

# Hierodiction Software

## EVOTE CAS: Common Administration Space

## EVOTE VRL: Voter Roll Loading Tool

### What is CAS?

Conventional e-voting systems rely on software that must be individually adapted to each new election: Identification mode, ballot sheet, result computations and presentation, to name but a few examples. Programmers outside the immediate control of the election committees perform these modifications, which gives rise to complaints of “black box voting”.

It is however the **election committee** that is legally and politically responsible for the election in its constituency and hence should also have control over the data and the processes in preparing and conducting a ballot. EVOTE offers the Common Administration Space (CAS) for this purpose.

### Functionality

**Election Data:** CAS enables election administrators to define key election parameters, such as the registration and voting **period**, possible **replacement votes**, the information **texts displayed to the voters**, the **constituencies** and their **election committees** and the **layout** of all forms displayed to the voter (for an example, see screenshot below). Apart from the general help function, users may use individual help functions for most entry and status fields.

**Constituency Data:** Election committee members may define the ballot sheet in their constituency with maximum flexibility: **multiple votes**, **vote cumulation**, **splitting the ticket** and a number of **ballot sheet layouts** for main and preferential votes are available. Also, the committee may choose, whether the entries in the ballot sheet are checked before submission (thereby preventing electronic voters from unintentionally submitting an invalid ballot) or not. Of course, in either case, the votes are always validated in the counting process (for a sample screenshot see next page).

Decisions in the election committee may not always be necessarily unanimous, that is why EVOTE also enables the (ex ante and unalterable) definition of **majority decisions**, particularly in opening the electronic ballot box. Also a second verification ballot box (available in SP2) may be defined, whereby the result is computed and displayed twice – from the main and from the verification ballot box.

**Election Observation:** Election administrators and election committee members in constituencies may retrace all steps in preparing the election and may observe the election. Suspicious actions cause immediate alarm and countermeasures may be taken (for more details see the EVOTE Intrusion Detection overview sheet).

## Data Integrity

**EVOTE protects itself from manipulation** by system or database administrators by (i) encrypting all database content and (ii) by computing checking values (SHA-1 hash) over important data and blocks of data. This also includes all log entries. When data is accessed, the hash values are checked; manipulations cause a system alarm (see product overview IDC/LGG) and the data is blocked.

In contrast to other e-voting solutions, EVOTE maintains its status internally and recognizes itself when voting or voter registration is to be started or stopped. No manual interaction by system administration is required.

## Voter Roll Loading Tool (VRL)

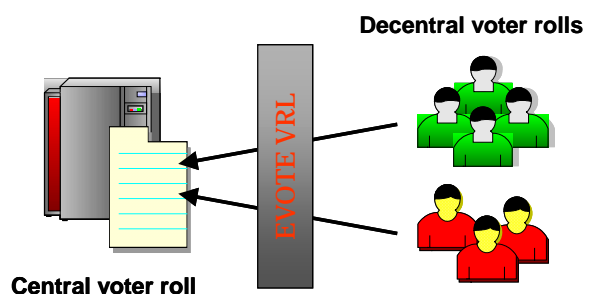
One of the main tasks in preparing an election is to load the voter roll. This is not a trivial task, when several decentrally maintained voter rolls are to be merged into one for an election. For this purpose, EVOTE offers a **graphical, easy-to-use loading tool** similar to data warehouse loading systems for comparing, merging and changing voting rights which includes in-depth reporting and checking tools. All load processes are logged to enable **complete reproducibility**; the logs can be checked via an easy-to-use viewing system, which also enables election administrators to detect data integrity violations.

During the ballot VRL offers reports on voter participation and voter activity and the roll can be downloaded from the EVOTE database for external archiving and verification.

## Administration Access

CAS and VRL are not Web applications, but directly run on the server. Remote access is enabled via encrypted terminal sessions, whereby only defined remote workstations for a defined period of time may access the server. EVOTE therefore supports remote election administration as well as remote voting.

Due to its flexible Web service architecture, EVOTE supports verification components, such as SKM and VFY (SP1) and the verification ballot box (SP2), to be administrated by independent watchdog authorities.



VRL is fully compatible to the Election Mark-up Language (EML) standard, which is referenced in Council of Europe Recommendation 2004(11).

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