SECURITY WITH POLYAS ONLINE ELECTIONS

Elections are a precious commodity in a democratic society and should express the will of a community. Thus, the Polyas online voting system is especially secure. Learn more about the security measures applied in Polyas.

Secure Authentication Procedure

At Polyas, the verification for the right to vote is ensured through the PIN/TAN procedure. By authenticating the voter with his or her personal ID and a one-time password, it is guaranteed that only eligible voters are admitted to vote. Accordingly, the ID should be a distinct personal datum e.g. employee or student registration numbers or email addresses of the voters; the one-time password is generated by the Polyas election system and sent directly to eligible voters. The PIN/ TAN procedure can also be used via the LDAP-technology and thereby offers higher convenience for the voter who just has to open an URL.

▶ More on secure authentication

Protection of the Secrecy of the Ballot

By successfully logging on to the electronic electoral roll, the access data of the voter is converted into a token, which is an invisible process for the voter. This token is a security key, which anonymises the identity of the voter. When the ballot is filled out it is saved in the ballot box, whereas the token is not.

This way a completed ballot cannot be allocated to a certain voter and the secrecy of the ballot is ensured. Moreover, this online voting process is securely encrypted via a HTTP-protocol and cannot be read by a third party. At the end of the election process, the voter is asked to log out of the system. Only then the ballot is transferred to the ballot box and the token is irrevocably deleted so that the access data cannot be used a second time. The ballot is now anonymously in the digital ballot box.

Certified Online Election Software

Polyas CORE 2.2.3. is the first online election software which is certified under Common Criteria Standards. The Federal Office for Information Security (BSI) issued the certificate for the first time in Germany in 2016. The certification is based on the protection profile BSI-DSZ-CC-0862-2016 which formulates the systemic conditions for an online election system. The German Science Centre for Artificial Intelligence (DFKI) evaluated Polyas online election software with regard to functionality and trustworthiness.

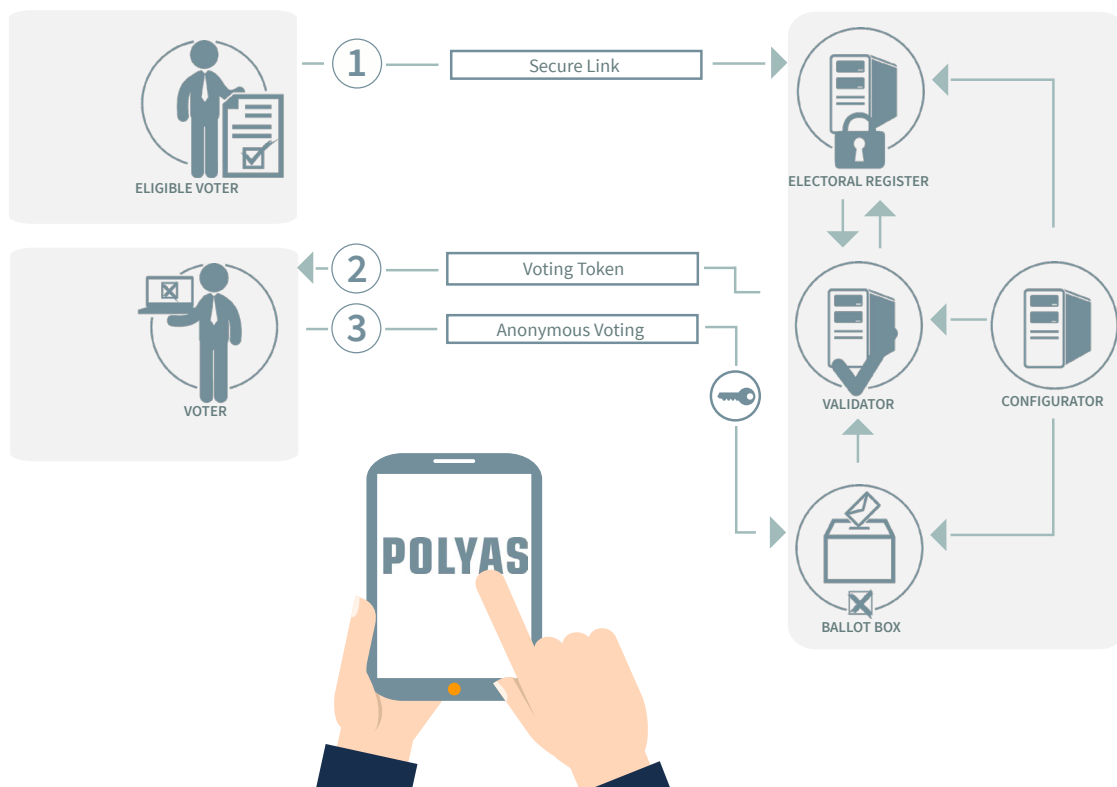▶ More on our certified election software

POLYAS

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System Architecture and Integrity Test

The Polyas online election system consists of several subsystems: the ballot box, the electoral roll, the election cockpit and a validator, which is inserted in between. Every election is therefore conducted on four virtual servers.

After sealing the election, a checksum is formed for every subsystem. Polyas currently uses checksums by the SHA-2-family (Secure Hash Algorithm), in particular, SHA-256. These kinds of Secure Hash Algorithms are the latest and cryptographically strongest method of encryption.

During the election the validator, to test the integrity of the system, constantly monitors these checksums. If a checksum of an involved subsystem has changed, a manipulation can be assumed and the election is stopped immediately. This process ensures that for example unauthorised voters cannot be added and individual voters cannot vote more than once.

① Secure Link
② Voting Token
③ Anonymous Voting

ELIGIBLE VOTER
VOTER
ELECTORAL REGISTER
VALIDATOR
CONFIGURATOR
BALLOT BOX

POLYAS

Polyas - The Election Experts

We are the leading provider for digital elections since 1996. Our customers include companies, cooperatives, associations, universities, churches and professional associations who all vote easily and conveniently via internet.

Combine an online election with a postal vote, ballot box vote or a vote at the General Meeting. The voter turnout increases and the returning officer saves precious time and money in the election management.