click on Polling Place
- b. Create two folders "ballots" and "ballotsBackup" in "C:\MockScantegrityElection"
- c. Leave the password fields blank
- d. "The images from the scanner will appear in"->Browse "C:\MockScantegrityElection\scannes"
- e. Check "Scan existing images"
- f. "The scanned ballots will appear in the following folder"
 - i. Browse->"C:\MockScantegrityElection\ballots"
 - ii. Browse->"C:\MockScantegrityElection\ballotsBackup"
- g. Geometry->Browse->"C:\MockScantegrityElection\geometry.xml"
- h. Election Specification->Browse->"C:\MockScantegrityElection\ElectionSpec.xml"
- i. ``Mail in" - unchecked, ``With Start and End Reports" - unchecked, ``With overlays" - unchecked
- j. Click "OK"
- k. The four ballots that you voted appear one after the other on the Voter Screen. Verify if the marks and the serial number have been detected correctly and cast them all. Depending on the resolution of the images representing the ballots this step may run faster or slower. A 75dpi resolution is enough
- l. Close the Polling place program

9. Running Meeting Three

- a. Go to the web page and click on Engine
- b. Click on Calculate Election Results (Meeting Three). As private folder choose "C:\MockScantegrityElection\private" and as public folder choose "C:\MockScantegrityElection\public"
- c. Enter PunchScan as the Username and 1234 as the password and click Done.
- d. If no input file for Meeting Three is found, select Read Ballots from folder and select "C:\MockScantegrityElection\ballots" as the folder
- e. You're looking at Scantegrity ballots
- f. You should ``Create MeetingThreeIn and Run MeetingThree"
- g. In a couple of seconds the message "Running Meeting 3...Done" appears. Two files, "MeetingThreeIn.xml" and "MeetingThreeOut.xml" appear in "C:\MockScantegrityElection\public". "MeetingThreeIn.xml" contains the coded votes, that the voter can check on the website. This tutorial omits the website checking altogether. "MeetingThreeOut.xml" contains the clear text ballots that can be counted by anyone.

10. Running Meeting Four

- a. In the Engine window, click on Post Election Audit (Meeting Four). As private folder choose "C:\MockScantegrityElection\private" and as public folder choose "C:\MockScantegrityElection\public"
- b. Enter PunchScan as the Username and 1234 as the password and click Done.
- c. If no input file for Meeting Four is found it asks you if you want to generate random input (each row in the D table from Meeting Three out is challenged to either Left or Right). Select yes
- d. When asked if you want to open all the unused ballots, answer no
- e. In a couple of seconds the message "Running Meeting 4...Done" appears. A file named "MeetingFourOut.xml" appears in "C:\MockScantegrityElection\public".
- f. Close the engine

11. Running the Post Election Audit

- a. Go to the web page and click on Auditor
- b. As MeetingOneIn select "C:\MockScantegrityElection\public\MeetingOneIn.xml" As Meeting OneOut select "C:\MockScantegrityElection\public\MeetingOneOut.xml", as MeetingThreeIn select "C:\MockScantegrityElection\public\MeetingThreeIn.xml", as MeetingThreeOut select "C:\MockScantegrityElection\public\MeetingThreeOut.xml", as MeetingFourIn select "C:\MockScantegrityElection\public\MeetingFourIn.xml", as MeetingFourOut select "C:\MockScantegrityElection\public\MeetingFourOut.xml".
- c. Click PostElection audit (it checks if the votes ballots have been correctly transformed)
- d. In a couple of seconds the message "The auditor was successful" appears. Close the auditor

Congratulations! You have successfully run and verified a Scantegrity election.