



**U.S. Election Assistance Commission Voting System
Testing and Certification Program**

ESS# 2010-01

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**Voting System Technical Advisory
Intermittent Freeze/Shutdowns with EAC Certified
ES&S Unity 3.2.0.0 System**

System(s) Affected:	ES&S Unity 3.2.0.0 System
Component(s) Affected:	DS200
Version(s) Affected:	Firmware v. 1.3.10.0; Hardware v. 1.1, v.1.2; COTS Operating System v. 2.6.16.27
Notification Date:	May 21, 2010
Summary:	Intermittent freezes, lockups, and shutdowns

Advisory:

Counties and jurisdictions with this product should be aware of “power down” and “freeze” issue experienced during Logic & Accuracy (L&A) testing and Election Day.

Status:

EAC has launched an Informal Investigation and is working with ES&S to find a root cause to these issues.

Overview:

The DS200 precinct count optical scan voting device fielded in Cuyahoga County, Ohio is part of the EAC Certified Unity 3.2.0.0 voting system. During pre-election logic and accuracy (L&A) testing prior to the May 4, 2010 Primary Election the DS200 demonstrated intermittent screen freezes, system lockups and shutdowns. These issues were conveyed to the voting system manufacturer, Election Systems & Software (ES&S). ES&S provided the county with initial information on what they believe had occurred during L&A testing and during the subsequent election. EAC was notified of the anomaly and has contacted Cuyahoga County and other jurisdictions that use the same system, as well as ES&S to gather information. An Informal Investigation into these issues has been launched by the EAC.

Issue Descriptions:

Cuyahoga County enhanced and expanded the Logic & Accuracy (L&A) tests that were initially provided by ES&S. L&A testing was initiated 3 to 4 weeks prior to the May 4th election. Cuyahoga County has 1068 precincts with ≈1200 machines to fulfill

training and election needs. During the course of L&A testing a “power down” and “freezing” anomaly occurred on some DS200 machines. This anomaly appeared a total of 89 times during L&A testing without a distinguishable pattern in the timing or actions taken to cause the freeze/shutdown issue. In addition, another 8 of 108 new DS200’s failed Cuyahoga County’s acceptance and independent verification and validation testing which is conducted on newly received systems prior to acceptance. These systems were not deployed in the election.

During the May 4th Election, poll workers reported four DS200 shutdowns to the County. The poll workers tried to troubleshoot the DS200 machine failures and were able to restore the systems for use during the election period by rebooting the machines. Cuyahoga County officials asked poll workers who experiences this issue to reboot the DS200 and check for “hanging” or “stuck” ballots prior to allowing voters to use the machine. The county also completed a hand count in the precincts in which the shutdown occurred to make sure votes were not lost. Although the machine failures were encountered less frequently on Election Day than during L&A testing, the anomaly still presented itself in a number of machines.

Root Cause:

The EAC is working with ES&S in order to help determine a root cause.

ES&S Recommended Procedures for Election Day:

If the DS200 shuts down during opening/closing of the polls...

- Press and hold the “Power” button until it turns red.
- Once the red light goes off and the machine is completely shut down, press the “Power” button to restart the DS200.
- Continue with the opening/closing polls process according to the poll worker manual.

If the DS200 shuts down during voting...

- Determine if there is a ballot attached to the back of the DS200 by instructing the poll workers to do the following:
 - Go to the rear of the machine where the power cord is located.
 - Look through the clear plastic windows on the back of the ballot bin below the power supply.
 - If a ballot is still attached, they will see the white of the paper. If not, it will be dark inside the ballot box.

If no ballot is attached to the back of the DS200

- Press and hold the “Power” button until it turns red.
- Once the red light goes off and the machine is completely shut down, press the “Power” button to restart the DS200 and continue voting.
- If necessary, scan any ballots that may have been inserted into the emergency slot.
- Continue voting by having voters insert ballots directly into the DS200.

If there is a ballot attached to the back of the DS200

- Instruct the poll workers to begin using the emergency ballot box slot on the front of the ballot bin.
- Deploy a roving technician to the location with the backup memory stick for that precinct.
- Once onsite, have the tech remove the ballot attached to the back of the DS200 by doing the following:
 - Remove the seal and unlock the ballot bin front flap
 - Flip the ballot bin front flap down and slide the DS200 forward
 - Gently remove the ballot from the back of the DS200
 - Slide the DS200 back into place and lock and seal the ballot bin front flap.**CAUTION: When sliding the DS200 back into place, make sure the power cord does not block the ballot path.**
- Press and hold the “Power” button until it turns red. Wait until the red light goes off and the DS200 completely shuts down.
- Replace the Election Day memory stick with the backup memory stick.
- Press the “Power” button to restart the DS200.
- With a bi-partisan team, rescan **all** ballots in the precinct, including those in the ballot bin, any which may have been inserted into the emergency slot, and the ballot removed from the back of the DS200.
- Continue voting by having voters insert ballots directly into the DS200.