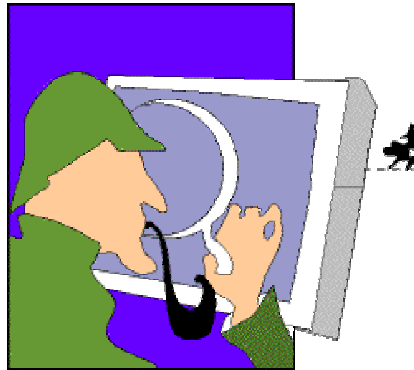


# An approach to employing biometrics with no hardware, no software, no training

Presentation by: Peter Tapling, Authentify, Inc.



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Las Vegas, Nevada

## Abstract

- » Biometrics is seen as a promising way to bind an individual to activities in the digital world. Many biometric solutions available today require some combination of specialized hardware, client-installed software, or significant user training in order for them to be successful. While applications for a controlled audience (such as employees) may find this acceptable, externally facing applications must overcome these problems. This session will present an approach to enabling Internet applications with integrated voice biometrics as piloted by one government agency.

## Challenges of Any Registration Process

- » Objective is to bind a carbon based persona to an electronic security credential
  - The **task** was performed user ID “dduck”, therefore the **person** who performed the task was [certainly] Donald Duck.
  
- » Policies define process requirements
  - Policy will (should) reflect risk profile
  - [PKI has inherited some legal baggage (e.g. CPS)]
- » Authentication for first time issuance is weak link
  - Shared secret only not near strong enough
  - “Personal presence” models prevalent, but operationally weak
- » Delegation is often required to support broad communities
- » Automation is desired to keep costs down

## Additional Challenges Attributable to Biometrics

- » “Answer” is no longer discreet
  - Biometrics are by their nature statistically based
  - Equal Error Rate becomes something to manage
- » Biometric approach needs to be socialized
- » New risks to consider
- » Required software/hardware footprint, user training
- » Capture device integrity
- » Still have “first time” problem

## Case Study Application

- » US Social Security Administration
  - Registration for access to “Business Services Online” site
    - <http://www.ssa.gov/bsso/bsowelcome.htm>
  
- » Project was proof of concept to employ telephone authentication and voice biometrics to automate 3<sup>rd</sup> party authorization for access to the site
  - Goal to replace a paper-based, negative response process with a faster, higher quality process
  - Proof of concept was live during Q1/Q2 2003
  
- » Application to eventually support:
  - Authentication for first time registration
  - Authentication for password reset

## Basic Flow of Registration

- 1) User self-registers at site (name, SSN, FEIN, phone, email)
- 2) SSA checks that SSN works for FEIN
- 3) [Automated call placed to phone number, biometric captured]
- 4) User ID/Password issued to User
  
- 5) User identifies supervisor (name, phone, email)
- 6) Email delivered to supervisor
- 7) Supervisor follows link in email to approval site
- 8) Supervisor validates name/company name, enters SSN/FEIN
- 9) SSA checks that SSN also works for FEIN, FEIN matches
- 10) Supervisor validates/enters phone number
- 11) Automated call to supervisor, biometric captured, approval
- 12) If no approval, User's ID cancelled



**Business Services Online (BSO)**  
BSO is a suite of business services for companies to conduct business with the Social Security Administration. BSO consists of Registration Services, Employer Services (Submit a Wage File, W-2 Online, View Status, View Notices, and View Errors), and Social Security Number Verification Service (SSNVS). You must be a registered BSO user to use these services. Other services will be added in the future.

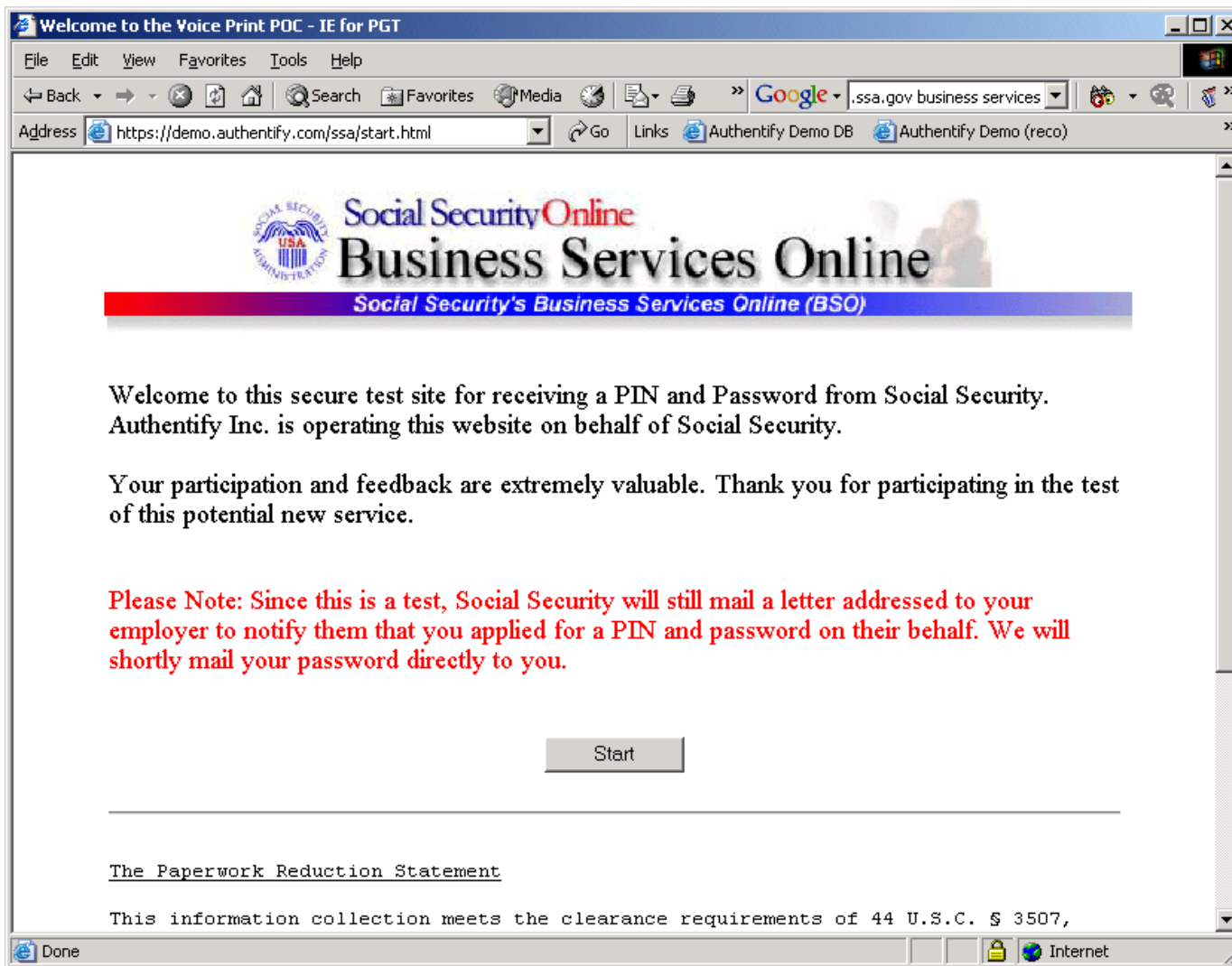
**Software/Hardware Requirements:**  
Your browser settings must accept cookies. We recommend using a Windows-based PC to use our Internet services. Using Macintosh Computers, Web TV, or other non Windows-based PCs may cause inconsistent results.

**Encryption Notice:**  
We're sorry, but if your browser can't use [128-bit encryption](#), you'll need to [upgrade](#) it before you can use our Internet applications.

**BSO and Registration: Have a question?**  
Call **1-800-772-6270** Monday through Friday, 7:00 a.m. to 7:00 p.m. Eastern Time to speak with Employer Customer Service personnel.

*Business Services Online site enables businesses to self manage activities such as wage reporting.*

*BSO is a primary SSA initiative to address requirements of the Government Paperwork Elimination Act (GPEA).*




*During the proof of concept, users would complete the existing registration process, then self-select to participate in the test. This and following screen shots are from the proof of concept pages – they are \*not\* production SSA pages.*

Registration - IE for PGT

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print >> Google >>

Address https://demo.authentify.com/ssa/registration.asp? Go Links Authentify Demo DB Authentify Demo (reco) >>

 **Social Security Online**  
**Business Services Online**  
Social Security's Business Services Online (BSO)

Please complete the following information.

Fields marked with an asterisk (\*) are required fields.

**Information About You:**

First Name\*: Peter

Last Name\*: Tapling

Social Security Number\*: 000-00-0000

Phone Number: 773 -243 -0322

Phone Extension:

**Information About Your Company:**

Company Name\*: Authentify, Inc.

EIN\*: 000-000000  
(Employer Identification Number)

Are you Self Employed, or head of your business?\*  Yes  No  
( Please select Yes or No )

Submit Reset

Done Internet


*User identifies themselves and their company. This is a "light" version of the existing primary registration process.*

Supervisor Information Input - IE for PGT

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Address https://demo.authentify.com/ssa/supinfo.asp Go Links Authentify Demo DB Authentify Demo (reco)

 **Social Security Online**  
**Business Services Online**  
Social Security's Business Services Online (BSO)

Please complete the following information.

Fields marked with an asterisk (\*) are required fields.

**Information About Your Supervisor:**

First Name\*: James

Last Name\*: Woodhill

Phone Number\*: 773 -243 -0300

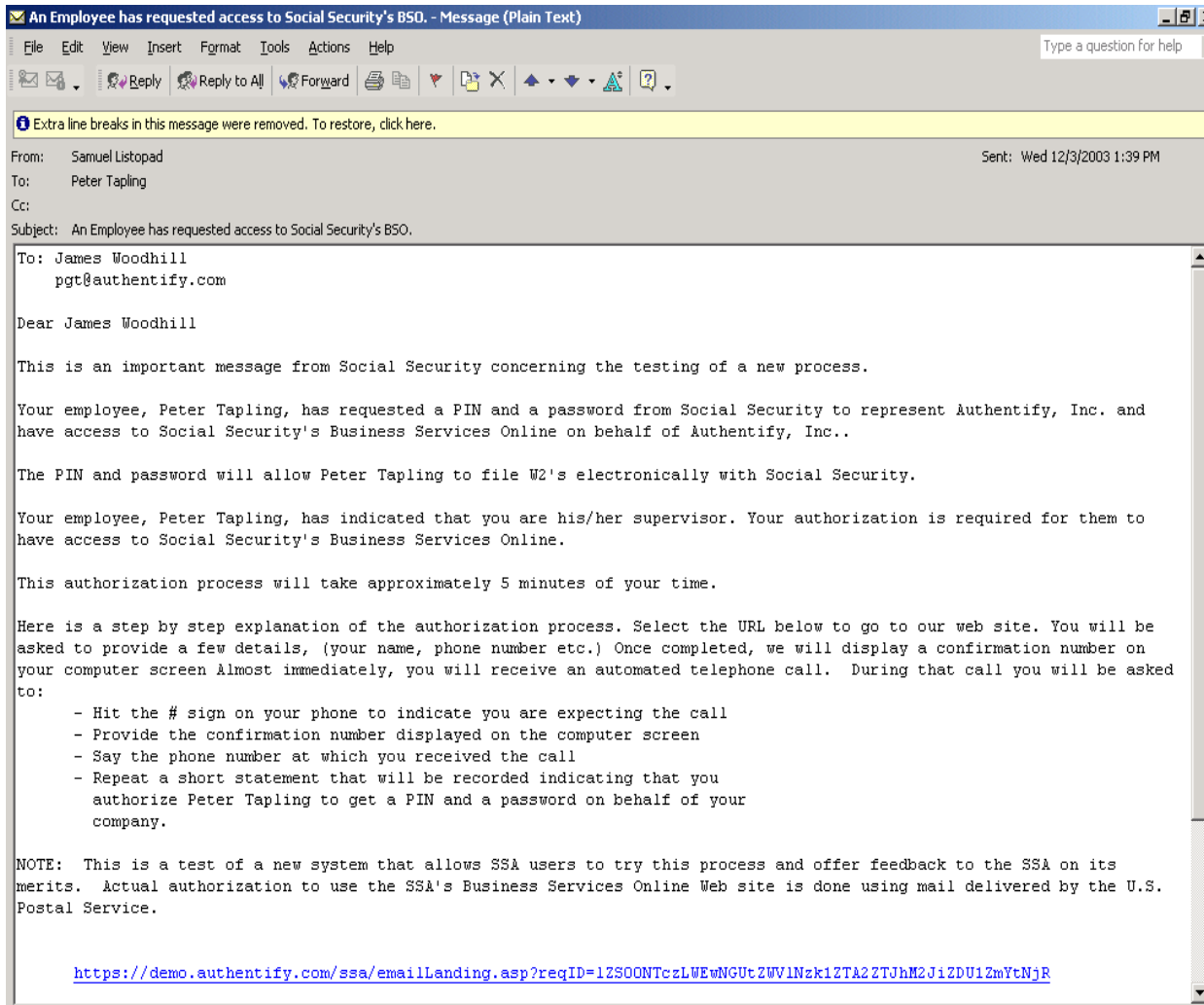
Phone Extension: 322

Email\*: pgt@authentify.com

[Return to the SSA](#) | [Frequently Asked Questions](#)

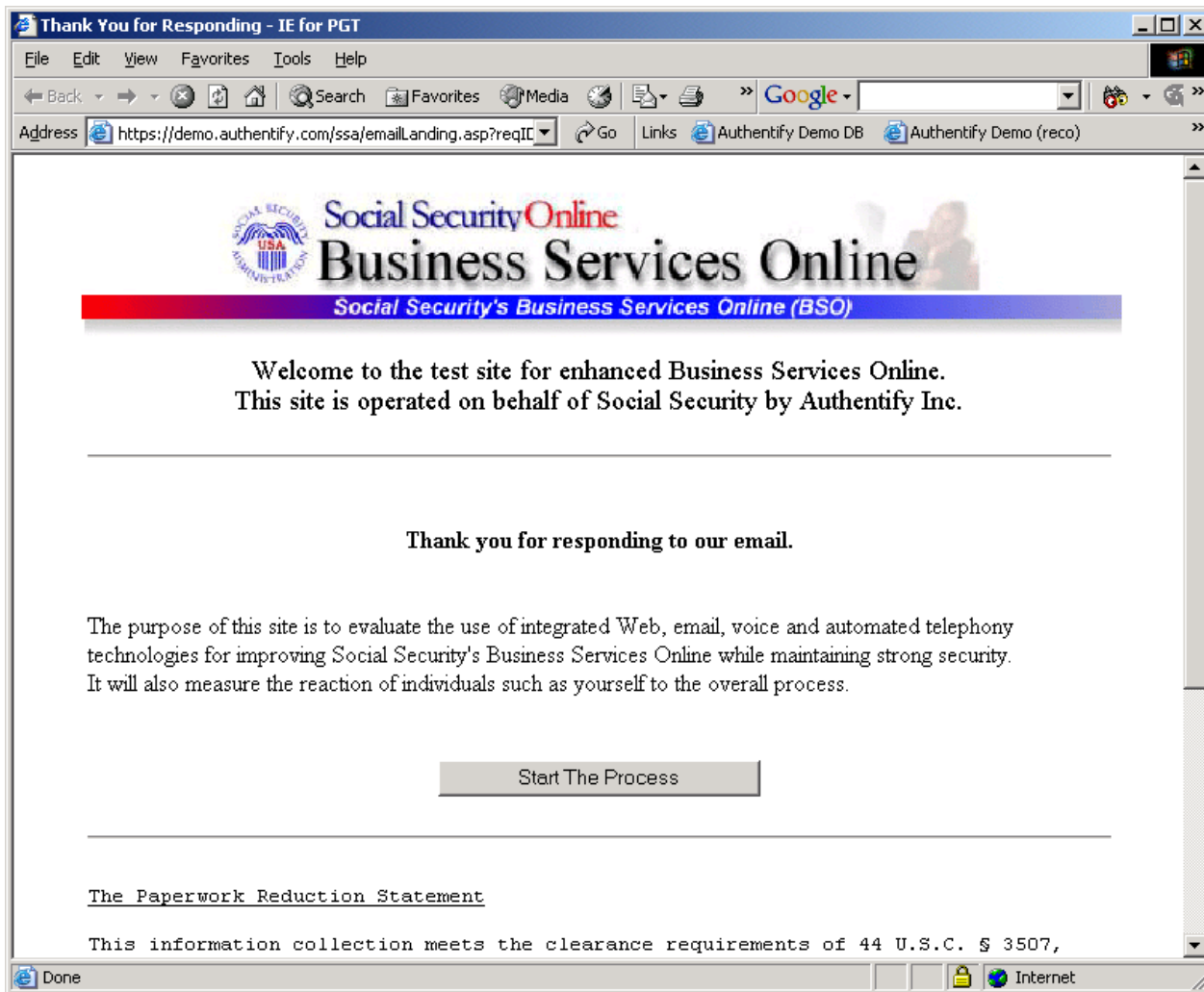
Done Internet

*Supervisor information is new information which would be collected. Note collection of phone number and email address as opposed to postal mailing address.*



*Supervisors are first introduced to the activity by an email which would, in production, from the SSA.*

*A primary benefit over the existing system is that a positive approval is sought from a named individual.*




*Supervisor is given an explanation of the process.*

Supervisor Registration - IE for PGT

File Edit View Favorites Tools Help

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Address <https://demo.authentify.com/ssa/superReg.asp?reqID=;> Go Links Authentify Demo DB Authentify Demo (reco)

 **Social Security Online**  
**Business Services Online**  
Social Security's Business Services Online (BSO)

**Employee Peter Tapling has indicated that you are their supervisor.**

---

If this is not correct please select the "No" button now.

Otherwise, please enter the following information about yourself and your company.

Fields marked with an asterisk (\*) are required fields.

---

First Name\*:

Last Name\*:

Company Name\*:

EIN\*:  
(Employer Identification Number)

---

[Return to the SSA](#) | [Frequently Asked Questions](#)

Internet

*Supervisor enters/validates information.*


Please indicate a number where we can call you - IE for PGT

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Google

Address <https://demo.authentify.com/ssa/superPhone.asp> Go Links Authentify Demo DB Authentify Demo (reco)

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 **Social Security Online**  
**Business Services Online**  
Social Security's Business Services Online (BSO)

---

**Please select and/or enter a phone number where we may reach you for this call.**

---

Given Phone: (773) 243-0300 ext. 322

Other Phone: ( ) - - Ext.

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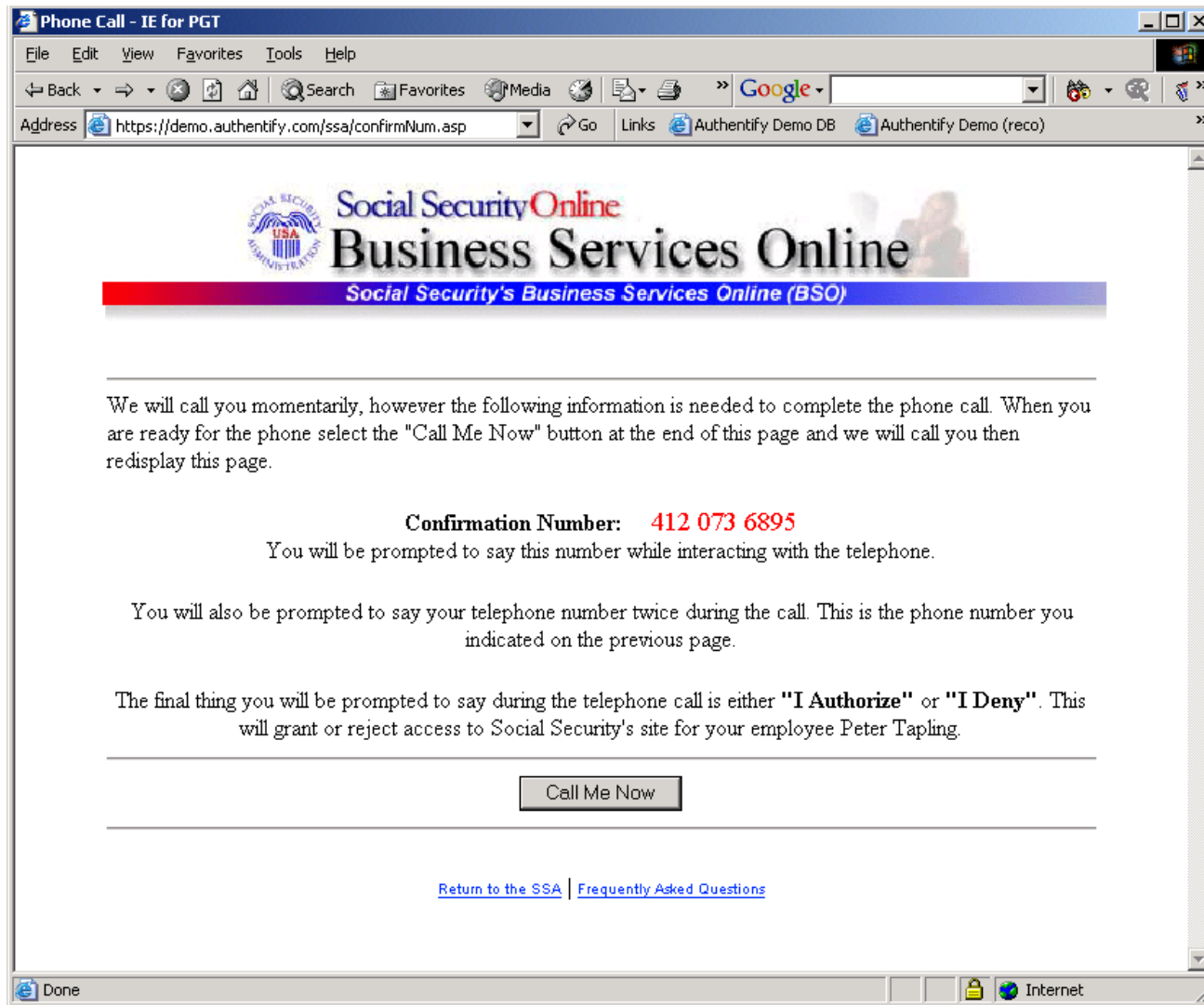
**Can you talk at this number while connected to the Internet?**

---

[Return to the SSA](#) | [Frequently Asked Questions](#)

Done Internet

*Supervisor initiates an automated telephone call to their desk or current location.*




Phone Call - IE for PGT

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Print Preview Google

Address <https://demo.authentify.com/ssa/confirmNum.asp> Go Links Authentify Demo DB Authentify Demo (reco)

 **Social Security Online**  
**Business Services Online**  
Social Security's Business Services Online (BSO)

We will call you momentarily, however the following information is needed to complete the phone call. When you are ready for the phone select the "Call Me Now" button at the end of this page and we will call you then redisplay this page.

**Confirmation Number: 412 073 6895**

You will be prompted to say this number while interacting with the telephone.

You will also be prompted to say your telephone number twice during the call. This is the phone number you indicated on the previous page.

The final thing you will be prompted to say during the telephone call is either **"I Authorize"** or **"I Deny"**. This will grant or reject access to Social Security's site for your employee Peter Tapling.

[Return to the SSA](#) | [Frequently Asked Questions](#)

Done Internet


*Instructions on  
the process.*

Phone Call - IE for PGT

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Google

Address <https://demo.authentify.com/ssa/immediate.asp> Go Links Authentify Demo DB Authentify Demo (reco)

 **Social Security Online**  
**Business Services Online**  
*Social Security's Business Services Online (BSO)*

---

We will now call you. You may follow this [link to skip the information given on the last page and go to the "Done with Phone Call" button.](#)

**Confirmation Number: 412 073 6895**

You will be prompted to say this number while interacting with the telephone.

You will also be prompted to say your telephone number twice during the call.


The final thing you will be prompted to say during the telephone call is either **"I Authorize"** or **"I Deny"**. This will grant or reject access to Social Security's site for your employee Peter Tapling.

---

When you are done with the phone call, please select the following "Done with Phone Call" button.

---

[Return to the SSA](#) | [Frequently Asked Questions](#)



*Automated telephone call will:*

- Validate intent
- Capture voice print
- Capture approve/deny recording

*Use of phone provides "anchor" in the real world.*

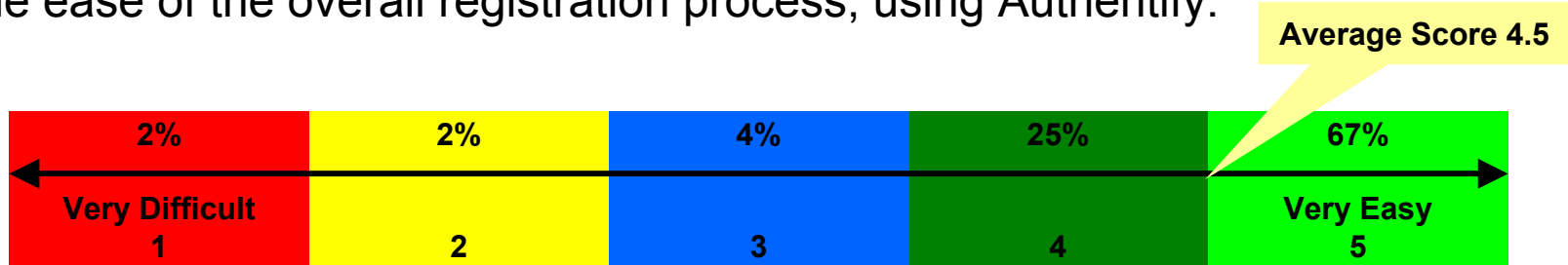
## Summary Results

- » Approval response from automated system improved 37%
- » Audit trail from automated system deemed superior
- » Survey results very positive
  
- » Next Steps
  - Planned pilot during 2004

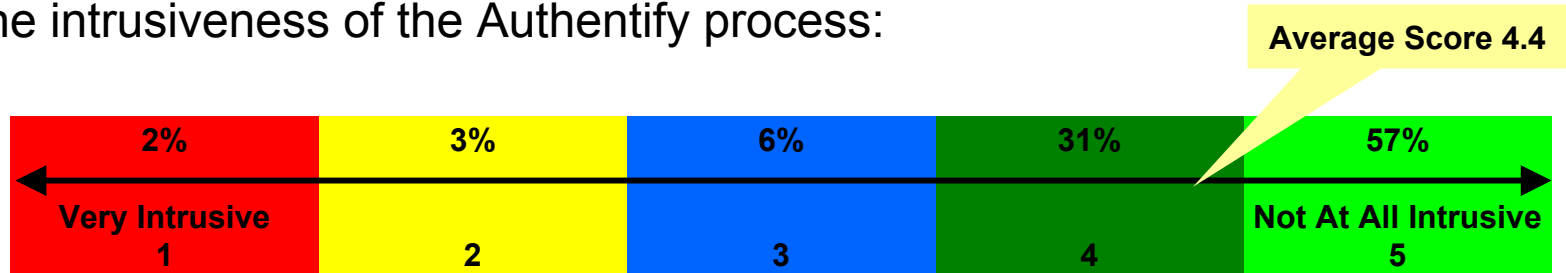
*“I very much like the idea of voice identification. This process surpasses any other method of protecting my identity and SSN that I have seen. BRAVO!!*

JoAnn W., Financial Advisory Firm

Rate the ease of the overall registration process, using Authentify.



Rate the intrusiveness of the Authentify process:



***“I very much like the idea of voice identification. This process surpasses any other method of protecting my identity and SSN that I have seen. BRAVO!!***

JoAnn W., Financial Advisory Firm

## Lessons Learned

- » This process will work
- » Users broadly prefer the real time nature of a phone based process
- » Use of the phone is very natural to users
- » No need to “dumb down” the process – folks “get it”
  
- » Biometric strategies
  - Manage EER towards successful enrollment
    - **Phone offers true “multi-factor”**
  - Balance risk of replay attacks against challenges of text independence



## Benefits of Use of the Telephone

- » Out-of-band trusted network
- » Operates in true real-time
  - Can reduce exposure of temporary PINs to near-zero
- » Uniquely engages a human in the process
- » Requires no additional infrastructure or training
- » Public Switched Telephone Network is highly auditable
- » Phone is socialized as your “handle” for business
  - commercial or personal
- » Can temporally bind digital transaction with authentication event
- » Phone number is a “something you know”, controlling a phone acts as a “something you have”

## Selected Authentify Customers



i n v e n t



**Associated Bank**



**VeriSign®**  
The Value of Trust<sup>SM</sup>

**PayPal®**



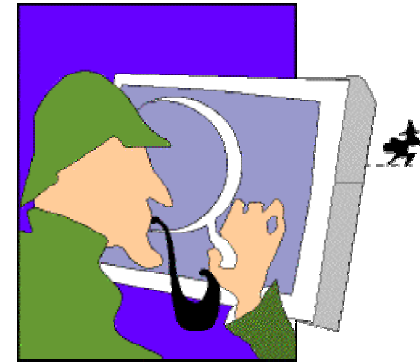
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*“On the Internet, nobody knows you’re a dog.”*

**... EXCEPT AUTHENTIFY!**

*Thanks to the  
2003 ACSAC Team!*



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email: [peter.taping@authentify.com](mailto:peter.taping@authentify.com)