Digital Signatures Project Summary
August 8, 2013
Implement Secure Digital Signatures: Overview

- **Major initiative for UH & UIT for FY 2011/12**
  
  "Digital Signature Project ($247,500); The Digital Signature Project will make possible electronic authorization of official university business (e.g., purchasing, travel, leave requests). Eliminating the need for print signatures will increase operational efficiency and reduce the university’s reliance on, and investments in, paper. “

  – *Fiscal Year 2011 Plan and Budget*

- **What is a Digital Signature?**

  *E-signatures* are divided into two categories:

  1. **Electronic signatures** - click and sign (i.e. type name); simple authentication

  2. **Digital signatures** - utilizes public-key cryptography (PKC) / public-key infrastructure (PKI); complex algorithms using SSL certificates.
Implement Secure Digital Signatures: Objectives

- More efficient business processes
  - Electronic authorization of official university business
    (e.g., on-line contracts, purchasing, travel, leave requests)

- Increased operational efficiency and reduced reliance on, and investments in, paper and other related expenses of printing

- Strong security for documents and messages where the identity of an author, sender, or the contents of a message must be verified and validated, or authenticated

- Legislative compliance with the Texas Administrative Code (TAC) and the Texas Department of Information Resources (TxDIR)
Implement Secure Digital Signatures: Compliance Requirements

State of Texas Requirements incumbent upon UH:

- Offeror must utilize certificates for digitally signed communications obtained from a source(s) approved as an acceptable PKI service provider by the Texas Department of Information Resources (DIR)

- Texas Government Code § 2054.060 - Digital Signature
- TAC §202.75.2.E, Information Resources Security Safeguards
- TAC §203.25 – Acceptable PKI Service Provider
- TAC §203.44 - Acceptable Digital Signature Technology
Implement Secure Digital Signatures: Procurement

Forsythe Technologies Procurement
- Consortium of Forsythe, SIGNiX & Symantec/Verisign
- Multi-Solution Approach
  - Certificate based – VeriSign MPKI – Internal solution
  - Non-certificate - SIGNiX – External solution
    - Customers:
      » Houston Area Realtors
      » Credit Unions
      » Universities (Penn State)
Implement Secure Digital Signatures: Procurement

- 3 Year Contract Invoiced Annually - $240,037.50
  - 2014 last year of contract
- Licenses included for:
  - Verisign/Symantec MPKI (Internal Solution)
    - 5000 User Seats (Faculty/Staff)
    - 2 Administrators
  - SIGNiX (External Solution)
    - 10,000 External Signers (Students/Parents/Alumni)
    - 50 Faculty/Staff users/admins
- Annual Maintenance
Implement Secure Digital Signatures: Steering Committee

Committee Chair: Mike Glisson, Controller

UIT Security Representatives: Mary Dickerson, Brian Walker (Technical Lead)

UH Business Representatives:
- Administration & Finance, Office of the General Counsel, Purchasing
- College/Division Business Administrators

UHS – Business and IT Representatives from each campus
- UH Downtown: George Anderson & Erin Mayer
- UH Clear Lake: Cathy Bye & Margaret Lampton
- UH Victoria: Vangie Kolesar & Eric Mims
Electronic Signing Options Identified by DS Committee

1. Signature Capture Devices
2. Electronic document Signing w/DS certificate
3. SignIx – web-based solution for external signers
Identified Electronic Signing Options

1. Signature Capture Devices
   - OGC and IA have confirmed acceptable use for situations where a scanned signature is approved
   - Devices are inexpensive (~$200)
   - Ability to sign any documents from any device
   - Meets needs of increased operational efficiency and reduced costs
   - Is NOT considered a “Digital Signature” instead a “Digitized signature”
Signature Capture Device Example
Signature Capture Devices – Best Practices

• Currently no industry technical standards exist

• Factors to consider:
  – High enough resolution to produce a legible signature, both on screen, and in printed form.
  – Make sure the pad will be usable by all persons who may need to use it, especially by those with physical challenges or limitations.
  – If the pad is going to be mounted or permanently affixed to a surface, be sure to allow for enough clearance on all sides.
Signature Capture Devices – Best Practices – cont.

• Factors to consider (cont.):
  – Be mindful of use of the pad by left-handed persons, whose natural signature style often tends to be very different physically from that of right-handers..
  – Be wary of styluses that require the point be used within restrictive angles or pressures; these can often be frustrating for people to use.
Identified Electronic Signing Options – cont.

2. Electronic Document Signing w/DS Certificates
   - Process intensive – requires setup of documents and restricts document changes
   - Only works with PC devices and MS office documents (unless hardware tokens/FOBs are used)
   - Does not work with Mac or Linux devices or Adobe documents (unless hardware tokens/FOBs are used)
Electronic Document Signing w/DS Certificates

- Adobe Hardware Tokens/FOBs
  - Appearance is similar to a USB drive
  - Can be purchased for approx. $20 each
  - User’s certificate is stored on the token
  - Allow signing of any documents (MS Office, Adobe, etc.)
  - Work on PC, Mac, Linux
3. SignIx

- Web-based signing solution for external signers
- Departments can upload unlimited docs for signing
- Workflow notifies multiple signers, administrators
- Housing contracts - using successfully for 1+ year
- UH using approx. 5,200 licenses of 10,000 purchased
- Other UH departments investigating use:
  - Facilities rental
  - University Advancement
Starting the Signing Process

Let's Get Started!

Log In  Create Your Signature  View/Sign Documents

START

Immediate Signing of Residence Agreement
Simple Authentication via SMS Shared Secret

Immediate Signing of Residence Agreement
Implement Secure Digital Signatures: Proposal

SIGNiX Optional Services:

Authentication Options: Charge/Attempt

1. Internal Click-thru: No Charge
2. Authentication w/Question(s) created by Authorized User: No Charge
3. SMS Text Shared Secret: $0.25/attempt
4. Basic Authentication with SSN & DOB entered and validated with outside 3\textsuperscript{rd} party data provider: $1.00/attempt
5. Full Knowledge-Based Authentication (KBA): $2.50/attempt
Your documents have different levels of risk attached to them. The higher the risk, the more protection is available to achieve the reward.

Certificate Levels and Interoperability

Full Identity Authentication

Know Your Customer, Data Verification

KBA Authentication

Identity Vetting

Sponsored

Click Wrap

Rudimentary

Medium

High

High Risk

Low Risk

SIGNiX Solution
Create a Signing PIN

Create Your Signature

Select your signing PIN and choose the style of your signature and initials. Your PIN will serve as your electronic signature.

PIN must be at least six (6) characters and contain 1 digit and one (1) Alpha character

Select your signing PIN: ********

Confirm your signing PIN: ********

Select the style of your signature & initial for signing documents:

John A. Hancock JH

On to View / Sign
Immediate Signing of Residence Agreement
Ready for Student Signature

Immediate Signing of Residence Agreement
Immediate Signing of Residence Agreement
Student Completes Signing Process, Parent is Notified

Immediate Signing of Residence Agreement
Immediate Signing of Residence Agreement

Return or mail your Residence Halls Service Agreement to:

Off Housing Services
4361 Wheeler, Room 108
Houston, TX 77004

Note: Modification of this Form requires approval of GCC
Office of the General Counsel
Residents Halls Service Agreement
Agreement Fully Executed

Immediate Signing of Residence Agreement
Student’s occupancy is governed by the regulations set forth in the University of Houston’s “Residence Halls Service Agreement Terms and Conditions”, which are incorporated herein, and the “Housing Guide” and “University of Houston’s Student Handbook”, which are provided at the beginning of the semester, or viewed on line, or upon request, as now written or as may be amended from time to time by the Board of Regents. **Student acknowledges by his/her signature below and by initializing each page, receiving the University of Houston “Residence Halls Service Agreement Terms and Conditions” provided within this Agreement, and he/she agrees to abide by them.**

“**State law requires that you be informed of the following:** (1) with few exceptions, you are entitled on request to be informed about the information University collects about you by use of this form; (2) under sections 552.021 and 552.023 of the Government Code, you are entitled to receive and review the information; and (3) under section 559.004 of the Government Code, you are entitled to have University correct information about you that is incorrect.”

**New Student** 2011-12-20 17:11 EST

<table>
<thead>
<tr>
<th>Student Signature</th>
<th>Date</th>
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<tbody>
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<td>Student ID #: 123-456-789</td>
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**New Parent** 2011-12-20 17:15 EST

<table>
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<th>Parent/Guardian Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name: New Parent</td>
<td></td>
</tr>
</tbody>
</table>

**Return or mail your Residence Halls Service Agreement to:**
UH Housing Services
4361 Wheeler, Room 108
Houston, TX 77004

**Note: Modification of this Form requires approval of OGC**
Office of the General Counsel
Residence Halls Service Agreement
OGC-S-2000-06 Revised 02.3.11
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Identified Electronic Signing Options – cont.

What **CANNOT** be used (due to State requirements):

- Adobe-internal signing (without FOBs) or Adobe Echosign
- True “Digital Signatures” using certificates issued by vendors not approved by TxDIR
- All Symantec certificates are ok
Implement Secure Digital Signatures: E-mail Encryption

- Certificates purchased for UH faculty/staff allow for email encryption
- Currently, 70 staff participating in Pilot
- Campus deployment plan and user documentation being finalized with campus ISOs
Digital Signatures: Next Steps

• What we are doing –
  – Addressing questions about options and appropriate use
  – Preparing user guidance documentation
  – Serving as liaison for UH departments onboarding with SignIx
  – Working with campus ISOs on email encryption deployment
Digital Signatures: Next Steps

• What you can do –
  – Review your business processes requiring signatures
    • Identify areas where signature capture devices could be used
    • Identify candidates for SignIx implementations
    • Implement appropriate business procedures/processes to utilize options
    • Work with your ISO regarding encrypted email deployment for your staff and faculty
    • Provide input on user guidance needed
Questions?

• Business Process/Appropriate Use
  – Mike Glisson, Controller

• Technology - DS Certificates/ SignIx/Encrypted Email:
  – Brian Walker/UIT Security

• Assistance w/ specific Signature Capture Devices:
  – Local IT Support or Vendor