

From: [Petzoldt, Albrecht R. \(IntlAssoc\)](#)
To: [Perlner, Ray A. \(Fed\)](#)
Subject: RE: ERB Reminder
Date: Tuesday, August 29, 2017 12:55:16 PM

Hi,

In the paper we have three statements like this

In the abstract: Our attack shows that combining a weak scheme with a secure one does not automatically increase the security of the weak scheme.

In the introduction: Our attack therefore shows that combining several multivariate schemes into one brings no extra security into the system. (this is the one mentioned by Chuck)

In the conclusion: Therefore, our attack shows that the security of a weak multivariate scheme like Square is not automatically increased by combining it with another (secure) scheme.

I therefore think that it is relatively clear what we mean by this statement. However, I admit that the second formulation is not the best. So we can change it if you think.

From: Perlner, Ray (Fed)
Sent: Tuesday, August 29, 2017 12:14 PM
To: Daniel Smith [\(b\) \(6\)](#) [\(b\) \(6\)](#)
Cc: Petzoldt, Albrecht R. (IntlAssoc) <albrecht.petzoldt@nist.gov>
Subject: FW: ERB Reminder

What do you guys think?

I believe the only stakes here are what goes into the NIST database. My general inclination would be to take Chuck's first suggested wording:

"Our attack shows that this attempt to combine several multivariate schemes into one brings no extra security into the system."

From: Lennon, Elizabeth B. (Fed)
Sent: Monday, August 28, 2017 4:04 PM
To: Perlner, Ray (Fed) <ray.perlner@nist.gov>
Cc: Marron, Jeffrey A. (Fed) <jeffrey.marron@nist.gov>; Kerman, Sara J. (Fed) <sara.kerman@nist.gov>; Marth, Lisa D. (Fed) <lisa.marth@nist.gov>; Shields, Kaitie (Fed) <kaitlin.shields@nist.gov>
Subject: FW: ERB Reminder

Ray, see Chuck's comments below and please respond to him directly, ccing me.

Thanks. Liz

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From: Romine, Charles H (Fed)

Sent: Monday, August 28, 2017 3:56 PM

To: St Pierre, James A. (Fed) <james.st.pierre@nist.gov>

Cc: Lennon, Elizabeth B. (Fed) <elizabeth.lennon@nist.gov>; Shields, Kaitie (Fed) <kaitlin.shields@nist.gov>; Marth, Lisa D. (Fed) <lisa.marth@nist.gov>

Subject: Re: ERB Reminder

Colleagues,

I like this paper a lot; however, I'm concerned about the following statement early in the paper:

"Our attack therefore shows that combining several multivariate schemes into one brings no extra security into the system."

I don't think that's a supportable statement. Their attack shows that combining ***these particular*** multivariate schemes in ***this particular way*** brings no extra security into the system, right? Does their attack rule out any value in combining several multivariate schemes, or just this one? Perhaps a better phrasing would be

"Our attack shows that this attempt to combine several multivariate schemes into one brings no extra security into the system."

An even broader statement could read

"Our attack shows that seeking to provide extra security into a system by combining several multivariate schemes into one is fraught with challenges, and may not even be possible."

Even better, I like the clear statement at the end of the Conclusion of the paper:

"... our attack shows that the security of a weak multivariate scheme like Square is not automatically increased by combining it with another (secure) scheme."

Please check with the authors on whether they'd like to stand by their original wording, or would prefer to change it as above (or in some other way).

Thanks!

Chuck

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From: "St Pierre, James A. (Fed)" <james.st.pierre@nist.gov>
Date: Monday, 28 August 2017 at 15:22
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Subject: FW: ERB Reminder

Chuck,
I have reviewed this paper and have no comments.
Jim

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Jim, here it is. Liz

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Subject: RE: ERB Reminder

Thanks – can you resend the Perlner paper? I can't find the email.

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Subject: ERB Reminder

Jim, these papers are awaiting your review:

G2017-1631, Ray Perlner, Total Break of the SRP Encryption Scheme
G2017-1572, Pat O'Reilly, CSD Annual Report
G2017-1494, Keith Stouffer, Cybersecurity Framework Manufacturing Profile

Thanks. Liz

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