

BRENNAN CENTER  

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FOR JUSTICE

Diebolds, Def-CON & Decertifications  
Lessons Learned: Decertifying Two  
Election Systems Within Months of an  
Election

June 18, 2018

State Certification of Voting Systems National Conference

# Election Administration Ecosystem Overview

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- State is responsible for certifying voting equipment and creating menu of voting systems that may be used in state
- Localities are responsible for selecting voting equipment from menu, managing procurement, paying for equipment and all other equipment management and maintenance
- In 2014, 114 out of 133 localities used paperless DREs

# 2014 DRE Landscape

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★ VIRGINIA ★  
DEPARTMENT of ELECTIONS

## Legend

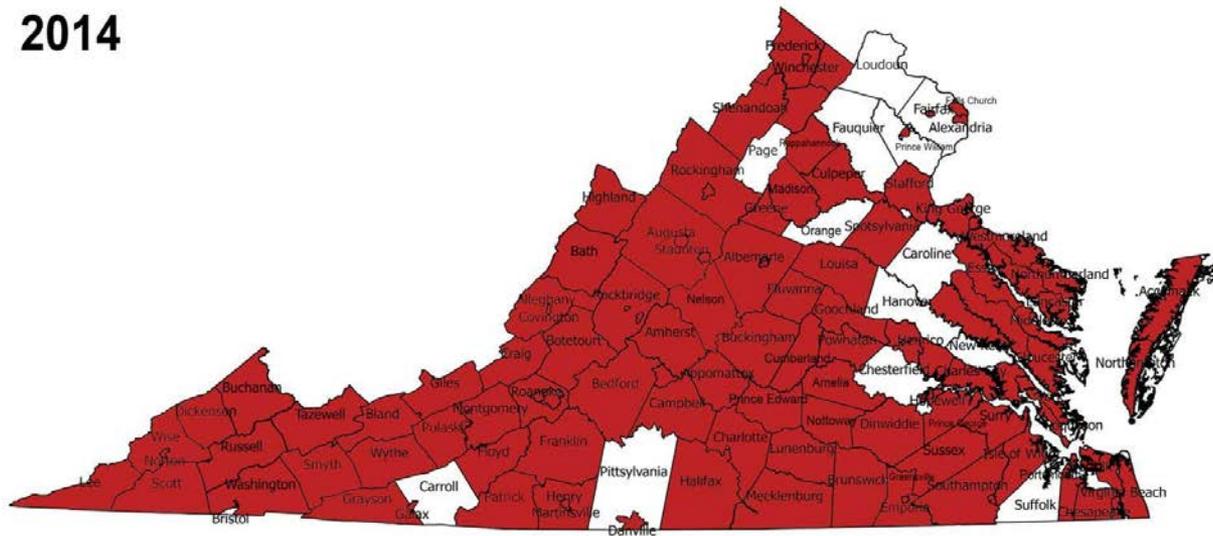
Voting System Type

■ Direct Recording Electronic (DRE)

□ Optical/Digital Scan

### Any DRE Usage v. Fully Optical/Digital Scan

## 2014



## Recognized problems, tepid responses

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- No paper trail, no audit
- 2004 Operation Ballot Integrity by Fairfax Republican Committee (review of new paperless WINVote)
  - Recommendations: 1) mandatory paper trail, 2) audit
- 2006 Legislative Joint Subcommittee on Certification, Performance & Deployment of Voting Equipment
  - Recommendations: Additional review of VVPATs
- 2007 legislation
  - Prohibited future purchase of DREs & wireless communications

## More tepid responses...

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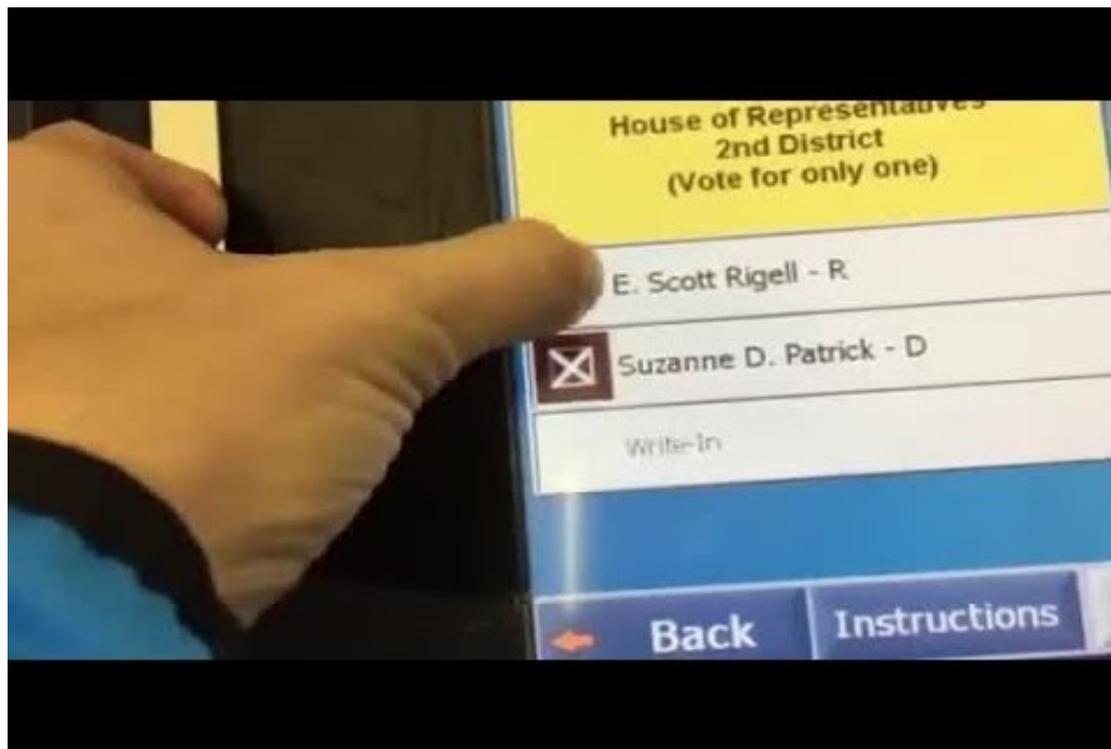
- 2010 JLARC Study on Post-Election Audits & Equipment
  - “Several states have identified problems with equipment also used in Virginia; now relying more on paper and audits.”
    - Key findings: 1) Several other states mandate post-election audits, and 2) post-election audits can provide benefits
- 2006-2014
  - Bills introduced to ban paperless DREs



# ELECTION DAY

## Election Day 2014 Tick Tock

- Morning
  - Governor votes
- Afternoon
  - Beach problems
- Later that day
  - Phones
- Later that night
  - Website



## Post Election Day Tick Tock (Next Primary: June 9)

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- December 2014 – January 2015
  - Governor proposed adding \$28 million for new voting equipment in state budget
  - Department begins its review of voting equipment issues on Election Day
    - Collected and reviewed ED complaints (including complaint from Spotsylvania County re: election official believed that iTunes was causing voting machines to crash)
- February 2015
  - Engaged Jack Cobb
    - No authorization
  - Reviewed agency records
    - No central location of certification information
      - Discovered that original 2004 WINVote certification was conditional
    - No routinely updated usage list

## Post Election Day Tick Tock (Primary: June 9, 2015)

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- March 2015
  - Audit indicated that voting equipment was using wireless
  - Activated generic state security breach plan
    - Notified IT agency
    - Notified State Police – took possession of the machine
  - Contacted EAC
  - Gathered decommissioned WINVotes from Fairfax for IT testing
  - VITA staff remotely changed votes on the WINVote machine
    - simple default encryption keys and passwords (“a-b-c-d-e” and “admin”)
- April 2015
  - Issued public Interim Report on Voting Equipment Usage & Certification noting “serious security concerns” with WINVotes
  - Hosted conference call with vendors who provided assurances that they could fully equip all affected localities prior to Primary Day
  - Hosted conference call with affected localities
  - Fielded many calls from locals stating it was impossible and would result in disaster

## 55 Days Before the Primary (Less than 2 weeks before I-P AB)

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- WINVote is decertified
- All documents are released
- All affected localities (approximately 20) timely transition to new paper-based voting systems
  - Localities were forced to find money for equipment – even though there was no budget for it
  - Vendors shined - offered “WINVote special,” etc.
  - EO conversions
    - One EO who originally publicly predicted doom and chaos (much) later noted that the transition to paper was much easier than transition to DRE

# Almost All Sufficiently Wealthy Counties Transition 2015-mid 2017



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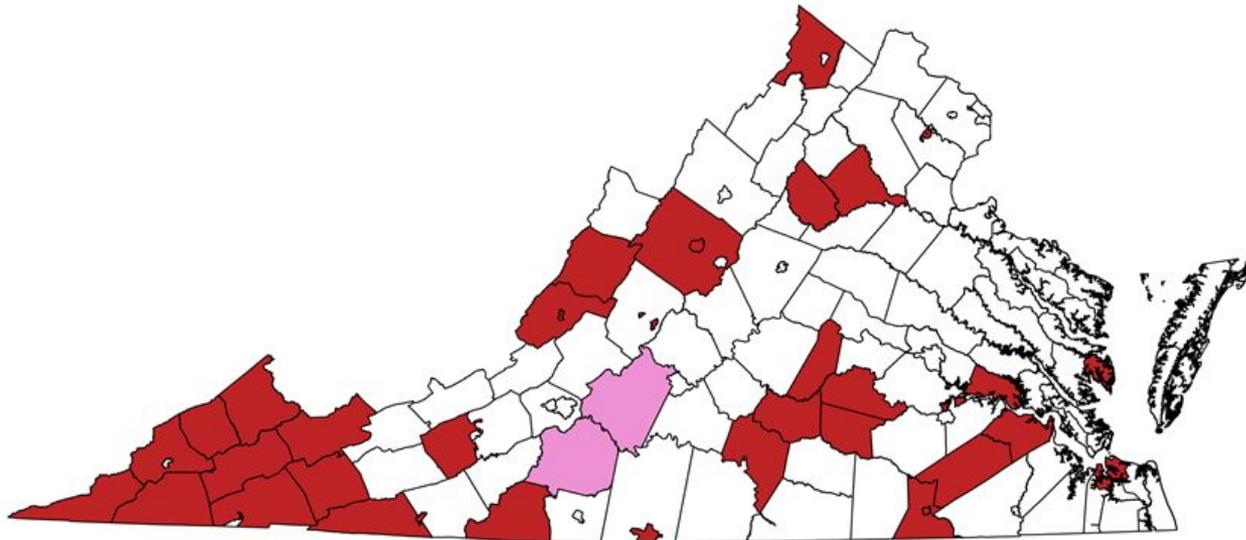
## DRE vs Optical Scan 2016

Primary in-precinct voting technology

### Legend

Voting System Type

- Direct Recording Electronic (DRE)
- Hybrid of a DRE and an Optical Scan System
- Optical/Digital Scan



Updated 2016-10-10

## Summer of 2017

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- Large portion of state has transitioned
- Successful primary election
- Routine election preparations ongoing
- Beautiful weather
- Just doing our job...



# Def-Con 25

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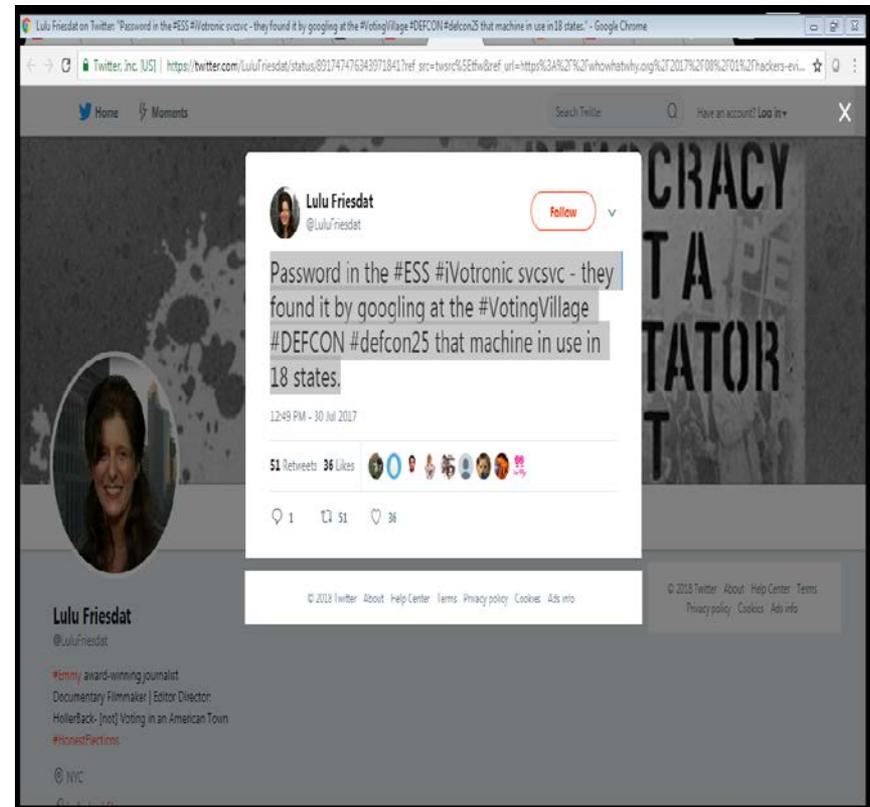
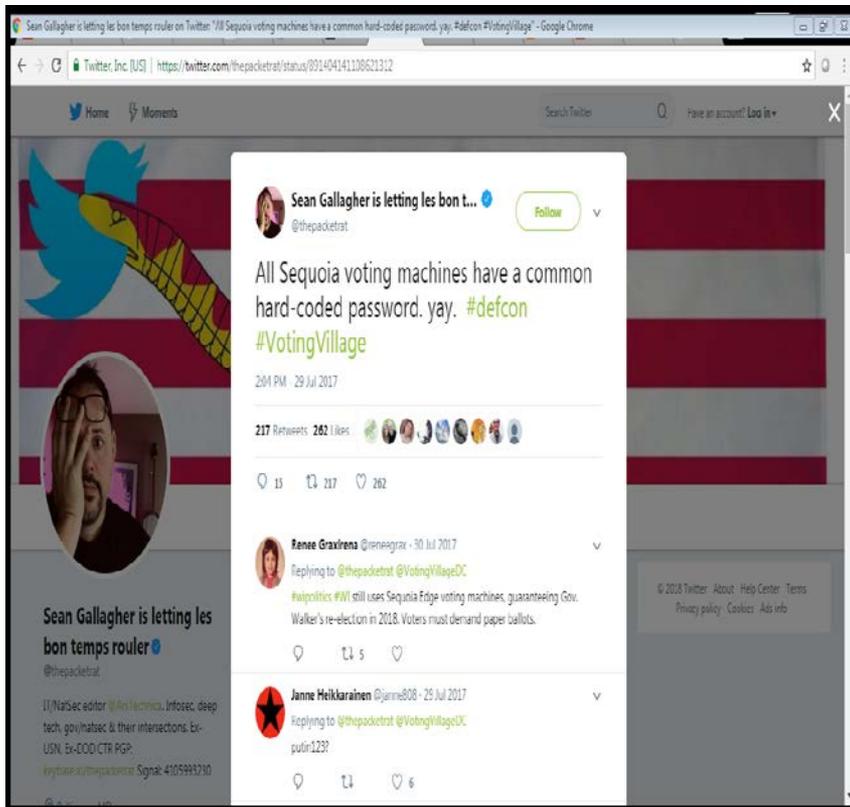
## **ANNUAL** Conference of White Hat (“ethical”) hackers

- July 27 – July 30, 2017
- Voting Machine Hacking Village Exhibit
- Lots of media
  - Reports: All machines “hacked”/eviscerated/destroyed within 2 hours
  - iVotronic password tweeted
  - Tweet stating that all Sequoias share same hard-coded PW

# Def-Con Attendees Provide Information Over Social Media

**Sequoia machines have  
common hard-coded PW**

**iVotronic PW = svcsvc**



# Final Decertification Tick Tock (General Election November 7, 2017)

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## August 2017

### Step 1: Collect voting machines for testing

- Quick tour through the Commonwealth
  - Samples collected for all EXCEPT Hart
    - Vendor (HART) refused to provide sample

### Step 2: Prepare for potential decertification

- Give equipment to VITA for testing
- Create list of potentially affected localities
- Host conference call with vendors
- Host conference call with affected localities, and leadership of election officials state organization and VACO and Virginia Municipal League
  - State organization proved to be great partner. They immediately issued statement encouraging all localities to purchase new equipment
- Cultivate partners



# Final Decertification Tick Tock (General Election November 7, 2017)

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## September

- VITA was not finished with testing antiquated equipment
- Identify responsible party for affirming confidence in DRE results

## September 8, 2017

- All remaining DREs are decertified
- In-person absentee voting started 2 weeks later
- All affected localities transitioned even though none had included costs in budget
  - Creative financing by vendors
  - All localities had an exemption to procurement requirements that would apply in these circumstances
- Election Day goes off without problems associated with equipment transition
- Not only that, but....

# Lessons Learned

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- Conditional certifications should be avoided unless there are sufficient resources to ensure compliance
- Voting equipment and EPB usage by locals should be routinely reported to central authority
- State certification process should consider requiring vendor to produce equipment upon demand for security testing
- Vendors can be your biggest ally, except when they're not
- Recertifications should be required on a routine periodic basis
- Mandate access to voting equipment and electronic pollbooks
- Identify certification records as critical records and review them on an ongoing basis
- WINVote was not the only voting equipment with wireless connectivity
- Identify individual responsible for publicly attesting to accuracy of election results prior to Election Day
- Def-Con is coming....

## U.S. Copyright Office Hearing on DCMA Exemption

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Part of the hearing focused on whether simply getting permission from a voting equipment vendor would remove the need for an expansion of the DMCA exemptions. Proponents of an expansion argued that vendors historically haven't been responsive to such requests. *Steve Englund, a lawyer representing three election technology vendors*, pushed back, saying that voting equipment already undergoes adequate security testing before being used in an election.

“In the election context, there are abundant opportunities for independent testing and consent when it's to be had,” citing guidelines from the Election Assistance Commission that states and localities — which are responsible for administering elections — *can choose to include in vendor contracts, as well as certification requirements that some jurisdictions implement.*