

From: Christina Adkins <CAdkins@sos.texas.gov>
Sent: Tuesday, September 15, 2020 3:41 PM
To: Charles Pinney <CPinney@sos.texas.gov>; 'Farmer, Susan'
<[REDACTED]>; Keith Ingram <KIngram@sos.texas.gov>
Subject: RE: Texas ExpressVote 1.0 Units

Susan,

This response is very troubling. Essentially, what you've told us over the last couple weeks is that there are Texas customers who received software upgrades that failed the hash validation process, and that although you informed those customers of that fact, you did not inform our office of a known issue with an important procedure on a certified system. This is very concerning and raises doubts about our ability to trust your team to report and address these issues with us.

We also have concerns about the fact that it sounds like your field technicians are the ones who are performing the hash validation process on behalf of the customers. The acceptance testing should be performed by the jurisdiction itself as a way of verifying that the software they have received from the vendor is identical to the version of the system that has been certified by our office. If the hash validation process is performed by the same vendor technician who performed the installation, then that validation process loses one of its major purposes, which is to keep the vendor honest and ensure that the vendor has complied with the certification requirements imposed by the state.

In the short-term, we need a list of all Texas customers who may be potentially affected by this issue. We also need to know if there are any other versions of EVS or other hardware models that have similar issues with the hash validation process, and which customers may be affected by those issues.

In the long-term, we need to have a discussion regarding how this hash validation process will be handled by your Texas customers going forward. This will include additional

testing should be performed by the jurisdiction itself as a way of verifying that the software they have received from the vendor is identical to the version of the system that has been certified by our office. If the hash validation process is performed by the same vendor technician who performed the installation, then that validation process loses one of its major purposes, which is to keep the vendor honest and ensure that the vendor has complied with the certification requirements imposed by the state.

In the short-term, we need a list of all Texas customers who may be potentially affected by this issue. We also need to know if there are any other versions of EVS or other hardware models that have similar issues with the hash validation process, and which customers may be affected by those issues.

In the long-term, we need to have a discussion regarding how this hash validation process will be handled by your Texas customers going forward. This will include additional procedures being provided by our office to those jurisdictions, but going forward with future applications for certification we will also need much more detail from you regarding the instructions and procedures for hash validation that you provide for your customers.

I look forward to your response on those short-term issues. We would like to be able to provide your follow-up response to the examiners so they can consider that response before their reports are submitted in the next few days before their Monday deadline.

090/209

From: Parmer, Susan
To: Christina Adkins; Charles Pinney
Cc: Pearson, Steve; Hallett, Tim; Keith Ingram
Subject: RE: Texas ExpressVote 1.0 Units
Date: Thursday, September 17, 2020 10:42:35 AM
Attachments: image001.png

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Good morning Christina,

Would it be possible to get you on a call today to discuss the documentation you are requesting?

Please let me know if you have any availability for a short call. Thank you!

Susan Parmer | State Certification Manager

Election Systems & Software, LLC | 11208 John Galt Blvd., Omaha, NE 68137

O: 402 938-1305 | F: 402 970-1275 | C: 712-310-2586

From: Christina Adkins <CAdkins@sos.texas.gov>

Sent: Wednesday, September 16, 2020 4:05 PM

To: Parmer, Susan <[REDACTED]>; Charles Pinney <CPinney@sos.texas.gov>

Cc: Pearson, Steve <[REDACTED]>; Hallett, Tim <[REDACTED]>; Keith Ingram <KIngram@sos.texas.gov>

Subject: RE: Texas ExpressVote 1.0 Units

Susan,

This response does not adequately acknowledge the issue we raised or provide the information we requested.

In your response you've stated that the hash verification here did not fail, but rather that because the mismatch is expected, this is considered a match. This is not an acceptable method of hash verification. The only thing that the jurisdiction has to go on here is your word that this mismatch is the expected result. They have no way of knowing whether the mismatch occurred because it is the expected mismatch, or because the mismatched file was somehow altered or manipulated. The hash verification process does not distinguish between "expected" mismatches and malicious mismatches, it simply identifies that a mismatch occurred.

Regardless of whether ES&S considers this to be a successful hash verification and a successful match, our office does not consider that verification process to be successful under those conditions.

Furthermore, you have failed to provide us with any documentation from you or from the VSTL detailing the fact that this mismatch is actually an expected result, though you informed us that ES&S Account Managers had already discussed this with Texas jurisdictions when performing the update process for 6.0.2.0. If you have any such documentation, we need to see it.

As I said in the previous email, we need you to provide us with a list of all Texas customers who may

be potentially affected by this issue, as well as information regarding any other versions or equipment that would be experiencing a similar kind of issue.
We can address the long-term issues in a future conversation, but we will need you to provide us with that information in the short-term. I would recommend doing so before the examiners complete their reports for this system.

Thank you,

Christina

From: Parmer, Susan <[REDACTED]>

Sent: Wednesday, September 16, 2020 9:51 AM

To: Christina Adkins <CAdkins@sos.texas.gov>; Charles Pinney <CPinney@sos.texas.gov>

Cc: Pearson, Steve <[REDACTED]>; Hallett, Tim <[REDACTED]>; Keith Ingram <KIngram@sos.texas.gov>

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Christina,

It appears there has been some misunderstanding over this particular matter, specifically the hash verification procedure for the ExpressVote 1.0 units in the EVS 6.0.3.0 release. The hash validation process for the ExpressVote 1.0 units with this release did not fail. On the contrary, the software did exactly what we expected it to do when a stick update is used on an ExpressVote 1.0, and verified the SYSLOAD.BMP file was not present. This was the expected result, and, as such, is considered a match. This specific SYSLOAD.BMP file verification only occurred on ExpressVote 1.0 units that received the firmware upgrade via USB stick in EVS 6.0.2.0. I apologize if this was not clearly conveyed in my previous communications. There has never been an issue to report and it is disheartening to think your team would doubt our integrity regarding this matter. ES&S has always been forthcoming with your office at all times about all things tested and discussed. ES&S takes our verification procedures very seriously and though the examiners expressed some concern that our current procedures are too complicated in nature, ES&S specifically developed the procedures to be very thorough and detailed so that the jurisdictions would be able to ensure and confirm that the correct firmware was loaded. We agree with you that the procedures can be tedious and that is why we have worked so hard to provide the detailed responses and explanations you have requested on each and every question raised over this particular matter. We further acknowledge the importance of these procedures in order to validate that the software and firmware received and loaded is identical to the certified version(s) approved for use in Texas jurisdictions.

We are more than happy to work with the SOS and the Texas examiners in an attempt to design specific verification procedures and specific documentation for use in future releases that would be less tedious and possibly a better fit to Texas jurisdictions; however, the verification procedures and documentation we currently have in place are both EAC certified and proven reliable and accurate

To: Charles Pinney <CPinney@sos.texas.gov>

Cc: [REDACTED]; [REDACTED];

<Lesley.French@oag.texas.gov>; Cheryl Sneeringer [REDACTED]; French, Lesley

<austin.kinghorn@oag.texas.gov> <austin.kinghorn@oag.texas.gov>; Christina Adkins
<CAdkins@sos.texas.gov>

Subject: Re: Vendor Responses to Examiner Questions - EVS 6030 and 6110

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Hi Chuck,

I would like ES&S provide some more background on the stick vs iono install hash discrepancy. In which document(s) does the VSTL acknowledge and accept the discrepancy? What documentation has been provided to customers related to the issue? Given that BMP files can be used to exploit systems [1], what applications read SYSLOAD.BMP and do those applications perform any actions to prevent an attack from a malicious BMP file?

[1] https://apps.nsa.gov/iaarchive/library/reports/bmp_inspection_and_sanitization_guidance_v1_0-20171212.cfm

Thanks,
Brian

On Mon, Aug 24, 2020 at 3:08 PM Charles Pinney <CPinney@sos.texas.gov> wrote:
Hey everyone,

Susan just got back to me with her responses to your first round of questions:

With regard to Jim's question on whether or not the database formats (a.k.a. schemas) are identical for the EVS 6.0.3.0, EVS 6.1.1.0, and their immediate predecessors please forward the following response:

Schemas between EVS 6030 and EVS 6110, are not identical given the audio prompts are different as well as the fact that EVS 6030 is on a Windows 7 OS whereas EVS 6110 is on a Windows 10 OS. Although a change in operating system doesn't necessarily have much to do with the schemas, the general development between the versions on the different operating systems would cause the schemas of those two versions to change regularly.

However, EVS 6020 to EVS 6030 are identical and EVS 6100 to EVS 6110 are identical. We didn't update the audio prompts or change the databases version # between either of these releases. That's how or why we can use an EVS 6020 backup election and restore it into EVS 6030 and we can use an EVS 6100 backup election and restore it into EVS 6110.

I also wanted to give you a little additional information to provide to Brian when you send him the hash verifications I provided on Friday. As I mentioned all hashes pulled from the hardware matched the trusted hashes and when Brian runs his own comparison, all will match exactly with the exception of one.

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The hash pulled from the EVS 6030 ExpressVote 1.0 pulls a SYSLOAD.BMP file (which is the bitmap that displays the copyright year and was NOT a standard file included in the updates of the earlier ExpressVote versions.) This was addressed in later versions but not in the earlier EVS 6020 version, so even when the VSTL tested and pulled the hash, they received the same mis-match on verification. The SYSLOAD.BMP file that is pulled is as follows:

SYSLOAD.BMP

No Match Found

File: SHA256(/part1/SYSLOAD.BMP)

Hash: b3a230dc5ff31311a9f83b5bfee22ac96291c57f0c84abd05852aabf605ebbe3

Static file – when the ExpressVote 1.0 units are updated with the update stick, the above file mismatch will always occur. If a Full inno install is done, it will have the SYSLOAD.BMP file and the verification will match. As you know, we did the stick update at the event and not a full inno install. The VSTL noted this in EVS 6020 and EVS 6030 while running the Verifications during the testing phase on the ExpressVote 1.0 and considers it a match if this is the only file that comes up as a mismatch during verification.

Let me know if you all have any follow-up questions or anything else you need from me.

Thanks,

Chuck Pinney

Attorney -- Elections Division

Office of the Texas Secretary of State

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The information contained in this email is intended to provide advice and assistance in election matters per §31.004 of the Texas Election Code. It is not intended to serve as a legal opinion for any matter. Please review the law yourself, and consult with an attorney when your legal rights are involved.

Tom Watson
20203 Hunters Point Drive
Georgetown, TX 78633

512.818.1292

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