





VtUJI Telematic Voting System

Usage guide for the Election Administrator

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Presentation

You have been chosen to act as election administrator for this deployment of VtUII.

Your duty will be to do the administrative work associated with the setting up of electoral processes, regarding the gathering, revision and insertion of census and ballot data into the web voting application.

Please, read carefully this guide. If you need further information, please refer to the executive, administrative and technical documents.

VtUJI

VtUJI is a powerful and complete tool, developed at the 'Universitat Jaume I', to hold polls, elections and any other kind of referendum through the Internet, where the electorate can participate from any location with its own browser, with no need for additional software nor hardware and providing the highest guarantees of security, integrity and anonymity both to the voter and to the organizer.

This is a tool generally aimed to mid-size private and public corporations, but due to its efficiency, simplicity and personalization capability can be deployed on any situation and on any scale, from small localized communities to great and distributed companies.

System overview

VtUJI is distributed in the form of a full operative system on a Live CD. This way, its contents can't be altered by malicious agents and the machine where it is deployed doesn't need any further auditing or security checks. Once started on the hosting server, it launches a web application (remotely accessible through any browser on any computer) where organizers and voters will create and manage elections and participate in them respectively.

Before finishing setup, the cyphering key that protects data from attackers will be distributed on the committee's USB memory sticks, which will be formatted as Clauers (<u>Clauer</u> is a project aimed at turning a USB memory stick into a cryptographic object storage device). All data will be protected using this key.

Besides the web voting application, the only access point to the system is an operations menu through the same computer which only can be operated after rebuilding the committee's key as a way to acknowledge their authorization to do so. The web application also has some critical administration routines, but they can only be performed by allowing so from the earlier mentioned operations menu, this way the committee has full control of any critical action to be performed on the system.

Due to its construction and access policies, VtUJI guarantees the integrity and anonymity of all the electoral processes. As a direct recording voting system, user would usually have to trust on this security not to be breached to keep his anonymity, but as anonymity is usually the main concern for the elector, VtUJI has been built to be compatible with project <u>eSurvey</u>, which allows the elector to easily take control over his own anonymity. This way, even in the worst and most improbable prospects of security breaches and inner corruption, voter

anonymity won't be violated.

Logical security measures applied on VtUJI are oriented on minimizing the effects from physical and administrative security failures, but the proper assignment of roles and the execution of some procedures is critical, so that if not applied properly it would greatly harm the confidence chain and undermine voter's trust and the institution's public image. This must be avoided at all costs.

Voting application concepts about elections

The election management system is the web tool that enables us to create, manage and participate in elections. It has been designed with the aim to fit the most common electoral systems, and is prepared to create a wide variety of ballots. We'll explain the main concepts needed to understand how it works and to input data.

Main concepts

The core concept of the system is that of **polling**. It represents a set of *options* among which the voter has to choose. The minimum and maximum number of *options* that can be selected for it to be a valid participation is set per polling.

Also, for a realistic recreation of th physical world elections, each polling can be configured to accept blank ballots and/or explicit null ballots (allowing for the voter to write down text as if he was voiding it by writing his opinion with a ball pen)

Each **option** represents an eligible item and can be formed by an image (optional) and from one word to several lines of text. The order in which the options will be showed is defined by the user, sorting them numerically. Each option can optionally contain one or more *candidates* and zero or more *alternate candidates*. If there's at least one candidate, the option text is also optional. Many *candidates* on a same option represent a closed list. To implement an open list we need to use *separators*.

Each *candidate* or *alternate candidate* represents one person, who must also be a user of the voting system.

Each option admits a **separator** that will be placed above it on the defined order. A separator can contain multiple lines of text and/or an image. An open list would use an option per candidate (one option with no text and only one candidate), sorted first by the order parties are shown in the ballot and last by list order inside the party list. It would use the separator of the first candidate of each list to put the party/list name.

An **election** is composed of a voter roll, and a set of one or more *pollings*, which reunited form a ballot. It is the minimum participation unit in the voting system, so a voter will have to take part in all the pollings defined in the ballot. If two different pollings, even though related, allow independent abstention, you'll have to put them in separate elections.

A **polling station** is loosely related with the real world one, as it is not a physical place where voters can cast ballots. It's just a concept to group various elections and there is only one per election. A polling station is composed by a board of officers, the start and the end of the period to cast

votes and a set of one or more elections.

Different elections held on different periods must necessarily be part of different polling posts, but if they share the period, if they are minimally related it is wise to put them together, to reduce complexity.

The same way, VtUJI allows to hold different but related elections (called **exclusive elections**) in which a voter is on multiple rolls but can only participate in one of them, automatically voiding his participation rights on the rest. This has to be done using a single polling post for all those elections. The voter will first decide which one wants to participate in, by examining the ballots, and automatically will be drawn from the other rolls.

Data input formats

VtUJI needs census data to operate. For security and integrity reasons, this information cannot be accessed on demand from a remote server (like an LDAP). So, it needs to be previously loaded.

Census Data Format

Census data needs to be obtained in a strict format, which is the following (obviously, none of the fields may contain the character ! As part of its content):

username!idNumber!Surname, Name

or

username!idNumber!Surname, Name!emailAddress

- username: the user name that identifies each user in any computer system. They can be created expressly for this system, but if the members of your organization already have usernames, it is highly recommended to use them, since they will remember it easily and you'll be able to use external authentication systems, as we'll explain later.
- **IdNumber**: a unique identifier for every user. Many countries or corporations assign an id number to the citizen/employee (id Card, Social Security number, etc.). This is what is expected in this field. Again, it can be created expressly for this system, but it is highly discouraged. It must be present in some physical, difficult to forge, card issued by the organization along with visual information (a photograph) to *let a registrar personally verify the link between the person and his ID*.
- Surname, Name: The full name of the user.
- **EmailAddress**: Optional, but recommended. The personal email address of the user, where he will receive notifications. It can be a corporate account.

ID number format

This field requires a greater focus on it, since it is prone to some confusion

Depending on the country, corporation or organization, the format of this ID number ranges from a plain fixed cypher number to a combination of different fields, with numbers and letters, separators and redundancy fields.

Sometimes, there's not a unified format to write it. For example, Spanish 'DNI' may have a starting letter, declaring its type, an eight cypher number and a redundancy letter (for example, X12345678R). Some people would write it this way, while some others may write it this way: X12345678-R or this one: X 12345678 R, and so on.

Since voter registry operators are allowed to input new users to the system, this may lead to a chaotic registering, and confusion when using it as an identifier on authentication, causing even voter disenfranchisement (if the voter is counted with a wrong id number format on the roll and he is not able to deduce it), or even worse, duplicate entries, which could lead to some users voting twice (not likely, since it would probably be detected on census revision).

It is very important to settle a canonical format to input this data and inform the users (by e-mail, on the voter card or any other means) and specially the registrars to use it every time they input an ID number.

Email Address format

VtUJI accepts various ways to set the email address:

- 1. full email address: username@domain, the classical way.
- 2. User name: if only the user name is given, VtUJI will assume that the domain is the default one. It can be configured during setup and changed any time (needs committee authorization). Be careful when configuring it. The default value shown is just a suggestion, if you don't hit the update button, it will be empty and it won't work.
- 3. @: If you only write an @ character, VtUJI will assume that the user name is that specified earlier as the user name for VtUJI, and the domain is the default domain.

Voting application usage guide: election administrator operations

In this section we will explain every aspect of the interface and the behavior of the web application that you will use to create and manage the electoral processes.

You will notice that the election administrator can perform all the actions of the roles below him (registry operator, polling post officer and voter), but we'll explain them on their corresponding role guides.

Authentication score

At the beginning, each user is assigned a role, classified by the sensibility of its functions (see population section below).

By default, all of them are awarded role 0, and depending on their functions, they can be promoted.

The execution of each role's functions requires reaching a certain authentication score:

- 1: Voter
- 1: Polling station officer or chairman (1)
- 2: Voter registry operator
- 2: Election manager
- 3: System administrator

The score can be raised by one point by successfully authenticating using any of the available methods, or up to three points if using local authentication.

Local authentication will award you one point for providing th correct user name and password, and will additionally give one point for logging in from the usual IP address and another one for the physical possession of a certain Clauer (by connecting the Clauer to the computer during the authentication, you will need Clauer software to achieve this²).

These additional information can be preset by the system administrator on the population edition or it will be set after the first successful login (the IP address and the identifier of the Clauer connected to the computer you are logging from will be recorded).

Header

Every page of the application shares a common header area, which contains the following elements (some of them will appear once authenticated):

Always

- **Title**: A title, 'Telematic voting' and a logo (optional) are located in the center of the header area.
- **Language Selector**: On the uppermost right corner, a set of flags let you change the language of the interface. You will be directed to the main page (or authentication selection page if not logged in) after each switch.
- **About**: Besides the language selector, this link will pop up a window showing information about the funders and developers of this project.
- Help page: Once configured, it will show help information about the use of VtUII.

When authenticated

- **Start**: On the upper left corner of the header area, it will get you back to the main page.
- Your full name: Next to the 'Start' button. The full name of the user whose
 credentials you used to log in. You can always click on it to be directed to
 the authentication selection page, where you can authenticate with other
 method if you are required to. If you have a special role and you didn't reach
 your maximum access level, a red message will invite you to keep raising
 your score.
- **Exit**: Next to the 'Start' button. Will immediately void your session and your score and direct you to the authentication selection page.

¹ In some special cases, like opening a troubled ballot box, the polling station chairman may be required an score of 2. He will be informed adequately.

² See http://clauer.nisu.org/ for more details.

Authentication selection page

Every time you access the system and you are not authenticated, you will be shown the authentication selection page, which has the following layout:

- Authentication method list: Below the title area, centered and in a single column, all the available authentication methods will appear. Either as logos or as text links. Click on any of them to use it to authenticate. The first one will be the default method.
- **Report a problem**: At the bottom of the authentication method list, this link will send you to a form to contact a polling station officer to ask him for help or to report irregularities. It will sequentially ask you for the following data (in order of appearance, hit proceed after each selection):
 - User ID: Your user ID. Not you user name or full name, to identify yourself.
 - **Election**: The election you need help or want to complain about.
 - Officer: (or All) The name of the officer to whom you want to address your complaint/request.
 - Message: The message you want to send.
 - *Image numbers*: An automated Turing test, to avoid sending massive amounts of messages in order to collapse the server or the accounts of the officers. Write the numbers on the image.

Sometimes you will be **redirected to some other external page** (check the address bar on your browser) instead of this one. It will be an external authentication method and this is because the redirection to the default authentication method is activated. To **force showing the authentication selection page**, access again and you won't be redirected.

When you are set a temporary password, if you try to log in with any other method, you will be directed to the local authentication page to set your definitive password. You won't be able to continue until you do so.

Local authentication page

It is the basic and the only independent and autonomous authentication method. These are the fields shown.

- **User ID or user name**: Your user ID or your user name.
- **Password**: The password you have been given (either the temporary or the definitive one, depending on the state of your credential distribution process).
- **Image numbers:** An automated Turing test to, in case of massive credential theft, avoid massive impersonation and ballot injection. Write the numbers on the image.
- **Enter**: Submits the authentication request.
- Generate new password: If you check this box, once you are successfully authenticated, a new definitive password will be generated. It will override your current one and you will be directed to the 'definitive password settlement', the same as after logging in with the temporary password.

• **Back**: Sends you back to the authentication selection page.

If you fail, you will be notified why in red below the submit button.

If a Clauer is detected, you will be prompted if you want to let the program read its ID. If you accept, you can add one more point to your score.

Definitive password settlement

 You will be shown an screen with your new password (case sensitive) clearly identified. Write it down before hitting **Continue**, or else you won't be able to log in again.

Voting application main page

The main page is divided in sections, delimited by horizontal colored areas. Each area clusters all the functions of a role, ordered from the highest to the lowermost role:

- System administrator operations (default: yellow)
- Election manager operations (default: pale red)
- Voter registry operator operations (default: cyan)
- Polling station officer or chairman operations (default: pale green)

The voter role has three different assigned areas: One regarding ongoing elections that are active and he hasn't voted yet, another regarding ongoing elections where he has voted or still are not active, and another regarding past elections.

- Pending election area (default: light purple)
- Current elections area (default: pale yellow)
- Previous elections area (default: pale yellow)

The number of shown areas depends on the role associated with your user and the score you have currently earned.

Voting application main page: Election manager area

To gain access to this functions you will need an authentication score of 2.

The interface elements present here are these:

- Polling posts in progress: List of all the polling posts containing elections
 that still have not been celebrated or are currently being celebrated. Select
 one and click edit to be directed to the edition screen for this polling post.
- **Polling post archive**: List of all the polling posts containing elections that already have been celebrated. Select one and click edit to be directed to the revision screen for this polling post.
- New Polling post button: Click it to create a new polling post. When
 created, hit the edit button to edit it you will be directed to the edition
 screen for this polling post.

Both lists show the following information:

• Name of the polling post: this name must be descriptive enough for you

and the polling post officer board, since it won't be seen by anyone else (voters will see the elections alone, not grouped in polling posts). It is not unique, so be careful when naming them.

- Polling post ID: the internal unique identifier for each polling post. To distinguish it, especially when reporting problems to the system administrator.
- *Initial date*: the date when the elections are programmed to begin. At first it is the creation date.
- **State**: the current state of the polling post (see next section).

The elements on the list are sorted, first by state (see below), then by start date and then by polling post ID.

Polling post states

Through the process from its creation until it is archived, a polling post can go through this set of states.

- **Editing**: While data is still being inserted and is prone to change. the polling post can't be operated by anyone but the election administrator(s).
- Programmed: once you finish your job and all the election data is frozen, you will switch it to programmed state. If the revision of the board of officers shows any mistakes, to correct them, you must fall back to the 'editing' state.
- Active: once the election data is revised by the board of officers, they will
 agree and the election will be opened, some time before the time voters can
 begin to cast their ballots. There is no way back to the programmed state,
 and your actions are limited to delaying the close time and adding/deleting
 voters (we'll see this later).
- **Open ballot box**: once the polls are closed, the officer board chairman will open the ballot box and ballots will be tallied.
- Closed: after the tallying, all the officers must review the results, to check for irregularities. Once all agree with the correctness of the tallying, the records will be generated and the polling post will be closed.
- **Erroneous**: something went wrong during the tallying process and it has been dismissed.

Election edition screen

This screen is where you will be able to set all the parameters you need to create elections. You can set up any kind of election: single candidates or options, open lists, closed lists, with any number of options.

In this section we will only discuss the interface elements and different sections. For a detailed guide to the process of creating a polling post, with the most common types of elections/ballots, refer to section 'Creating a polling post' in page 22.

First access

The elements you will see on the first access after creating the election are the

following:

 Modify button: This button that you find on top and on the bottom of the form, and later you will find on almost every section will submit all the modifications you make on the form data.

Be aware that if you leave this page by clicking any button different from 'Modify' will **dismiss any number of modifications** you made over the elections data.

- *Identifier*: The internal identifier of the polling post, since names are not unique. Use it mainly for maintenance or emergency purposes.
- Status: A selector that shows the current state of the polling post, and will be originally set as 'Editing'. You will use it to change the state of the polling post to 'Programmed' when you are done editing it. You won't be able to change the state until all the minimal requirements of the polling post are covered. You will be prompted with the errors.
- Status button: Will appear once the election gets to programmed state.
 Will let you check the view of the election for the officer board and survey some of their actions.
- Notify button: Will appear once the election gets to programmed state, and will let you send notifications to the voters and the officers until the moment the polls are opened.
- Exclusively edited by me: This checkbox controls if the current polling
 post can be edited by all the election managers (and system administrators)
 or just by you. It is recommended to uncheck it only if you really need help
 editing it or you are going to be absent during periods or shifts where
 there's job to be done.

Be aware that there is **no concurrency control** when editing polling posts. If two election managers load the polling post and the same time and do different changes, only those of the last submitter will survive; even if they affect different sets of parameters. The other will be overridden.

- **Excluding elections**: As we explained earlier, check it if you want each elector to participate in one and only one of the elections held at this polling post (of his choice).
- Name: The readable name of the polling post. Make it descriptive enough and try not to use duplicates, although you can. Leave it blank to delete the polling post.
- *Current time*: The date and time that you last loaded this form.
- **Start**: On this set of selectors, you can establish the date and time when the polls will be open. Affects all the elections in this polling post. The default value will always be the nearest 12:00 hour (if you create it before this hour, it will be today's; else it will be tomorrow's).
- End: On this set of selectors, you can establish the date and time when the
 polls will be closed. Affects all the elections in this polling post. If these
 dates are oddly configured (past start date, start date after end date, etc...)

you will be prompted and they will be automatically corrected. Be aware. The default value will always be the nearest 20:00 hour after the default start date.

- More officers: This text area is where you must input the names of the polling post officer board members. If they still are not VtUJI users, use the syntax described in page 5 to insert them. If any of them is duplicated or not part of the voting system, you will be prompted and erroneous lines won't be deleted. If they are already on the system, simply write their username or write: !IdNumber.
- **Election**: The name of the first election. Once you hit Modify, you will be shown the rest of the fields to set up the election, and you will be able to add more elections. If you want to leave it nameless, just write a single hyphen '-'.
- **Clone all**: The whole structure of the current polling post is duplicated on a new one, including the elector rolls, board of officers and candidates.
- **Clone structure**: The whole structure of the current polling post is duplicated on a new one, but the elector rolls and board of officers are left blank. Also, options are kept if named, but without its candidates if any.
- Preview area: An area, named 'Preview' and colored in violet. Here, the resulting ballot (the one that will be shown to the voter) will be rendered with the current information each time you submit changes to the polling post. The ballots for different elections will be shown separated by horizontal bars, in the same order they are defined above. If any ballot error or inconsistence happens, it will be clearly shown here, so you can solve it.

After adding any number of officers, the current officer board data area will be shown between the dates area and the 'more officers' text area. Each line represents an officer, and has the following data:

- Id number and full name.
- His office: Traditionally, polling station boards have different types of officers. We provide here the most common ones and the chairman, that is special. Being an alternate officer also has special considerations, that we'll explain later.
- Score: This parameter (defaulted as 1) is the minimum authentication score
 that this member needs to reach to be allowed to operate this polling post.
 Use it when you need special access restrictions. Use value 0 to delete the
 officer.
- Image: This button will jump to the 'Image management screen' (see page 18), where you can upload and associate a photograph with the officer (to be shown to the voters). Once you choose it and go back, it will appear besides the button.

About the offices

Here are the offices available on VtUJI. You don't need to use them all, except for the chairman, which is a essential to have. Except for the chairman and alternate chairman, all the offices are conceptual, They don't differ in anything on VtUJI, but we'll explain their meaning.

- Chairman: The main office. He has the special responsibilities of coordinating the other officers and ordering the polls opening, the tallying and the closure of the election.
- **Secretary**: The second in charge; but only conceptually, because in VtUJI it is at the same level as the rest of officers.
- **Member**: A general officer. He is there only to testify what he is seeing.
- Inspector: A comptroller, usually sent by the election authority to guard its interests.
- **Representative**: A comptroller who guards the interests of the candidates or parties.
- Alternate chairman: He can take over the office of the president from the same moment they are allowed to operate the polling post if the chairman is absent, and his absence is not recorded as long as there is a chairman on charge.
- **Other alternates**: All the other alternate officers act the same as their counterparts, only that their absence is not recorded as long as there is someone on charge.

Any officer can take over the chairman office if both the chairman and the alternate chairman are absent one hour after the programmed polls opening time.

New election data

After setting the name of the election, more interface elements related to this election will be shown. At the bottom, below a separator bar, an **empty** '**Election' field** will appear. Write a name there to create a new election in this polling post with the same parameters that follow:

- **Election name**: The name for the current election. Can be duplicated in other elections, so be careful. Write a hyphen to leave it unnamed. **Leave it blank to delete this election** and all the data belonging to it.
- Posi: The position that this election will occupy on the sequence of elections shown to the voter. They are ordered on steps of ten. You can rearrange them as desired (writing values between). When you submit the changes, the order will change and the numbers will be rewritten on steps of ten.
- Security: Here you can define the usage level of the eSurvey Latency Network (LCN) in the election. See the annexes of the System Administrator Guide for further information. Possible values are:
 - Straight to ballot box: The ballots go straight to the ballot box; no delay and no usage of external servers. Anonymity depends only on the voter's confidence on the server. Ballot box can be opened right after the closing time.
 - Via LCN 1 server: The ballots travel though one LCN node before arriving to the VtUJI server. It provides a moderate server independent anonymity. Ballot box opening will be delayed some time to let all the votes get in after the polls are closed.
 - Via LCN 3 servers: The ballots travel though three LCN node before

arriving to the VtUJI server. It provides a great server independent anonymity. Ballot box opening will be delayed some time to let all the votes get in after the polls are closed.

Be aware that any voter using the eSurvey Toolbar can override this configuration and set the usage level he wants so, even if you are using 'straight to ballot box' security, ballot box opening time may be delayed.

- Show logs: When using the integrated client (not the toolbar), to avoid voter panicking, he is only shown a text area with all the technical log entries when he goes though an undesired or uncommon situation (errors, warnings, etc.). If checked, the voter will be always shown this log text area.
- Auditable: eSurvey supports providing a code that the voter can use at the end of the election to verify that his vote was properly counted. (No legal validity, just verification or application problem detection purposes). If you check this option, the voter will be shown the log area with a message telling him to copy the code, and a list of the codes will be published on the election information at the end of it. Use it if you don't expect important of coercion, since it can be used by third parties to check if someone has participated or not (of course, not the content of the ballot).
- Local client: The integrated client can be loaded from two sources: the
 manufacturer site (remote) and from your VtUJI installation (local). Both are
 secure sources, but the manufacturer one may change and your version of
 VtUJI may stop being compatible. Also, if using the local version, you are
 sure that a network failure on the manufacturer doesn't affect your
 elections. Check it to use the local one.
- **Help in ballot**: If checked, the ballot will be accompanied with autogenerated help about how to vote. Check it on the preview area. If you find it superfluous or you want to write your own, uncheck it.
- Public population: If checked, the elector rolls will be accessible by anyone, not just the board of officers and you. It is a requirement in some countries electoral systems.
- Open: If checked, the electorate for this election is all the users registered on the system, so you don't need to add voters in this interface. Be aware that the elector roll will be empty at first and will fill as people vote, so, if you check 'Public population' and this one, anyone may know who has voted and when (not the content of the vote, of course). Don't use for serious purposes; just if you need to perform informal surveys.
- Authentication: Here you will set the authentication needs to participate
 on this election. Each line means one way to authenticate to get to the
 election, and various checked methods on a line mean that you need to
 authenticate on all of them to get to the election. By default there will be
 just one line with the default method selected alone. Choose them carefully,
 or make the system administrator and the key custody committee decide
 for you (Refer to the Administrative Documentation and the System
 Administrator guide for further reference on the authentication problem).

If you set different authentication requirements for an election (like restricting some methods or requiring more than one, be sure to **specify it clearly on the notification to the voters**. The application doesn't give information about which methods are needed and voters could be really confused).

- Number of registered voters: Tells how many electors are there available
 now (depending on how many you added), how many have voted and how
 many ballots are there now in the ballot box (which will be fewer than the
 voted ones if someone used the LCN). These values will be zero now.
- Polling: The name of one polling in this election. If you put a name in here
 and submit, the specific form fields for the polling will be revealed. You can
 add as much as wanted. If only using one polling, you can omit naming it by
 writing a hyphen ('-'). If there are multiple pollings, just one can be unnamed
 and name duplicity is not accepted.
- Add voters: Text area to add authorized voters to this election. One per line. Use the same syntax you used on the board of officers (username or ! IdNumber to specify them or the syntax described in page 5 to insert them). If there's any error on submit, you will be prompted and erroneous lines won't be deleted.
- Voters button: IT will also submit the changes and switch you to the voter management screen for this election.
- Footer: A free text area, useful to give additional information to the voter or help and instructions different from the auto-generated ones. It accepts HTML code, so be careful and be sure that the preview shows it the way you want it.

New polling data

- **Polling**: The readable name of the polling that will be shown on the ballot. To delete the polling and all its dependent data, leave the name blank.
- Posi: The position where this polling will be shown among all the pollings on the ballot. They are ordered on steps of ten. You can rearrange them as desired (writing values between). When you submit the changes, the order will change and the numbers will be rewritten on steps of ten.
- Min: The minimum number of options that must be chosen for the ballot to be valid. Must be less or equal than the Max. A value higher than zero means that blank ballots are not allowed and will be treated as null ballots. Be sure to inform about this number on the footer if you don't activate the automatic help in ballot.
- Max: The maximum number of options that can be chosen for the ballot to be valid. Must be greater or equal than the Min and less or equal than the option number. If the value is one, the generated ballot will show a radio button type of selector. If greater, it will show check boxes for multiple selection.
- **Allow null votes**: Some electoral systems consider that casting a null ballot is a right. To represent reality as best as possible, if you check this box, an additional option with a text area will be added to the ballot. If selected, the

ballot will automatically be voided and, if the voter writes any text, it will be shown to the board of officers during the tallying.

- More options: This text area lets you add the options a voter can choose on each polling of the ballot. An option can contain text, an image and/or candidates. If you want the option to have no text, write a hyphen. These options can be defined at first as one of these ways (when submitted, new fields for each options will be shown), one per line:
 - **Simple text options**: any string of text defining thre option ('yes', 'no', 'in favor', etc.).
 - **Single candidate**: Using any of these syntaxes: *username*! or ! *IdNumber*, the string will be considered user information and will be searched on the system user list and loaded. If not found, you will be prompted. If found, the option will be nameless ('-') and will have a single candidate.
- Previously marked ballot: A text area. Set identifying names to create predefined ballots (they must be clear enough, and be careful since it accepts duplicates). One per line. Once you submit, more form data will be shown for each one created. These ballots will be auto-filled following the criteria you set and the voter can select one of them. You need to have at least one defined option.

New option data

- Option: This field holds the text to be shown on this option. Besides, the option can have other elements (image, candidates) the combination of this text and the candidate list must be different for each option (if two are identical, you will be warned on the preview area). If you don't want to show text, write a hyphen. To delete the option an all its elements, leave this field blank.
- Option image: The image representing this option. Can be combined with text and/or candidates. Click on the image button and you will be directed to the image management screen. When back, the image will be shown in miniature.
- Posi: The position where this option will be shown among all the options on this polling. They are ordered on steps of ten. You can rearrange them as desired (writing values between). When you submit the changes, the order will change and the numbers will be rewritten on steps of ten.
- **Separator**: A text that will be written on the ballot before the option. Use it to create groups or categories of independent options. It is optional, and remember that it is not hierarchical, it is just positional.
- **Separator image**: Additionally or alternatively to the separator text, you can use a separator image. The same considerations as above apply.
- More candidates: This text area allows you to add one or more candidates, to turn the option from a conceptual choice to a candidate or closed list of candidates choice. One per line. Use the same syntax you used on the board of officers (username or !IdNumber to specify them or the syntax described in page 5 to insert them). If there's any error on submit, you will be prompted and erroneous lines won't be deleted. New form data will be

shown after inserting them.

More alternate candidates: The same behavior as the candidate area.
The rationale for this is that most closed list election systems differentiate
between the main candidates and those who are there to fill gaps or
casualties. Here you must input these, that will be shown at the end of the
list and differentiated.

New candidate options

After inserting a candidate on the list, this line of interface elements will be shown:

- **Candidate**: ID number and full name of the candidate. Just the full name will be shown on the ballot, not the ID number.
- **Posi**: The position of this candidate on the list. They are ordered on steps of ten. You can rearrange them as desired (writing values between). When you submit the changes, the order will change and the numbers will be rewritten on steps of ten. **Set it to zero to delete the candidate**.
- **Image**: The photograph representing this candidate. It will be shown besides his name on the ballot. Click on the image button and you will be directed to the image management screen. When back, the image will be shown in miniature.

New previously marked ballot

Previously marked ballots (PMB) are aimed at easing the task of voting to the elector. He will click one of the PMB and the ballot will be automatically filled with the preset options for this choice. This is quite useful, for example, to one-click select all the candidates from a party on an open list election, preventing errors. These PMBs are much appreciated by the parties.

When you create PMBs and submit the changes, a new block of controls appear for each one, with the following elements:

- **Previously marked ballot**: The name of this PMB. Set it blank to delete it.
- **List of current options**: A check box list with all the current options for this polling. Check all those you want to be automatically marked when this PMB is chosen. If you add or delete options after creating PMBs, they will be updated.

Voter management Screen

This screen shows the current elector roll for the current election. You can delete electors or add more of them from a file. As usual, on the file you can specify users from the system (*username* or !IdNumber) or insert more of them, with the syntax described on page 5.

The basic interface contains the following elements:

• **Current elector list**: Shows all the electors on the rolls, all at a time. The ID number and the full name for each elector are shown, besides a check box. Check it to delete this elector from the rolls (not from the system) when you hit update.

- Load from file check box: If checked, push 'Update' and you will be shown a file upload form. Use it to load a file from your computer containing users; one per line and using the same format that you would use on the text area. Select the file and push 'Add' again. A progress meter will appear to show the upload progress, and then another one will appear to show the data processing progress.
- **Update button**: Hit it to load the electors from the file and to delete the checked electors.
- **Back**: Goes back to the election management screen.

When the number of electors is big enough, a special interface will appear, with the following elements:

- Number of currently enrolled electors: The total of electors currently on the rolls.
- **Inspect button**: Will show a sorted list of the electors, like the above interface, but with pagination. The sorting process may take a while. A progress meter will be shown.
- *Criteria selector*: Lets you select the criteria for the first sorting. You can sort them by full name, user name or by ID number.
- **Empty the population**: Will delete all the electors on the roll (not from the system, only from this roll).
- Back: Same as above.

The inspect interface for a big number of electors is the same as above but with the following new elements:

- Update and jump: Like the update button above, but will also execute the new sorting or page change that you may have chosen on the page selector.
- Page selector: You can sort the user list using the main fields and jump to another page. The amount and size of the pages depends on the number of selected users and are shown on a page selector at the beginning of the list. Push 'Update and jump' to go to the selected page or to sort the list.

Image management screen

This interface lets you choose the image that will be used on the context that launched this screen. Also, it can be used to upload images for other purposes, even if we are not going to use them right now.

Images can be public or not and hidden or not. Public images can be requested without being authenticated, and hidden images won't be shown in this interface unless you force to do so.

For each image, you have the following fields:

- **Select**: The currently selected image to be used, which will be effective when you hit back
- **Name**: The name of the image. Erase it and hit Update to delete them from the system.
- *Image*: Click on it to select.

- **Public**: Whether It is public or not (can be accessed without being authenticated).
- **Hidden**: Whether It will be shown on the list or not.

At the bottom, we find the upload form and the action buttons:

- **Upload image**: If you check it and hit 'Update', you will be shown a file upload dialog. To upload a file from your computer, select it in the dialog and hit 'Update'.
- **Load from web**: Write here an image's URL to download it from the Internet.
- **Update button**: Submits all the changes (deletions, uploads, etc.)
- **Back**: Gets back to the calling screen, returning the selected image as the chosen one.
- **Show hidden images**: If you check it and hit 'Update', hidden images will be shown on the image list. Uncheck it to hide them again.

Election status screen

This screen gives you a preview of the information that the polling post officers will see on their view, to check that everything is alright. Here's the information shown there:

- Name of the polling post.
- Current time: The time at the moment you requested the screen.
- **Start time**: The time when the polls will be open.
- **End time**: The time when the polls will be closed.

For each election in the polling post:

- **Election name**: The name of the election.
- **Population**: Click it to show the sorted list of all the electors for this election (only full name). No pagination, so loading a big number could take some time. It will be loaded on the visualization window to the right.
- **Ballot**: Click it to preview the ballot for this election that will be shown to the voter (on the visualization window to the right).

For each polling in the election:

- **Polling name**: The name for this polling.
- Security level: The usage of the eSurvey LCN, as configured by you.

Finally there's the list of controls, each line corresponding to a polling post officer:

- Officer: The full name of the officer.
- Office: The office he is holding on the board.
- Reviewed: He will check it after revising the rolls and the ballots.
- Record signed: This field will appear once the polling post is active.
 Tells if this officer has digitally signed the records or not.

• Comment or incidence: Any comment he may have about his revision.

And the main controls.

- Visualization window: In this bounded area, the ballots and the rolls will be visualized.
- **Empty rolls and ballot box**: [Only when in closed state] Lets you delete all the ballots and the elector rolls for the elections on this polling post, to fulfill the requirements of the electoral system.
- **Receive records by e-mail button**: If the election is ongoing and there's any generated record, it will be sent to your address.
- **Back**: Goes back to the election edition screen.

Election notification screen

From this screen, you will be able to send notifications to the officers and the voters until the moments the polls are opened. A standard message will appear on the text areas, but you can edit it at your convenience. Once you leave this screen, the content of the messages will be reset to the default.

Note the **special syntax** on the messages: If you write some text between square brackets '[]', it will be converted to a link to your VtUJI installation. If the brackets are followed with another pair of them containing a URL, this will be the address of the link.

- Message to the board of officials: A text area with the message that will be sent to the polling post officials, with information about the election dates and their duties. Change the message at your will.
- Message to the electors: A text area with the message that will be sent to all the electors on the rolls, with information about the election dates and how to vote. Change the message at your will.
- Message to the electors without local authentication credentials: If
 your elections allow the local authentication as a valid method, you will see
 a third text area, with a message to be sent to those who are on the rolls of
 these elections and still haven't gained their definitive local access
 credentials. It tells them to go and get them and how. Change the message
 at your will.
- **Send button**: Will send the e-mails to all the electors/officers who have a registered e-mail address on the system. The content of the messages will be that present on the text areas at the moment of the submission.
- **Back button**: Will get you back to the election edition page. All changes to the messages will be lost.

Active or past elections revision screen

This screen lets you see all the information about the ongoing and yet closed elections. The layout is exactly the same one as the election management screen, but the number of editable fields is drastically reduced and depends on the current state of the polling post. All the element insertion fields have disappeared, and the fields showing information have been disabled, to prevent you from changing their content. The only editable fields that you will

find are the following:

- **Polling post name**: since it is an internal information field, only seen by the officers, it can be changed at convenience.
- **End date**: [Only during the *active* state] In case of unexpected issues, the election committee can determine that the polls closing date be delayed. You will do it from here.
- Add voters: The add voters area is active, so you can add disenfranchised voters to the rolls when authorized by the election authority.
- Voters: You can access the voter management screen. There, you will be
 able to delete electors who are able to vote by mistake, when authorized by
 the election authority. You only can do it as long as he hasn't voted yet.

Privileged mode

You should be informed when the system administrator is performing some maintenance session over the application. That is because when he gains privileges, yo also gain them for your role actions. So, while in privilege mode, you will be able to edit the content of past and active elections and you will be able to override some of the restrictions when editing new ones. Be careful with what you do.

Also, you can access this past elections in order to clone them to ease the process of creating a similar or repeating a periodical election.

Duties

Your main duty will be to gather all the information about the elections that are going to be held: dates, ballot composition (candidates, options, parties, etc.), elector rolls (names, ID numbers, email addresses, etc.) and drafted polling station officers. You must have them in the format specified earlier (see page 5). If you need technical support on formatting the data, ask the system administrator.

You will be on charge of inserting all this information on VtUJI and setting up the polling stations.

You will be in charge of notifying the electors about the elections (ask for instructions to the election authority about which information should be sent and when must they be notified) and coordinating the board of officers on their functions. Also, it is your duty to correct any irregularities found during the revision by the board of officers (refer to the authority to resolve any conflict).

During the elections celebration you may be officially required by the election authority to add voters to the rolls (if they were accidentally disenfranchised) or to delete voters from the rolls (if they were accidentally enfranchised and haven't voted yet). You must do it as soon as you are notified.

Also during elections, if the polls are still open and events prevented the electors from participating on time and the election authority determines that the polls closing time must be delayed, you will be notified and you must act right away, before the polls are closed.

This means that you must be on call during electoral periods, to respond immediately to your duties.

Once the elections are over, you will have the duty of destroying the ballots and voter rolls, when authorized by the election authority and following your electoral laws.

Assuming the role of the polling station chairman

In the event that all the polling post officers were missing or incapacitated, the system will wait 24 hours. After this period, you will be able to assume the functions of the chairman, to open the ballot box and perform the tallying. Refer to this user guide for further information.

Operations

Now that we have explained all the controls on the interface, we will give a higher level view on the procedures that you must perform.

Creating a polling post

Do this to hold one or more related elections (senate and congress, for example) or excluding ones (elect your representatives per collective, when you can belong to more than one collective and you can choose only from one).

- 1. Access VtUJI.
- 2. Click on the new button. When created, click on the edit button.
- 3. If you need some other election administrator to access, uncheck the 'Exclusively edited...' box (not recommended).
- 4. If the voters will have to choose among all the elections that you are defining in this polling post, check the 'excluding elections' box.
- 5. Write a representative name for the polling post (use the type of election, motivation and date).
- 6. Set the start date and the end date of the election, as instructed. If they are too close, you will be warned with a message in red.
- 7. Set the officer board. Input all the information you have about them at once and then submit.
- 8. Set the offices and the photographs (if available) for each one of them. Don't touch the score unless you were instructed to.
- 9. Set the name of the election and submit. This will be seen by the voters on the ballot, so use a really descriptive and formal name (they will provide you with one). It can be as long as desired.
- 10.Set the default security level. Depends on your instructions but, if not sure about what to do, a common and safe configuration is 'straight to ballot box'.
- 11.Set the values for these parameters (see section 'Election edition screen' in page 10 for a detailed explanation). Their value depends on your electoral law and the decision of the election authority, but a common configuration would be to check 'Help in ballot' and 'Public population'

- 12.Set the authentication methods. The default method will be selected and it is enough. Change it only if you are instructed to by the authority and advised by the system administrator.
- 13.Set the census for the election now. Depending on its size, it will be better for you to paste it on the text area or click 'Voters' to access the voter management screen and upload them from a file. Submit, and check that the number of voters shown matches the expected value. Solve any problems or collisions that may happen when uploading the population.
- 14. You need to set at least one polling. If only using one and you don't have the need to name it, write a hyphen there '-'. Hit submit.
- 15.Write all the possible options for this polling. If they have text or are single candidates, write all of them at once using the syntax shown earlier (see section 'Election edition screen' in page 10 for a detailed explanation). If there are multiple candidates and no text, write the name of the first one for each option.
- 16. For each option, set an image if available and desired.
- 17.Set separators (in text and/or image) if you need to positionally and conceptually group some options.
- 18.If the option has candidates (or more than one candidate), insert them now the same way you inserted voters and officers. Do the same with the alternate candidates if any.
- 19. Add photographs to the candidates if available and desired.
- 20.If you need to rearrange the order in which candidates will be listed, change the 'posi' field.
- 21.Add more options, if needed, and submit.
- 22.If you need to rearrange the order in which options will be shown, change the 'posi' field.
- 23. Set the number of maximum options if it is a multi-choice ballot.
- 24.Set the number of minimum options if you were instructed not to accept blank ballots.
- 25. Set if you were instructed to allow explicitly void ballots.
- 26.If your ballot has two or more differentiated consults, write the name of another polling on its box and submit. Repeat the process for this polling.
- 27.If you need to rearrange the order in which the pollings will be shown, change the 'posi' field.
- 28.If you need to provide additional help to the voter (or didn't mark 'help in ballot'), write it on the footer area.
- 29.If you need to hold another election on this same polling post, write its name on the corresponding input and repeat the process for this one.
- 30.If you need to rearrange the order in which the elections will be shown, change the 'posi' field.
- 31. Check the resulting ballots at the bottom of the screen.

Sample ballots

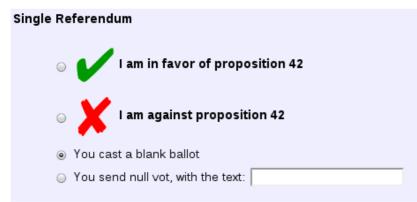
Now we'll show snapshots of common types of ballots and the way to configure them on the application.

Single referendum

In this kind of ballot, the options are simple assertions (in favor, against, etc.). Here are some examples:

We created two options, with a line of text for each one and an associated image. Notice the option to cast a blank ballot. The accept null ballots box was checked, thus you can see the text area for the voter to explicitly void the ballot.



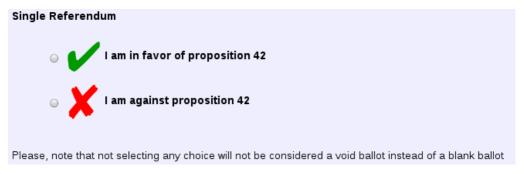


In this one, the void ballot checkbox was not checked, and the minimum and maximum of selectable options was 1, so you are not able to cast a blank or a void ballot.

But, as you can see, the voter doesn't know that he can't choose to leave it blank. If we activate the auto-help, the header will show information about the number of selectable options for it to be a valid ballot.



If you believe that this information is not accurate enough or you need to provide further information, write it on the footer field:



Multiple referendums

As stated earlier, you can hold several referendums on the same ballot. Just define them as different pollings of the same election (you could avoid naming the election if it is not descriptive in favor of the polling names. Just use '-' as election name).

They can be configured in several ways; notice that one of them has auto-help and doesn't accept blank ballots. Neither accept explicitly void ballots.

You must choose an option



Single candidates



In this ballot, each option is named '-', and has a single associated candidate. For each of them, we've used the image management interface to upload and set a photograph. As can be inferred for the presence of radio buttons, only one candidate can be chosen.

Notice also that you are able to cast a blank ballot and an explicitly void one.

Open lists

Depending on the choices you do, this kind of ballot might look quite different. The common characteristic is that each option has one single candidate, and you can select multiple of them. To ease the insertion of the candidates, use the syntax we've described on the guide to put them all on the options text area and get them treated as candidates. We show here some variants:

Open lists You can se

You can select up to 5 options

- Truman, Harry S.
- Roosevelt, Theodore
- Garfield, James
- Eisenhower, Dwight D.
- Ford, Gerald
- Kennedy, John F.
- Reagan, Ronald
- Obama, Barack
- Clinton, William
- Carter, James
- Johnson, Lyndon B.
- Wilson, Woodrow

In this basic one, you can select up to a number of candidates. Selecting none would mean a blank ballot. No explicitly void, but selecting more than 5 (the maximum number), will get the ballot voided.

Open lists

You can select from 3 to 5 options

- Truman, Harry S.
- Roosevelt, Theodore
- Garfield, James
- Eisenhower, Dwight D.
- Ford, Gerald
- Kennedy, John F.
- Reagan, Ronald
- Obama, Barack
- Clinton, William
- Carter, James
- Johnson, Lyndon B.
- Wilson, Woodrow

This is the same as the previous one, but notice that now you are instructed to select at least 3 candidates. If you don't, the ballot will be treated as void. That is because the minimum is not zero.

Open lists You can select as many options as you desire Participate Truman, Harry S Roosevelt, Theodore Garfield, James Eisenhower, Dwight D Ford, Gerald Kennedy, John F. Reagan, Ronald Obama, Barack Clinton, William Carter, James Johnson, Lyndon B. Wilson, Woodrow You send null vot, with the text:

When you choose to allow explicitly void ballots, the for gets some more complicated. You've got a first decision between participating or not, and if you decide to participate, then you can make your choices.

Open lists You can select up to 5 options Participate Democratic Party Wilson, Woodrow Johnson, Lyndon B Carter, James Clinton, William Obama, Barack Kennedy, John F Truman, Harry S. Republican Party Ford, Gerald Reagan, Ronald Eisenhower, Dwight D Garfield James Roosevelt, Theodore You send null vot, with the text:

If the candidates of the open lists belong to conceptual groups, like parties, you will have to order all the options, first of all in party order, and then in list order among each party (better do it right at insertion, or else it can be hard to do).

On the separator area for the first member of each party, we write the name of the party and, if we want to, upload the party logo.

In case you need to put alternate officers in an open list (not very common but it could happen), as long as they are not electable, but only informative for the voter, add them as more candidates in the last option belonging to the party.

Closed lists



In a closed list scheme, each selectable options belongs to a party or a group, and contains a list of candidates who you have to choose as a block.

Write the name of each party that runs for the election. Once the option is created, add all the candidates, sorted, in the candidate text area.

Notice that each option has an associated image, and also there are alternate candidates.

You can choose any of the lists, marking blank or produce an explicit void.

Editing the post during the election

These are the actions that you will be able to perform during the celebration of the election.

Extending the election duration

If you are requested to extend the polls closing time, do the following:

- 1.- Access VtUJI.
- 2.- Select the corresponding polling post on the 'in progress selector'. As long as it is active, it will be at the bottom of the list.
- 3.- As long as the end date was not reached, it will appear as the editable set of selectors. Delay it as instructed. Trying to bring it forward will result in an error.

Adding disenfranchised voters

If you are requested to add voters to enfranchise them, do the following:

- 1.- Access VtUJI.
- 2.- Select the corresponding polling post on the 'in progress selector'. As long as it is active, it will be at the bottom of the list.
- 3.- As long as the end date was not reached, you will be able to see the add voters text area for the proper election. Input the user information you have

been given (either the user names or ID numbers if they are already part of the system, or the full user data). Make sure that the request and the data come from a reliable source.

The voters added during this period will immediately appear clearly differentiated (in color red on the participation roll and marked with an asterisk on the genera roll, where red means 'didn't vote') on the voter rolls, to highlight them to the officers.

Deleting unauthorized voters

If you are requested to remove voters who were erroneously enfranchised, do the following:

- 1.- Access VtUJI.
- 2.- Select the corresponding polling post on the 'in progress selector'. As long as it is active, it will be at the bottom of the list.
- 3.- As long as the elector didn't vote yet, access the voter screen, find him, check the line and submit the deletion.

If he couldn't be deleted because he already voted, you will be prompted.

Cloning a polling post

Cloning a polling post is the best way to save time when creating a similar election or holding a regular election, but we need to be aware of some considerations.

There are two cloning operations: **Clone all** and **Clone structure**. Clone all will duplicate the whole polling post (except for the dates, that will be defaulted), including the board of officers, the candidates on the options and the elector rolls. Clone structure will do the same but without copying any officers, electors nor candidates (the option structure will be kept).

Once cloned, edit it and change the polling post name, to avoid confusions.

If the polling post you are cloning **contained excluding elections**, you must **reload the elector rolls**. That is because when choosing the election to vote in, the voters will be dropped from the rolls of the rest of mutually-excluding elections. So, after cloning, each elector who had voted will be assigned to one and only one election, and they would loose their right to choose.

Solving errors

Here you will find a compendium of the some uncommon errors that may happen during your operation.

'Error parsing with eSurveySites'

This error may rarely appear while editing an election. It means that the system tried to connect with eSurveySites, to perform some operations with the keys generated for this polling post and couldn't connect or received a bad response. It is a network or an external error (at eSurveySites server) and you should contact the administrator of eSurveySites.