ClearVote 1.5

Approved Parts List

ClearVote Approved Parts List

Clear Ballot Part Number: 100101-10013

Document history

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01/11/2019	Updated ClearCast consumables and accessories	1.1.7	Joni G. McNutt
02/05/2019	Updated Accessories section	1.1.8	Joni G. McNutt

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Preface

This section defines the purpose of this document. It contains the following subsections.

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About this document

This document provides information about hardware and software approved for ClearVote systems. The information complies with *VVSG 2005, Volume 1, Section 4.3.1*.

A ClearVote™ system can comprise the ClearAccess™, ClearAudit™, ClearCast™, ClearCount™, and ClearDesign™ products. Jurisdictions are not required to purchase all products. You can ignore references to any ClearVote products that are not part of your voting system. Also ignore implementation options that are not relevant to your policies and procedures.

Scope of this document

This document includes the following sections:

- ClearCount
- ClearDesign
- ClearAccess
- COTS management
- Approved components

Intended audience

This document is intended for election officials and election staff who are responsible for operations and maintenance before, during, and after an election. This document is also used by Clear Ballot personnel who support election officials and election staff.

Contact us

Clear Ballot Group welcomes your feedback on our documentation. Please send comments to Documentation@ClearBallot.com.

If you have questions about using your ClearVote product, contact your Clear Ballot representative.

Chapter 1. ClearCount

ClearCount is a central-count optical-scan system that runs on unmodified commercial off-the-shelf (COTS) computers running the Linux® and Microsoft® Windows® operating systems, and supports specific models of Fujitsu scanners.

Clear Ballot supports configurations of the following materials as components of the ClearCount system.

1.1 ScanServer

The ScanServer computer hosts the primary database, as well as the server and client software that recognizes and analyzes ballots.

1.1.1 ScanServer hardware

The minimum requirements for a ScanServer computer are:

- 4-core, 8-thread processor
- At least 8 GB of RAM
- At least 500 GB–1 TB of disk space*
- Gigabit LAN connection
- USB 3.0 ports for backing up databases on external hard drives

See "Approved components" on page 16 for the list of approved computer models.

*Note: The internal hard drive size range shown above is a minimum size range. Internal hard drive size should be based on the following formula:

$$0.0022 \times \text{number of cards expected} = \text{number of GB required for hard drive size}$$

If the formula yields less than 500 GB, use 500 GB as the minimum hard drive size.

Similarly, external hard drive size should follow the same formula or this rule of thumb:

- up to 200,000 cards = 2 TB external drive
- up to 500,000 cards = 4 TB external drive
- larger elections = 8, 12, or 16 TB external drive as indicated by the above formula

Round up to the nearest commercially available drive size in all situations, but no smaller than a 2 TB external drive in any situation.

1.1.2 ScanServer software

When a jurisdiction installs or updates the ClearCount ScanServer software, the installer program replaces the ScanServer computer's operating system with Ubuntu® Linux®. Therefore, the operating system originally installed on the ScanServer computer is unimportant.

1.2   ScanStation

The ScanStation computer connects to an approved scanner with a USB (2.0 or later) cable for the scanning and processing of ballots. One computer is needed for each scanner in use.

1.2.1   ScanStation hardware

The minimum requirements for the ScanStation computers are:

- 4-core, 8-thread processor
- At least 4 GB of RAM (8 GB recommended)
- At least 500 GB of disk space
- Gigabit LAN connection
- USB 2.0 or later ports

See "Approved components" on page 16 for the list of approved computer models.

1.2.2   ScanStation software

Software requirements for each ScanStation computer include:

- Operating system: Microsoft Windows 10 Pro
- For Fujitsu® scanners:
  - Fujitsu ScandAll PRO™ 2.0.12
  - Fujitsu TWAIN driver for the connected scanner, one of:
    - fi-6400: PaperStream® IP 1.30.0
    - fi-6800: PaperStream IP 10.10.710
    - fi-7180: PaperStream IP 1.4.0

1.2.3   Scanners

Each scanner in the ClearCount system connects to a ScanStation computer that is connected to the ScanServer by a network switch. A ClearCount system can include more than one scanner model.

1.2.3.1   Scanner hardware

Clear Ballot supports the following Fujitsu scanner models:

- fi-6400 (SKU: PA03575-B405)
- fi-6800 (SKU: PA03575-B065)
- fi-7180 (SKU: PA03670-B005)

1.2.3.2 Fujitsu scanner firmware

The following firmware versions are approved for ClearCount:

Table 1-1. Approved Fujitsu scanner firmware versions

Model	Firmware version
fi-6400	(SDC) 0A00 (MDC) 0B00
fi-6800	(SDC) 0N00 (MDC) 0G00 (SDC) 0J00 (MDC) 0F00
fi-7180	0G00

> ✓ Fujitsu updates the firmware versions in their scanners. If you are unsure about a particular firmware version, contact your Clear Ballot representative.

1.3   Election administration station

Election administration stations are used by election officials to view ClearCount election reports, and to adjudicate unreadable cards. The system administrator uses the election administration stations to monitor the system and manage the databases and users. Commercial off-the-shelf (COTS) printers can be attached to these computers for results reporting, if desired.

1.3.1 Election administration station hardware

The minimum requirements for the election administration station computers are:

- 4-core, 8-thread processor
- At least 4 GB of RAM
- At least 500 GB of disk space
- Gigabit LAN connection

See "Approved components" on page 16 for the list of approved computer models.

1.3.2 Election administration station software

Software requirements for each election administration station include:

- Operating system: Microsoft Windows 10 Pro
- An approved web browser to view reports. See "Approved components" on page 16 for the list of approved browsers.

1.4 Network switch

The network switch connects the ScanStations and election administration stations to the ScanServer. A gigabit Ethernet® switch is required. Additional gigabit switches can be added to support a large number of client computers. All Ethernet cables must be Cat-5 or Cat-6. Cables older than Cat-5 have been known to cause slow network speeds.

Consult your Clear Ballot representative if additional networking appliances are needed on your ClearCount network to ensure optimum network configuration and resulting tabulation speed.

> ✓ The network switch allows the ClearCount components to communicate within the system's closed Ethernet network. All ClearCount devices must have wireless, Bluetooth and Internet capabilities disabled as described in the *ClearCount Election Preparation and Installation Guide*.

Chapter 2. ClearDesign

The ClearDesign election management system (EMS) is a multi-user interactive ballot design, layout, proofing and production system. The ClearDesign system consists of the following components:

- **DesignServer**—A computer that runs the ClearDesign software, and hosts its election database and the web server that serves its reports. The DesignServer uses the Linux operating system (a configured version of which is installed with the ClearDesign software). The DesignServer is an appliance. All user access occurs at a DesignStation by a user with the proper credentials.

- **DesignStations**—One computer is needed to connect to the DesignServer. Depending upon jurisdictional preference, this may be the election administration station used by ClearCount. The DesignStation computers use the Windows 10 Pro operating system.

- **Network switch**—Connects the DesignStations to the DesignServer via a closed, wired Ethernet.

2.1   DesignServer hardware

The minimum requirements for a DesignServer computer are:

- 4-core, 8-thread processor
- At least 8 GB of RAM
- At least 500 GB–1 TB of disk space
- Gigabit LAN connection
- USB 3.0 ports

See "Approved components" on page 16 for the list of approved computer models.

2.2   DesignServer software

When a jurisdiction installs or updates the ClearDesign software, the installer program replaces the DesignServer's computer's operating system with Ubuntu Linux. Therefore, the operating system originally installed on the DesignServer is unimportant.

2.3   DesignStation hardware

The minimum requirements for the DesignStation computers are:

- 4-core, 8-thread processor
- At least 4 GB of RAM
- At least 500 GB of disk space
- Gigabit LAN connection

See "Approved components" on page 16 for the list of approved computer models.

2.4   DesignStation software

Software requirements for each DesignStation include:

- Operating system: Microsoft Windows 10 Pro

- An approved web browser to view reports. See "Approved components" on page 16 for the list of approved browsers.

2.5   Network switch

The network switch connects the DesignStations to the DesignServer. A gigabit Ethernet® switch is required. Additional gigabit switches can be added to support a large number of client computers. All Ethernet cables must be Cat-5 or Cat-6. Cables older than Cat-5 have been known to cause slow network speeds.

Consult your Clear Ballot representative if additional networking appliances are needed on your ClearDesign network to ensure optimum network configuration.

The network switch allows the ClearDesign components to communicate within the system's closed Ethernet network. All ClearDesign devices must have wireless, Bluetooth and Internet capabilities disabled as described in the *ClearDesign Installation Guide*.

Chapter 3. ClearAccess

The ClearAccess system is an accessible voting and ballot-marking application that allows voters with a range of disabilities to vote in an unassisted manner. The software runs on a touchscreen computer with an accessible keypad and a sip-and-puff device. The voter can make ballot selections either by touching the screen, pressing buttons on the keypad, or using the sip-and-puff device.

Ballot selections can be presented on the screen, played over audio headphones, or presented on the screen with audio. When the voter has finished voting, selections are printed to a paper ballot.

3.1   ClearAccess hardware

The minimum requirements for a ClearAccess computer are:

- 4-core, 8-thread processor
- At least 4 GB of RAM
- USB 2.0 or later ports

See "Approved components" on page 16 for the list of approved computer models.

3.2   ClearAccess software

Software requirements for the ClearAccess computer include:

- Operating system: Microsoft Windows 10 Pro

Chapter 4. COTS management

The entire ClearVote system is comprised of COTS components. Clear Ballot staff has developed this plan to manage these many commodities across the voting system:

Commodity	Expected lifespan	Management
Computers	No less than 12 months, as much as 18 months	Develop formal partnerships with suppliers (such as, Dell); look to product lines, such as the Dell XL (extended life) series, to minimize the need for end-of-life testing and certification activities.
Scanners (Fujitsu)	Three years or more	Clear Ballot has entered into agreements with Fujitsu that ensure scanner and accessory item supply, and engineering assistance.
Printers	One year or more	Maintain multiple printer models at all times. Clear Ballot maintains relationships with Brother and Okidata to receive advance notice of printer end-of-life and new/expected models.
Intel® mini-computer (ClearCast)	Two years or more	ClearBallot maintains an agreement with Intel that provides engineering assistance, roadmap, and samples of next-generation products.
Memory media (USB drives, RAM and SSD in ClearCast)	One year or more; can be supply-and-demand sensitive	Order these through distribution to buffer supply shortages and price shocks. Clear Ballot maintains relationships with Intel and others to obtain their roadmaps and have advance notice of end-of-life.
ClearCast scan engine	Five years	Clear Ballot maintains an agreement with the manufacturer that provides engineering assistance, advance notice of product status changes, and samples of next-generation scan engines.
Other ClearCast parts	Two years or more	Most ClearCast parts are obtained via distribution to allow inventory to be stocked at all times, to buffer price and supply shocks, to ensure availability of spare parts, and to provide product change notice/end-of-life notifications to Clear Ballot staff. Clear Ballot uses a manufacturer with significant purchasing power in the electronics component marketplace, and their materials organization to help with supply chain issues so that orders are fulfilled on a timely basis.

Appendix A. Approved components

This appendix provides details of approved computers, scanners, printers, web browsers, and other accessories. Clear Ballot has tested these specific components. Although other manufacturers' models may meet the minimum system specifications, Clear Ballot cannot ensure their performance. Consult your state election authorities to determine your latitude in deviating from these components.

A.1   ClearCount computers

The following computer models (with minimum capabilities) are approved for ClearCount computers:

ScanServer computers

- Dell® PowerEdge™ T130
    - Intel® Xeon® E3 processor, 4 cores, 8 threads
    - 8 GB RAM
    - 2 TB storage
- Dell PowerEdge T440
    - Intel Xeon Silver processor, 4 cores, 8 threads
    - 16 GB RAM
    - 16 TB storage

Election administration station computers

- Dell Precision™ T3620
    - Intel Core® i7 processor, 4 cores, 8 threads
    - 8 GB RAM
    - 1 TB storage
- Dell Latitude™ 5590*
    - Intel Core i7 processor, 4 cores, 8 threads
    - 8 GB RAM
    - 500 GB storage

*Replaces the Dell Latitude 5580 computer, which has been discontinued and is no longer available.

ScanStation computers

- Dell Latitude 5590*
    - Intel Core i7 processor, 4 cores, 8 threads
    - 8 GB RAM
    - 500 GB storage

*Replaces the Dell Latitude 5580 computer, which has been discontinued and is no longer available.

A.2   ClearCount peripherals

The following peripheral components are approved by Clear Ballot for use with the ClearCount system.

Item	Description
NETGEAR® ProSafe 8-Port Gigabit VPN Firewall (FVS318G)	Provides additional security for the ClearCount closed network
Netac® K390 Keypad Encryption Portable Hard Disk (86024554)	For backing up and restoring encrypted election data
Western Digital® My Book® 4 TB External Hard Drive (WDBFJK0040HBK-NESN)	For backing up and restoring election data
Western Digital My Book 8 TB External Hard Drive (WDBFJK0080HBK-NESN)	For backing up and restoring election data

A.3   ClearDesign computers

The following computer models (with minimum capabilities) are approved for ClearDesign computers:

DesignServer computers

- Dell PowerEdge T130
    - Intel Xeon E3 processor, 4 cores, 8 threads
    - 8 GB RAM
    - 2 TB storage
- Dell PowerEdge T440
    - Intel Xeon Silver processor, 8 cores, 16 threads
    - 16 GB RAM
    - 8 TB storage

DesignStation computers

- Dell Precision T3620
    - Intel Core i7 processor, 4 cores, 8 threads
    - 8 GB RAM
    - 1 TB storage
- Dell Latitude 5590*
    - Intel Core i7 processor, 4 cores, 8 threads
    - 8 GB RAM
    - 500 GB storage

*Replaces the Dell Latitude 5580 computer, which has been discontinued and is no longer available.

A.4 ClearAccess computers

The following touchscreens are approved for ClearAccess computers with minimum capabilities as noted:

- Elo® E-Series (15E2) AiO Touchscreen
    - Intel Celeron® processor, 4 cores, 4 threads
    - 4 GB RAM
    - 128 GB storage
- Elo X-Series (20X2) AiO Touchscreen
    - Intel Celeron processor, 4 cores, 4 threads
    - 4 GB RAM
    - 128 GB storage

A.5 ClearAccess printers

The following printer models are approved as ClearAccess printers:

- Brother® HL-L2350DW duplexing laser printer (lengths up to 14")*
- Okidata® B432dn duplexing laser printer (lengths up to 19")

*Replaces the Brother HL-L2340DW duplexing laser printer, which has been discontinued and is no longer available.

A.6 ClearAccess consumables

The following consumables are approved for use with the ClearAccess system:

Item	Description
Sip/Puff Replacement Mouth Tubes (AC-0313-MUV-10)	Mouth tubes for sip-and-puff device (10 tubes, 1 inline filter)
Sip/Puff Replacement Mouth Tubes (AC-0313-MUV-100)	Mouth tubes for sip-and-puff device (100)
HamiltonBuhl™ HygenX™ Headphone Covers (HygenX45)	Headphone earpiece hygienic covers
Brother DR-730 drum unit	Drum for Brother HL-L2350DW printer
Brother TN-760 High-Yield Black Toner Cartridge	Toner for Brother HL-L2350DW printer
Okidata 12K Toner Cartridge	Toner for Okidata B432dn printer

A.7 ClearCast consumables and accessories

The following consumables and accessories are approved for use with the ClearCast voting station:

Paper

- Type: Thermal
- Width: 79.5 ± 0.5 mm
- Diameter: 60 mm maximum
- Thickness: 55–90 µm

Battery

- Vision 12 V 9 Ah sealed lead acid battery (CP1290H)

Ballot bag (Clear Ballot)

- Nonrip canvas with carrying straps
- Dimensions: 24" by 13" by 11"

A.8 Accessories

The following accessories are approved for use with ClearVote products as designated:

Item	Description	Product
Zebra® DS457 Bar Code Scanner	Bar code reader	ClearAccess
MonoPrice Hi-Fi Over-the-Ear Headphones with Mic (108323)	Headphones	ClearAccess
Storm Interface® EZ Access® Keypad (EZ08-222013)	Accessible keypad	ClearAccess
Origin Instruments Breeze™ BZ2 sip-and-puff device with Headset (AC-0313-H2)	Sip-and-puff alternate entry device	ClearAccess
Cosmonaut COS001AL	Wide-grip stylus	ClearAccess
Kapton® tape, 3/4" 2 mil (S-17213)	Applied to Elo touchscreens	ClearAccess
FRRMNHT 1/4" copper tape (AIT002)	Applied to printer and UPS	ClearAccess
Inclusion Solutions Cardboard Voting Screen	Privacy screen for voting stations	ClearAccess, ClearCast
Wurth ferrites (74271142, 74275812, 74275813, 74271132, 74271722)	Internal components	ClearCast
Lenovo UltraSlim USB DVD Burner (LN-8A6NH11B)	DVD drive for installing software	ClearVote
Cat5e Ethernet cable	Ethernet cable	ClearVote
TydenBrooks™ Tamper-Evident Seal (50) MRS2	Tamper-evident seals	ClearVote
APC™ Smart-UPS™ SMT1500	Uninterruptible power supply	ClearVote
APC Smart-UPS SMT2200C*	Uninterruptible power supply	ClearVote
Pearstone™ USB 2.0 Type A Male to Type B Male Cable 6' (USB-AB6)	USB cable	ClearVote
Corsair® Flash Padlock® 3 32 GB Secure USB 3.0 Flash Drive (CMFPLA3B-32GB)	Encrypted USB drive	ClearVote
SanDisk® Ultra Flair™ 32 GB USB 3.0 flash drive (SDCZ73-032G-A46, SDCZ73-032G-G46)	USB drive	ClearVote
Systor USBD-11 USB Duplicator	USB duplicator	ClearVote
Sabrent HB-U14P 13-Port USB Hub	USB hub	ClearVote

*Replaces the APC Smart-UPS SMT2200, which has been discontinued and is no longer available.

A.9   Network switches

The following network switches are approved for use with ClearVote systems:

- Cisco® SG250-08 8-Port Gigabit Smart Switch
- Cisco SG250-26 26-Port Gigabit Smart Switch
- TP-LINK 5-Port Gigabit Easy Smart Switch (TL-SG105E)

A.10   Web browsers

The following web browsers are approved for use with ClearVote products:

- Mozilla® Firefox® (32-bit)
- Google™ Chrome™ (ClearAccess and ClearDesign only support Google Chrome)

Contact Clear Ballot for information about supported versions.

A.11   Marking devices

The following marking devices are approved for ClearVote products:

- Sakura® Pigma® Micron®, 08 width, black ink
- Sharpie® marker, H-286-BL
- Bic® gel pen, model 31563
- No. 2 pencil

A.12   Fujitsu scanner consumables

Part name	Part number	Description	Recommended replacement cycle
fi-6400 consumables			
ScanAid™ Kit	CG01000-530801	One pick roller, one separation roller, one brake roller, one cleaning kit (mid-volume cleaning kits include F1 cleaner, cleaning sheets, cleaning cloth, cleaning swabs and instructions)	
Pick Roller Set	PA03575-K011		600,000 sheets or one year

Part name	Part number	Description	Recommended replacement cycle
Brake Roller	PA03575-K013		600,000 sheets or one year
Separator Roller	PA03575-K012		600,000 sheets or one year
Cleaning Kit	SC-CLE-LV	One bottle of F1 cleaning fluid, 75 lint-free cleaning cloths (containing specially formulated F1 cleaning fluid, the cloth effectively removes dirt, toner, carbon, chemicals from treated papers, and other debris from the parts of the scanner that are in continuous contact with paper)	Approximately three months at one application per day, or one month at three per day
fi-6800 consumables			
ScanAid Kit	CG01000-530801	One pick roller, one separation roller, one brake roller, one cleaning kit (mid-volume cleaning kits include F1 cleaner, cleaning sheets, cleaning cloth, cleaning swabs and instructions)	
Pick Roller Set	PA03575-K011		600,000 sheets or one year
Brake Roller	PA03575-K013		600,000 sheets or one year
Separator Roller	PA03575-K012		600,000 sheets or one year
Consumable Kit for fi-6800	CON-3575-001A	One pick roller, one brake roller, one separation pad, one separation roller	
Cleaning Kit	SC-CLE-LV	One bottle of F1 cleaning fluid, 75 lint-free cleaning cloths	Approximately three months at one application per day, or one month at three per day

Part name	Part number	Description	Recommended replacement cycle
fi-7180 consumables			
ScanAid Kit	CG01000-280401	One brake roller, one pick roller and cleaning kit	
Brake Roller	PA03670-0001		Every 200,000 sheets or one year
Pick Roller	PA03670-0002		Every 200,000 sheets or one year
Consumable Kit for fi-7180	CON-3670-002A	Two pick rollers, two brake rollers	Every 400,000 sheets or one year
Cleaning Kit	SC-CLE-WGD	72 F1 cleaning fluid-impregnated cleaning wipes	Approximately three months at one application per day, or one month at three per day