

VOTING Stimmunterlagen Offline

Runtime View

Author	Abraxas Informatik AG
Classification	public
Version	1.0
Date	March, 31st 2023

Contents

- 1. VOTING Card Generation 3**
 - 1.1 Overview..... 3
 - 1.2 Application Process Flow 3
 - 1.2.1 System Overview 3
 - 1.3 User Process Flow..... 5
 - 1.4 Technical Process Flow 6
 - 1.4.1 Import and Conversion of Contest-Files..... 7
 - 1.4.2 PDF Generation 9
 - 1.4.3 Encryption and Download 10

1. VOTING Card Generation

1.1 Overview

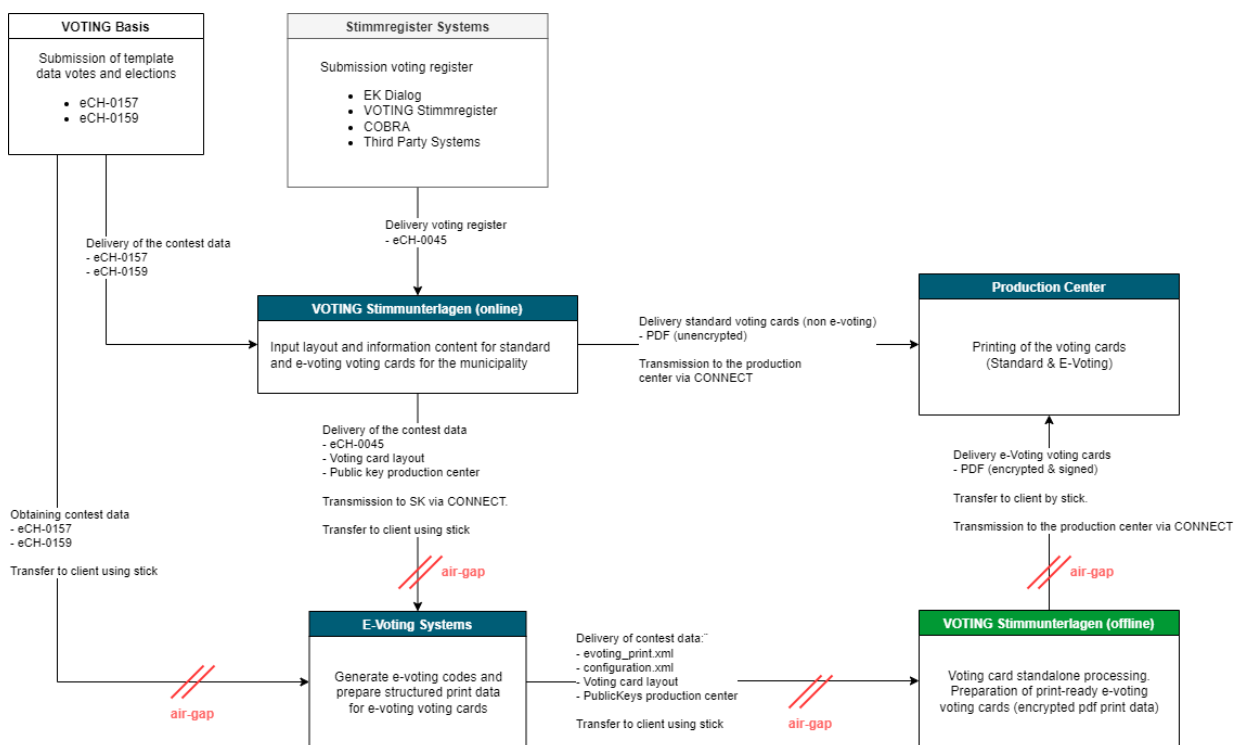
The VOTING Stimmunterlagen Offline Client is responsible for generating E-Voting voting cards. Generating voting cards follows a defined process flow including security checks on different levels. The integrity of the voting card data is guaranteed throughout the entire process flow and is protected against unauthorized access. The Offline Client is run on the target machine as a pre-built executable windows program. The target machine is an air-gapped device and thus, has no connection to the outside. Access is only possible with the identity of two persons.

The voting cards are generated based on input data that is loaded initially. The voting cards can be configured to be grouped or sorted individually based on the customer's requirements. After the configuration is applied, a voting card preview is shown that allows the user to visually verify the output before the overall process of generating the final voting cards is started. Once all voting cards are generated, all data is prepared for the delivery to the printing center. Securing data for delivery includes cryptographic signing and encryption steps.

1.2 Application Process Flow

1.2.1 System Overview

The process of preparing input data, generating voting cards the final print-out includes several subsystems. The subsystems and communication paths are shown in the following diagram:



1.2.1.1 System Components

Name	Description
VOTING Basis	Service for managing and collecting contest related master data.
Stimmregister Systems	Services for managing and preparing voting registers of natural persons who are eligible to vote at a specific location.
VOTING Stimmunterlagen (online)	Service for managing voting card layouts and content. Responsible for preparing standard and e-voting voting cards. <ul style="list-style-type: none">Responsible to prepare standard voting cards in PDF formatResponsible to prepare metadata for generating e-voting voting cards for the offline client
E-Voting Systems	Services for generating codes and structured print data for the e-voting voting cards.
Production Center	Responsible for the print-out and delivery of standard and e-voting voting cards.
VOTING Stimmunterlagen Offline Client	Native client to prepare, configure, generate and secure voting cards.

1.2.1.2 System Relations

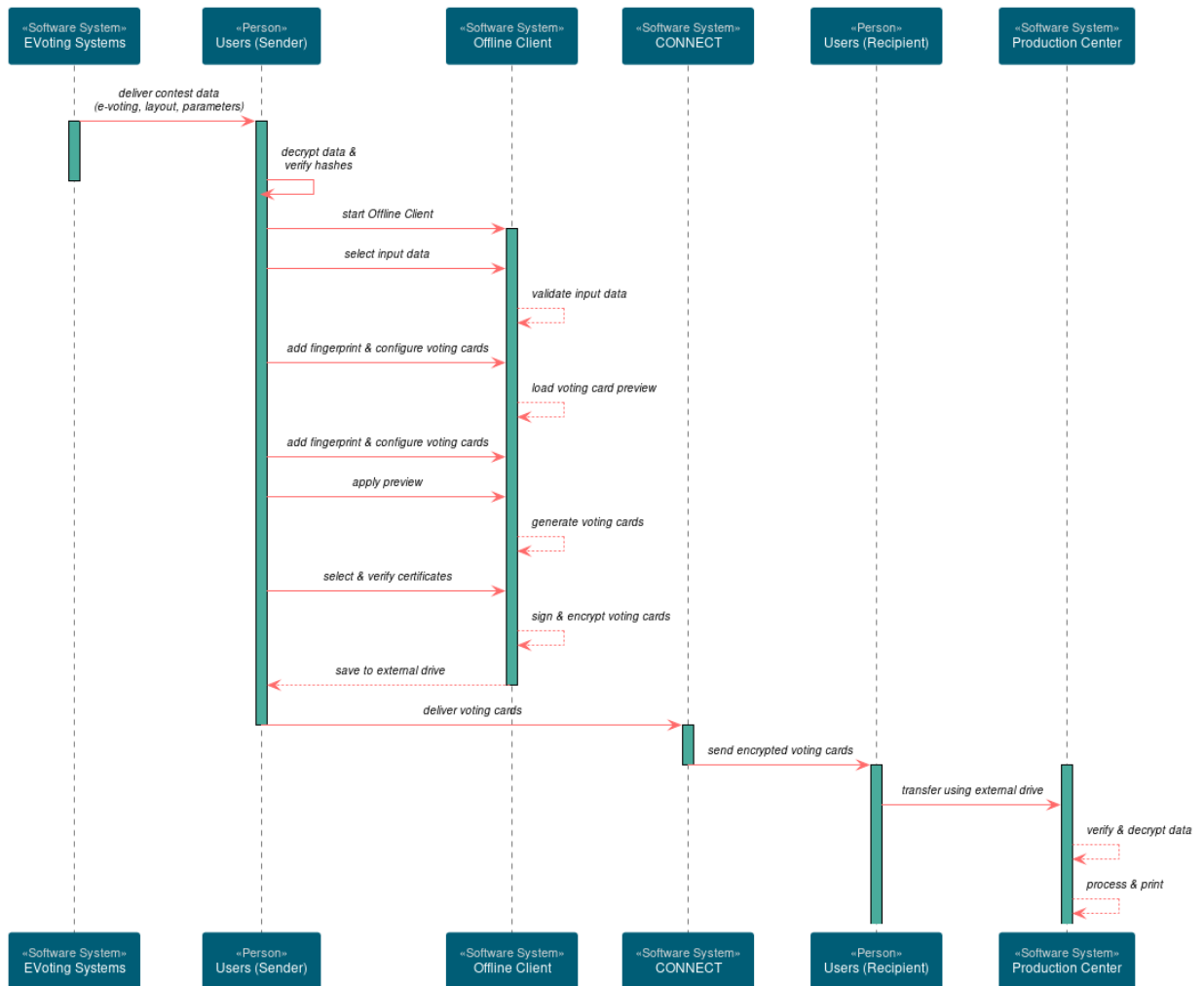
Source System	Target System	Responsibility
VOTING Basis	VOTING Stimmunterlagen (online)	The source system delivers contest information for the target system to be able to generate or prepare voting cards.
VOTING Basis	E-Voting Systems	The source system delivers contest information for the target system to be able to generate e-voting codes for different types of political businesses.
Stimmregister Systems	VOTING Stimmunterlagen (online)	The source system delivers generated sets of voting registers to the target system to be able to generate standard voting cards or to be forwarded to the E-Voting Systems for e-voting voting card preparation.
E-Voting Systems	VOTING Stimmunterlagen (offline)	The target system is supplied by different source systems, each delivering a part for generating the final e-voting voting cards: <ul style="list-style-type: none">E-Voting print data (codes)

- E-Voting configuration data (voter info)
- Voting card layout
- Printing parameters (template, delivery information, encryption certificates, etc.)

VOTING Stimmunterlagen (Online)	Production Center	The source system delivers standard voting cards to the target system for printing.
VOTING Stimmunterlagen (Offline)	Production Center	The generated and secured E-Voting voting cards are sent the the target system through CONNECT for printing.

1.3 User Process Flow

For a better understanding of the user flow, we recommend to have a look at the user manual as well. The user manual can be accessed at the following address:
<https://github.com/abraxas-labs/voting-stimmunterlagen-offline-client-docs/tree/main/technical-documentations>

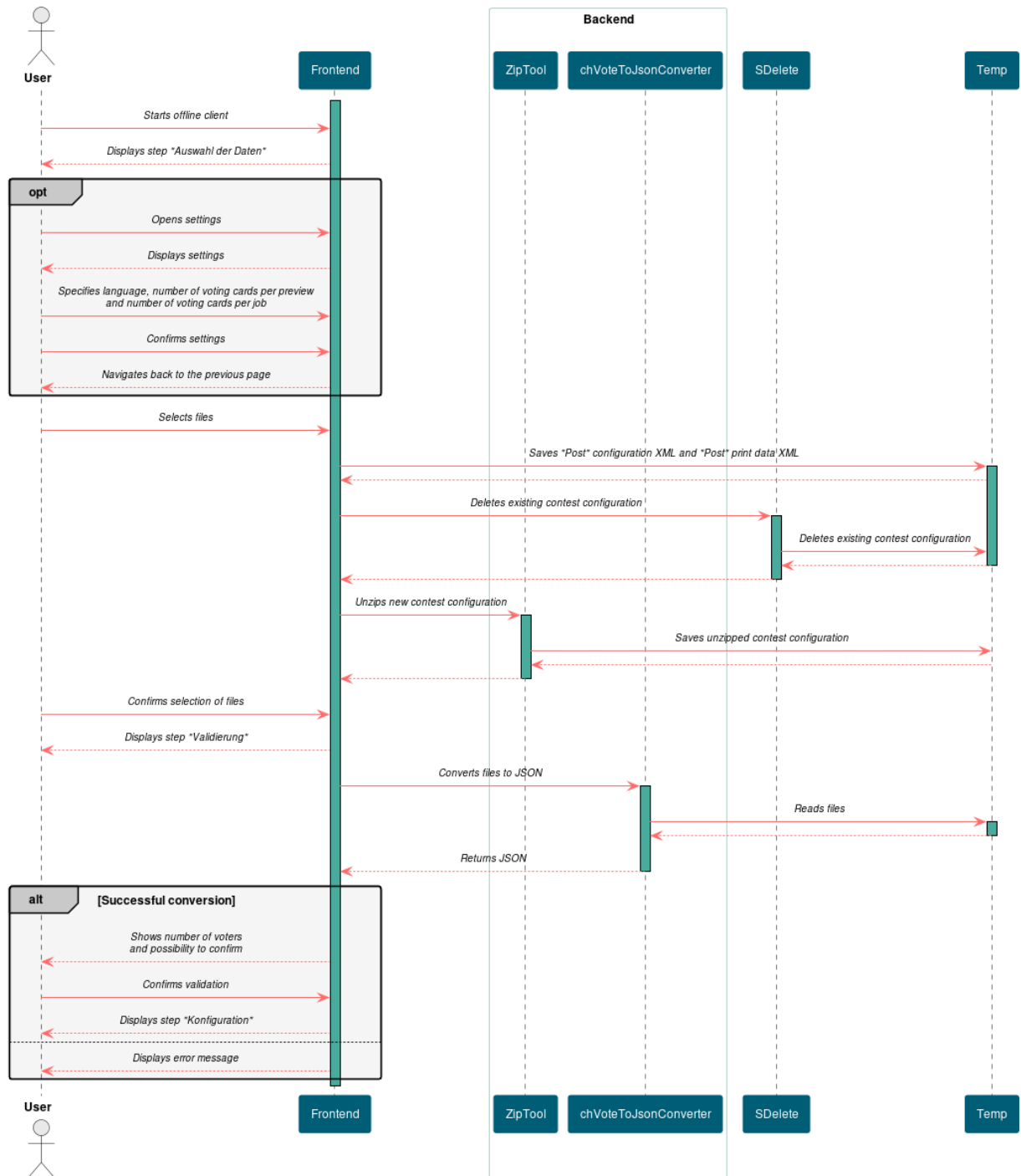


1.4 Technical Process Flow

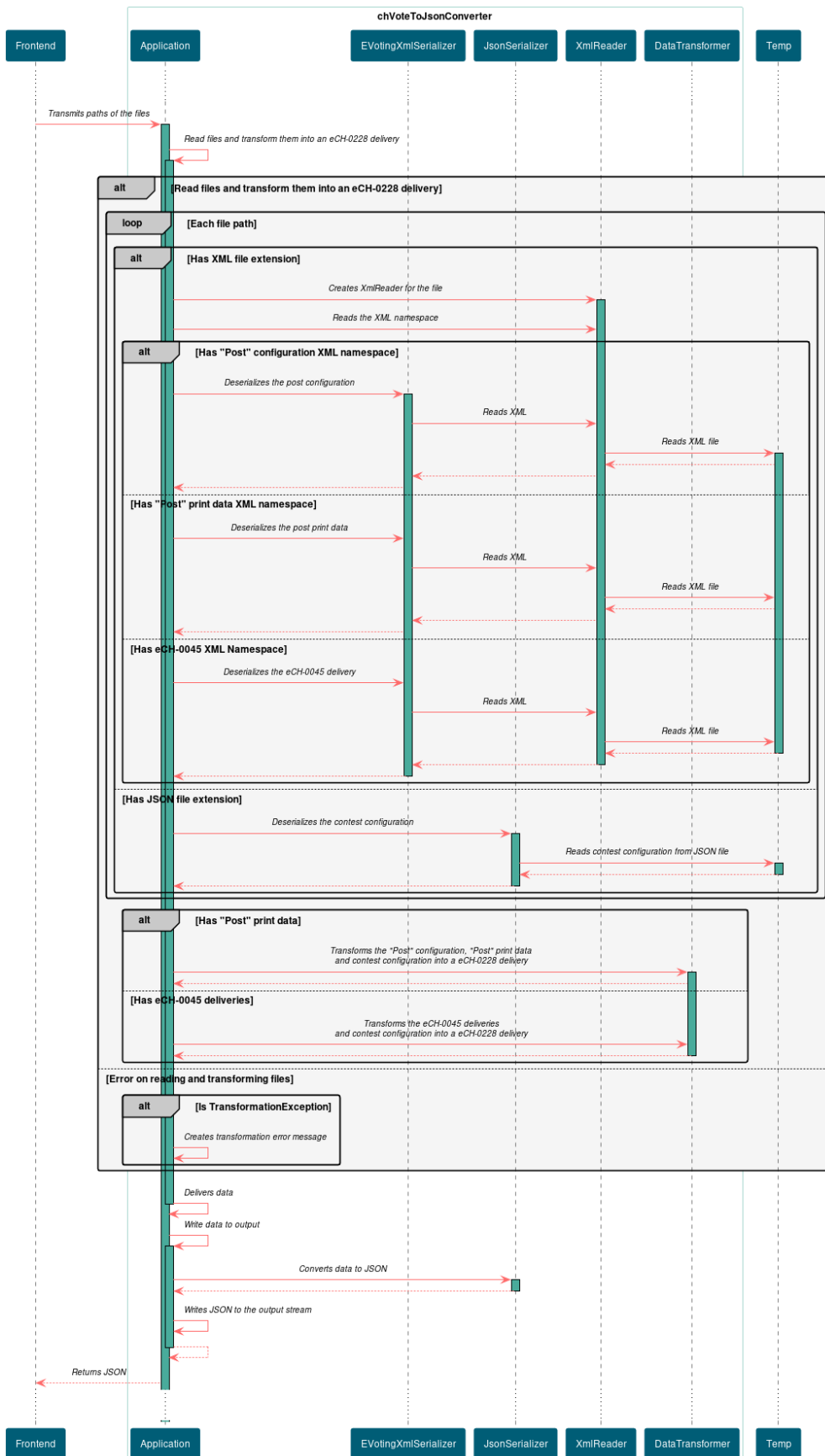
In the following, the runtime view in the Offline Client is presented from a technical point of view. In particular, it shows which components interact with each other and when. The process can be divided into the following steps:

- Import and Conversion of Contest-Files
- Pdf Generation
- Encryption and Download

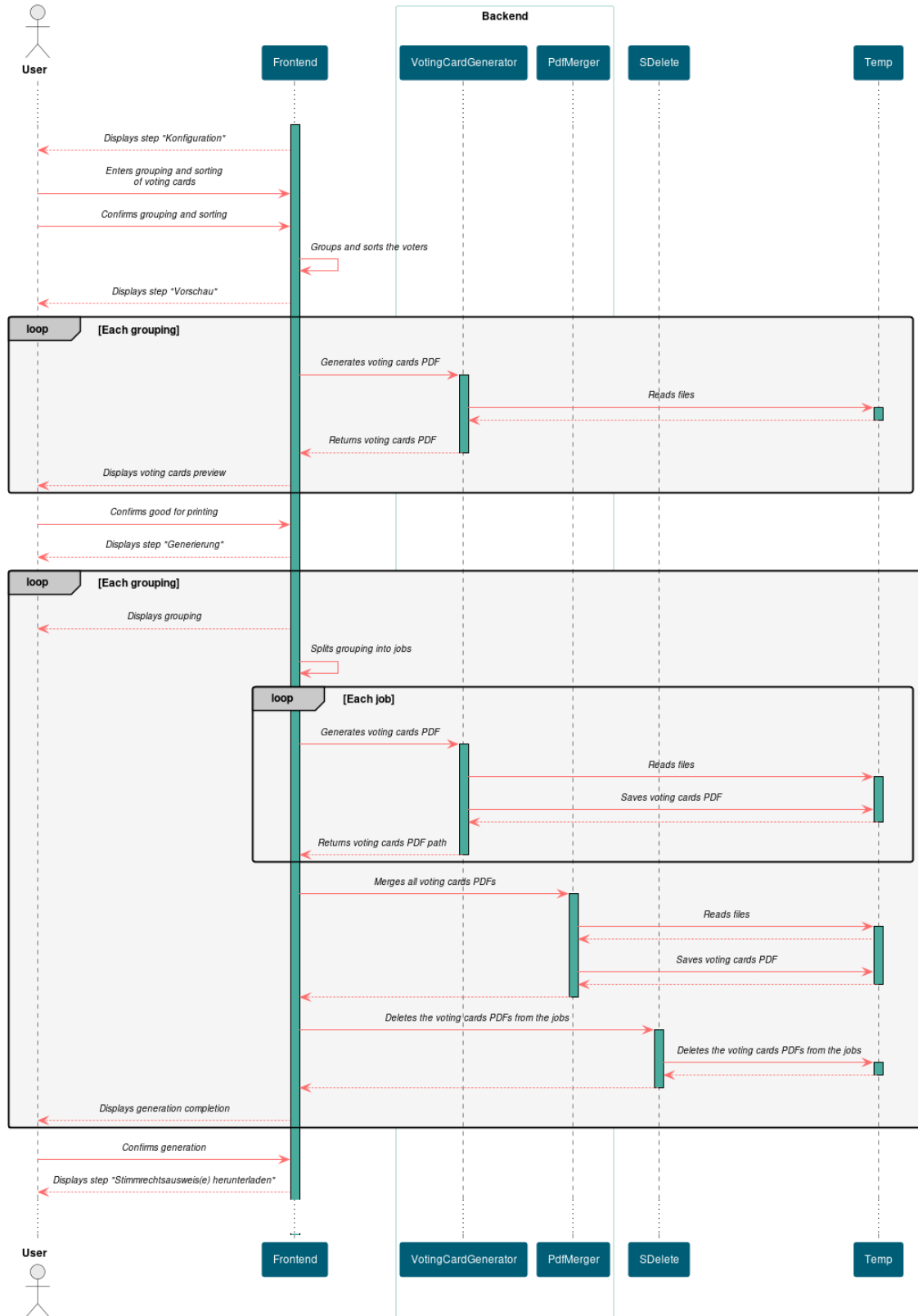
1.4.1 Import and Conversion of Contest-Files



The following diagram shows how the transformation and conversion is done in the *chVoteToJsonConverter*.



1.4.2 PDF Generation



1.4.3 Encryption and Download

