IMAGEWARE® SYSTEMS

GoVerifyID®

Using 2FA and biometrics for password reset.

How to secure and simplify your password reset process.

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Passwords are Expensive

We live in a hyper-connected, technology oriented world where everyone can stay connected from practically anywhere, anytime. With all this connectivity, one might ask the question "How secure are we?" Every day, you log into multiple locations from a multitude of devices: Facebook, Gmail, PayPal, your brokerage account, your healthcare portal, and many more.

Do you always create unique passwords that you only use once?

Do your passwords contain more than 12 characters?

Do they contain your name or username?

Do you include numbers, lowercase and uppercase letters?

Do you include special (@$%&!* etc.) characters

Do you change all of your passwords every three months?

Can your password be easily guessed?

Do you even know how many passwords you have?

According to the NDSS Symposium,[1] an average user maintains 25 distinct online accounts, but with only 6-7 passwords; 43-51% of users reuse their passwords.

25 unique online accounts/user

80% of security breaches take place not through hacking or virus attacks, but through system infiltration facilitated by the use of a known password.[2]

1.2 billion username and password combinations and over 500 million email adresses were amassed by hackers in one of the largest known collections of stolen credentials and confidential materials.[3]

Industry studies show it can take at least 40 minutes for Help Desk personnel to manually reset a user password. Also, up to 50% of Help Desk tickets involve manual password resets.[4]

Manual password resets may cause significant risks and costs to an organization's bottom line, including:

Reduced Productivity
Business-wide slow downs often occur when password resets negatively impact user productivity with long wait times during business hours. This can be even worse outside of 9-5 operations, when help desk operations are typically either on call, or not staffed at all.

Reduced Customer Satisfaction
When customer passwords are locked, customer-facing service personnel are often unable to asssist them. This can put Service Level Agreements at risk, and increases the potential of losing customers.

Phishing Security Risks
When customers reset their passwords manually, the potential exposure of critical user information increases the risk of hacker phishing.

Tracking Issues
Tracking manual password resets can be challenging and can cause audit and regulatory violations.

IT Resource Usage
On average, an IT Help Desk perform $125,000 worth of manual password resets per year[4] (2,500 resets at $50 each). Often additional Help Desk resources need to be allocated, or worse, reallocated from other projects, which can be costly and time-consuming.

[1] The Tangled Web of Password Reuse, University of Illinois, 2014. **jbonneau.com – goo.gl/938Roz**

[2] NetWrix, Self-Service Password Management, 2014. **netwrix.com – goo.gl/qOusZ3**

[3] Russian Hackers Amass Over a Billion Internet Passwords, 2014. **nytimes.com – goo.gl/rt8KE3**

[4] Reduce IBM i Help Desk Costs with Self Service Password Reset, 2015. **seasoft.com – goo.gl/4cnD2k**

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Current Password Reset Approaches

Currently, many companies use Password Management (PM) tools to enable users to reset their own passwords. PM tools can also synchronize passwords for users across multiple systems, which allow users to access multiple applications with the same password.

Two Major Categories of Password Resets

- **Self-Service Password Reset (SSPR)**
  Typically performed by end users on demand.

- **Manual Password Reset**
  Usually performed by customer service or IT help desk as needed.

Because of its significant cost-savings and headcount-reducing benefits, SSPR is widely adopted. SSPR is usually treated as the first level of support, followed by the manual password reset process. It is worth noting that the Self-Service Password Reset (SSPR) functionality of PM tools does not reduce the number of passwords that a user has to remember, nor does it ease users' pain associated with complicated password policies. This paper focuses on Self-Service Password Reset.

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KEY FINDINGS

The following provides a summary of the most commonly used password reset approaches and their associated advantages and disadvantages.

Traditional Method

Usually initiated by a call into a help desk via a customer service line. Users call customer service to answer a list of pre-defined questions (knowledge-based). This is an expensive proposition when considering the overhead of the extra customer service staff needed. This only provides a "perception of security" as answers to some of the pre-defined questions can be found via social media or guessed by friends and relatives.

Automated Approach

There are three types of automated approaches for password reset:

1. Online reset
2. Email reset
3. Text message

METHOD	PRO	CON
Online Reset	Convenience Widely adopted	Lack of security Answers to pre-defined questions can be easily guessed (friends, social media, etc.) Answers to aged questions (10 year old phone number) can be easily forgotten
Email Reset	Convenience Widely adopted	Lack of security Hacker access to email address/password possible Common attack method
Text Message	Convenience Out-of-band authentication	Lack of security Keycode complexity Hacker/thief access to stolen/lost device

Table 1: Comparison of Automated Password Reset Approaches

These methods aim to automate the password reset process, by either answering a list of pre-defined questions on a web browser, sending a temporary password to an email address, or a text message to a phone number. These approaches provide some level of convenience, but are almost entirely lacking in security.

Secure Automated Password Reset Approaches

Devices/Tokens with One-Time Passwords (OTP)
RSA tokens are an example for this category. A user carries an extra device that shows a string of numbers that change from time to time. This approach increases security somewhat, but it is expensive for the company. It adds another layer of infrastructure and is inconvenient for the users since they need to keep track of a single purpose device, then read and retype codes each time.

Biometrics

Using human traits as a password for authentication is clearly the winner in terms of convenience. You don't forget your biometrics as they are always there. Whether it is your face, voice, fingerprints, iris, palm vein, etc., one always possesses them; they are unique to each individual.

Multi-Modal Biometrics

Using a single biometric fails to provide flexibility and adaptability for different use cases, such as voice authentication in a loud environment or a face recognition in a dark location. Also, by fusing multiple biometric traits, the level of security is greatly increased.

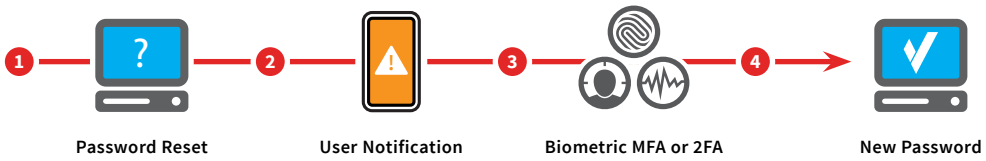
Table 2 illustrates an overall comparison of various password reset approaches. The highest level of security and the lowest cost are solutions using multi-modal biometrics.

	Help Desk Staff	Secret Questions	Email Message	Text Message	Device/ Tokens	Single Biometric	Multiple Biometrics
IT Labor Costs	$$$$$	$$$$$	$$$$$	$$$$$	$$$$$	**$**$$$$	**$**$$$$
User Setup Efforts	High	High	High	High	High	**Easy**	**Easy**
User Usage Efforts	High	High	High	High	High	**Easy**	**Easy**
Subject to Loss/Theft	Variable	Variable	Low	Yes	Yes	**No**	**No**
Level of Security	★☆☆☆☆	★☆☆☆☆	★★★☆☆	★★★☆☆	★★★☆☆	★★★★☆	★★★★★

Table 2: Comparison of Various Password Reset Approaches

Automated password reset: How it works

1. A password reset is initiated.
2. Notification is sent to the user's registered GoVerifyID application.
3. The user is asked to submit their biometrics or 2FA for authentication.
4. Based on the authentication results, the password reset is approved or denied.



CRITICAL ELEMENTS OF AN AUTHENTICATION SOLUTION

Biometrics are like your own personal password that cannot be forgotten, lost, or stolen. Users no longer need to remember the answers to their own password reset questions, nor do they need to carry a separate single purpose hardware token. They also do not need to re-type the complex, temporary password.

When evaluating biometric security solutions, your minimum criteria should include: two-factor authentication, multi-factor authentication, multi-modal biometrics, anonymous biometric storage, cloud-based matching, scalability, real-time performance, and versatility

Two-Factor Authentication
A combination of knowledge based information (something you know) and a physical device (something you have).

Multi-Factor Authentication
A combination of knowledge based information (something you know), a physical device (something you have), and biometrics (something you are).

Multi-Modal Biometrics
Using more than one biometric modality (i.e., face and voice) provides a substantially greater level of confidence for identity verification.

Cloud-Based Storage and Matching
While the use of biometrics greatly increases the level of confidence for identity verification, you must ensure that your captured biometric data is kept secure. Biometric images stored on mobile or desktop devices are subject to electronic theft. By storing your biometrics in a secure data center, the protection of your biometric information is greatly increased.

Anonymous Biometric Storage
Storing biometric data anonymously (i.e., separate from any user identifying information), renders any compromised information completely worthless to potential hackers.

Scalability and Performance
You need a biometric system that is ultra-scalable in order to provide real-time performance.

Versatility
The biometric solution needs to fit into any existing business processes.

IMAGEWARE'S GoVerifyID ENABLES AUTOMATED PASSWORD RESET

GoVerifyID enables you to add biometrics to your existing Self-Service Password Reset process.

For example, to reset their password, a user is prompted to speak a pre-recorded passphrase, such as "I am Jane Doe living in California," and/or take a selfie.

With biometrics of their choice, the user's identity is validated and their password reset.

Key benefits of this solution are:

Enhanced Security
Makes the password reset process your most secure internal IT process with multi-factor and out-of-band authentication.

Reduced IT Helpdesk Costs
By reducing the need for IT help desk agents to complete password resets, an organization can save up to 50% on help desk tickets.[5]

Improved User Experience
Makes resetting a password literally as easy as speaking "My voice will reset my password."

[5] Reduce IBM i Help Desk Costs with Self Service Password Reset, 2015. **seasoft.com – goo.gl/4cnD2k**

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SUMMARY

When it comes to resetting passwords, it is optimal to choose security solutions that provide the highest level of security, the best user experience, and are able to support your business processes. Biometric traits cannot easily be shared with others, which leads to information security and identity authentication management leaders to use them where data and system security is paramount. The challenges of using complex passwords and various kinds of tokens in user authentication, including mobile use cases, are driving interest in biometric authentication methods.

When multi-modal biometrics are combined with mobile and cloud technology, you can achieve the ultimate level of security, convenience, and usability for Self-Service Password Reset. ImageWare's GoVerifyID provides this combination of features to best address the Self-Service Password Reset market.

By adding GoVerifyID to your password reset solution, you add out-of-band authentication along with multi-modal biometric identity verification on your mobile devices. This provides the ultimate level of security along with user convenience for the password reset process. The solution is a very secure scalable, simple to setup, and a real-time performance system.

IMAGEWARE® SYSTEMS, INC.
Authentication Assured™

About

ImageWare® Systems, Inc. is a leading developer of mobile and cloud-based identity management solutions, providing biometric secure credential and law enforcement technologies. Scalable for worldwide deployment, ImageWare's patented biometric product line includes a multi-modal Biometric Engine® that is hardware and algorithm independent and enables the enrollment and management of unlimited population sizes. ImageWare's identification products are used to manage and issue secure credentials, including national IDs, passports, driver's licenses, smart cards, and access control credentials. ImageWare's digital booking products provide law enforcement with integrated mug shots, fingerprint live scans, and investigative capabilities. ImageWare is headquartered in San Diego, CA, with offices in Portland, OR, Washington, D.C., Ottawa, Ontario, Mexico, and Japan.

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