

Elections ACT

Upgrade of eVACS® for the 2024 ACT Legislative Assembly Election

Polling Place Server - User Manual

**Document Status: Final
Version 1.4
May 2023**



Copyright Notice

Copyright Software Improvements Pty Ltd

This document has been produced by Software Improvements Pty Ltd on behalf of the ACT Electoral Commission (Elections ACT).

This document is the property of Elections ACT who shall retain its copyright jointly with Software Improvements Pty Ltd. It may not be reproduced or recorded in whole or part in any form or media without the explicit written approval of Elections ACT.

eVACS®

eVACS® is a registered Trade Mark of Software Improvements Pty Ltd.

Where used in this Polling Place Server - User Manual, eVACS has the same meaning as eVACS®.

eVACS® 2024 upgraded documentation tree

—	Contract with 2024 Upgrade requirements
—	Operational Concept Description
—	System Specification - Part 1 including 2024 upgrade requirements
—	Interface Specification - Setup election
—	Installation Manual
—	User Manual - Election server
—	User Manual - Ballot Viewer
—	User Manual - Polling Place server
—	User Manual - Telephone Voting server
—	Multi Factor Authentication

Document Control Information

The controlled version of this document is in electronic form.

All hardcopy versions are uncontrolled.

Modifications

Date of this Revision	Version	Comment	Author	Reviewer	Release
2019-10-30	0.1	Initial Draft	CJB		
2020-03-18	0.2	Expanded draft, including Appendix on voting client	CJB		
2020-05-14	0.3	Minor edits, highlighting of issues to be resolved, inclusion of voting client error list	CJB		
2020-06-01	0.4	Minor edits and changes to installation, including when to connect keypad	CJB		
2020-07-12	0.5	Inclusion of Check Drive Status and Drive Replacement password	CJB		2020-08-03
2020-12-30	1.1	Removal of Data Entry details from documentation tree	CJB		
2023-03-07	1.2	Inclusion of changes to reflect upgrade for 2024	CJB	CVB	
2023-03-16	1.3	Addresses review comments	CJB		2023-03-20
2023-05-26	1.4	Inclusion of new arrangements for replacing failed disc	CJB		2023-05-26

Distribution

Name and Appointment	Document Name	Date of Issue	Version
Jiv Sekon, Elections Operations Manager, Elections ACT	Polling Place Server User Manual	2020-05-14	0.3
Jiv Sekon, Elections Operations Manager, Elections ACT	Polling Place Server User Manual	2020-06-01	0.4
Jiv Sekon, Elections Operations Manager, Elections ACT	Polling Place Server User Manual	2020-08-03	0.5
Jiv Sekon, Elections Operations Manager, Elections ACT	Polling Place Server User Manual	2023-03-23	1.3
Jiv Sekon, Elections Operations Manager, Elections ACT	Polling Place Server User Manual	2023-05-26	1.4

Contents

COPYRIGHT NOTICE	2
eVACS®	2
eVACS® 2024 upgraded documentation tree	2
DOCUMENT CONTROL INFORMATION	3
Modifications	3
Distribution	3
CONTENTS	4
1. INTRODUCTION	6
1.1 Scope	6
1.2 Equipment required	6
1.3 Referenced documents	6
1.4 Acronyms	6
2. SOFTWARE SUMMARY	8
2.1 Authentication of polling place server	8
2.2 Software functionality	8
2.3 Security, Integrity and privacy	9
2.3.1 Unused ports	9
2.3.2 Drive Replacement	9
2.4 Assistance and problem reporting	9
3. ACCESS TO THE SOFTWARE	10
3.1 Access control	10
3.2 Set the date/time	10
3.3 Polling Place Server Menu	10
3.4 Stopping and suspending operations	11
3.5 Capabilities	11
4. PROCESSING REFERENCE GUIDE	12

4.1	Conventions and general processes.....	12
4.2	Display number of votes in electronic ballot box (option 1).....	12
4.3	Check if a barcode has been used (option 2).....	12
4.4	Stop voting (option 4).....	13
4.5	Start voting (option 5).....	13
4.6	Backup votes (option 6).....	13
4.7	Installation of voting clients (option 7).....	14
4.7.1	Set up.....	14
4.7.2	Installing from Polling Place Server.....	14
4.8	Re-print Backup QR Codes (option 8).....	15
4.9	Display (and print) summary of first preferences (option 9).....	15
4.10	Print reports (option 10).....	15
4.11	Turn off server (option 11).....	16
4.12	Drive failure.....	16
4.13	Drive Replacement (option R).....	16
4.14	Authentication Key Replacement.....	17
	APPENDIX A – VOTING CLIENT OPERATIONS.....	18
A.1	Security.....	18
A.2	Equipment.....	18
A.3	Access.....	19
A.4	Operations.....	19
A.4.1	e-voting card.....	19
A.4.2	Master Admin card.....	19
A.4.3	Errors.....	20
	APPENDIX B – DETAILS OF REPORTS PRINTED AT OPTION 9 ON POLLING PLACE MAIN MENU.....	22

1. Introduction

1.1 Scope

Guidance is provided for the use of a voting server to be installed at each polling place – the Polling Place Servers.

The software to create a polling place server is installed from the Election Server, and the polling place identification of the server established prior to delivery to the polling place. How a Polling Place Server is created by installing the software and generating an authentication key and set-up for voting at a polling place is detailed in [1] and [2].

1.2 Equipment required

For the operations of the software installed on the Polling Place Server, the following equipment is required:

- Scanner, keyboard, monitor and A4 printer
- Master Admin card for the Polling Place Server
- Authentication USB-FD for the Polling Place Server
- USB-FDs for the secure transfer of data exported from the server
 - 2 per day (Master and Slave) when voting takes place for votes exported

The purpose of a Polling Place Server is to manage the voting process and store completed votes. The voting process is undertaken via voting clients connected to the Polling Place Server via a LAN. Details on the operations of voting clients are provided in Appendix A.

Note:

1.3 Referenced documents

1. Software Improvements Pty Ltd, eVACS® Election Server - User Manual, 2023
2. Software Improvements Pty Ltd, eVACS® Installation Manual, 2023
3. Software Improvements Pty Ltd, eVACS® System Specification – Part 1 Requirements, 2023
4. Software Improvements Pty Ltd, Multifactor Authentication, 2023

1.4 Acronyms

ACT	Australian Capital Territory
EACT	Elections ACT / ACT Electoral Commission
eVACS® / eVACS	electronic Voting and Counting System
LAN	Local Area Network

USB-FD	USB Flash Drive
--------	-----------------

2. Software Summary

On any start-up at a particular polling place, access to any functionality is dependent on authentication of the location of the Polling Place Server being established.

Note: When a polling place server is first started up, the two drives will automatically commence synching with each other. This process takes about 30 minutes. If this did not happen at the end of the polling place server software installation process, it will be undertaken in the background as the identification of the polling place server is established and the voting clients created.

2.1 Authentication of polling place server

Schedule 2.2(a)(xi)

2.2 Software functionality

The functionality available from the Polling Place Server is:

- 1) Display number of votes in Electronic Ballot Box – available at any time.
- 2) Check if a barcode has been used – available at any time.
- 3) Stop Voting – not available from Main Menu, only available from sub-Menu when polling place server is accepting votes.
- 4) Start Voting – only available when polling place server is not accepting votes. Selecting this option will enable the polling place server to accept votes.
- 5) Backup Votes – only available when the polling server is not accepting votes
- 6) Start Services to install voting clients – only available when polling place server is not accepting votes
Changes to 'Stop services to install voting clients' – after Start Services to install voting clients has been activated
- 7) Re-print Backup QR Codes
- 8) Display and Print Summary of First Preferences - only available after polling closes and polling place server is not accepting votes
- 9) Print reports – only available after polling closes and polling place server is not accepting votes

- 10) Turn off Server - only available when polling place server is not accepting votes. Selecting this option will shut down the polling place server.

2.3 Security, Integrity and privacy

Key considerations in the design and development of the eVACS® software have been the security and integrity of data. As a result the installation process wipes all data and software on the polling place server disks and installs a clean and safe environment (operating system, supporting drivers and utilities and application) for the software to run.

Direct access to the database or command-line interface is prohibited. Print utilities are provided to support printing of reports and backup QR codes. Data backup utilities are provided to aid in disaster recovery. Secure USB-FDs are used as the media to which votes are backed up.

It is important that processes are put into place to prevent unauthorised access to the Polling Place Server and to the network connected to it.

2.3.1 Unused ports

All unused ports on the Polling Place Server and the Voting Clients connected to it are to be inaccessible via physical means as well as through disconnection by using features within the operating system. The only ports accessible should be USB ports for the scanner, keyboard, printer and data export via secure USB-FDs, and network connection, See [2] for details.

There are two USB ports available for data transfer, being the top two on the front of the HP Z1 computer. It is recommended that only the top USB port be used, with the other physically locked and only accessed if the top USB port fails.

2.3.2 Drive Replacement

Schedule 2.2(a)(xi)

2.4 Assistance and problem reporting

Should any problems be encountered in the use of eVACS® software, please check this document for clarification or detailed description of the relevant functionality. If the problem still cannot be resolved, report the problem to Software Improvements for assistance.

3. Access to the Software

3.1 Access control

All with the Election Server, when the eVACS® software for Polling Place Servers and Voting Clients is loaded, all existing software (including the operating system) is completely removed and replaced by the very restricted operating system and application that make up eVACS®. The Polling Place Server does not use password-based access control, except for the display of first preferences, Drive Replacement and generation of a replacement Authentication key if the original authentication USB-FD is misplaced or unreadable (see section 4.14).

Access to all functionality (selected via menu options) requires scanning the Master Admin card associated with the particular polling place.

3.2 Set the date/time

Checking that the date/time of the Polling Place Server is correct is now undertaken as part of setting the BIOS control on the server before the installation process from the Election Server. [2]

3.3 Polling Place Server Menu

Schedule 2.2(a)(xi)

A large, solid grey rectangular area covering the majority of the page, indicating that the content has been redacted.

Schedule 2.2(a)(xi)

3.4 Stopping and suspending operations

To shut down the Polling Place Server, first step is to stop voting, if it is enabled, by selecting the menu item 4 on the Mode 2 Menu.

Then use menu item 11 (Mode 1) to shut down the server.

Each time the server is switched on, after authentication, the Mode 1 Menu will be displayed.

3.5 Capabilities

Menu options 1, 2, and 3 are common to operating Modes 1 and 2 and can be accessed at any time. Apart from these three options, the following restrictions apply:

- a) Using menu option 4 (Mode 2) disables that option, and enables options 5 to 10 (Mode 1).
- b) Using menu option 5 disables that option as well as 6 to 10 (Mode 1), and enables option 4 (Mode 2).
- c) Menu option 7 - Start services to install voting clients (Mode 1), is toggled with Stop services to install voting clients.

Menu option R can only be accessed in Mode 1. Option R is never displayed on screen.

Appendix A – Voting client operations

A.1 Security

The software to operate the voting clients, including the client for B&VI voters, is installed from the Polling Place server [2]. The installation process wipes all data and software on the computer's disk and installs a clean and safe environment (operating system and voting client application).

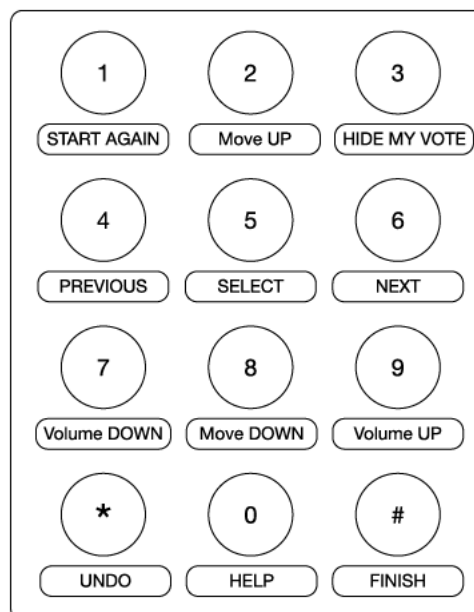
No information relating to a person's vote or e-voting card is stored on the voting client.

All unused ports on the voting client are to be physically protected and are disconnected via the operating system.

A.2 Equipment

To enable voting in private, each voting client is setup in its own voting booth with the screen face up on a horizontal surface and a scanner affixed to the booth. No other part of the voting client hardware is visible to the voter.

The setup for the B&VI system also includes a keypad, with the keys in the same order as on a telephone or mobile phone. The layout and use of the keys on the keypad are as follows:



where:

- * is referred to as 'star' and # is referred to as 'hash' in the audio, and
- 'Previous' and 'Next' refer to columns on the ballot paper.

Note: The keypad must have been plugged into the computer before the designated B&VI voting client is first started after the software is installed.

An audio jack must also be accessible on the B&VI client so that a voter can plug in their own headphones or a disposable set provided by Elections ACT.

A.3 Access

All access to the voting client is 2D barcode (QR code) controlled, either on an e-voting card provided to a voter or a Master Admin card used by an official to display the Administration screen.

Both e-voting cards and the Master Admin card are polling place specific. A voter must be issued with an e-voting card for the electorate in which they are enrolled to vote.

A.4 Operations

A.4.1 e-voting card

The e-voting card issued to a voter is first scanned in order to authorise the commencement of a voting session and to establish which electorate's ballot paper is to be displayed.

After they have finalised their choices, the voter **MUST** scan their e-voting card a second time in order to:

1. cast their vote and have their preferences stored in the electronic ballot box on the Polling Place Server, and
2. end their voting session.

If the second scan is not undertaken, the voting session will remain open (see section A4.2), vote preferences will not be stored, and the e-voting card will not be marked as Used.

A.4.2 Master Admin card

The Master Admin card (or Admin QR card) for the specific polling place is used to access all functionality on the Polling Place Server as well as the Administration functions on each Voting client.

At any time when the Voting client is switched on and the Polling Place Server is accepting votes, the Master Admin card can be scanned at a particular voting client to access the Administration screen, identifiable by its pink background.

The Administration screen contains two options:

1. Shut down voting client, and
2. Reset voting client, which is used after a voter does not scan their e-voting card a second time to cast their vote and close their voting session

For option 1:

- Enter 1, followed by pressing ENTER
- A pop-up is displayed to confirm shut down (Yes / No)
- Select No and Voting client will automatically terminate the current voting session, and no details of that voting session will be stored in the database, and the Welcome screen will be displayed

- Select Yes and the Voting client will automatically shut down and power off

This option is used at the end of each polling day to turn off all voting clients.

For option 2:

- Enter 2, followed by pressing ENTER
- Voting client will automatically terminate the current voting session, and no details of that voting session will be stored in the database
- Welcome screen will be displayed, ready for another voter

A.4.3 Errors

Schedule 2.2(a)(xi)

Schedule 2.2(a)(xi)



Appendix B – Details of reports printed at option 9 on Polling Place Main Menu

1. All reports

Location (Name of polling place):

Report contents of each of reports 2 to 5, listed in that order

2. Vote not concluded

Location (Name of polling place):

Number of times official reset voting client:

3. Vote not concluded

Location (Name of polling place):

Number of times error was logged:

0 OK:

1 Barcode misread:

2 Barcode Authentication failed:

3 Barcode Polling Place incorrect:

4 Barcode used:

5 Barcode mismatch:

6 Commit failed:

7 Reconstruction failed:

8 Server unreachable:

9 Server response bad:

10 Server internal:

INTERNAL:

4. Number of voting sessions in which language other than English used

Location (Name of polling place):

Language: number of uses

<listed in same order as languages were displayed on Welcome screen>

5. Number of voting sessions in which B&VI voting client used

Location (Name of polling place):

Number of B&VI voting sessions:

- E N D O F D O C U M E N T -