

# Account Enumeration Vulnerability: **aboutyou.ee**

Gregor Eesmaa  
gregor.eesmaa@ut.ee  
University of Tartu

March 16, 2025

## 1 Introduction

Account enumeration is a security vulnerability enabling attackers to determine if specific user accounts exist on a service. The vulnerability usually lies in the account registration functionality of a service, where an error message is returned, indicating that a user with the specified email address is already registered. However, an online service can also leak this information in other, more subtle ways, which are often overlooked by software developers.

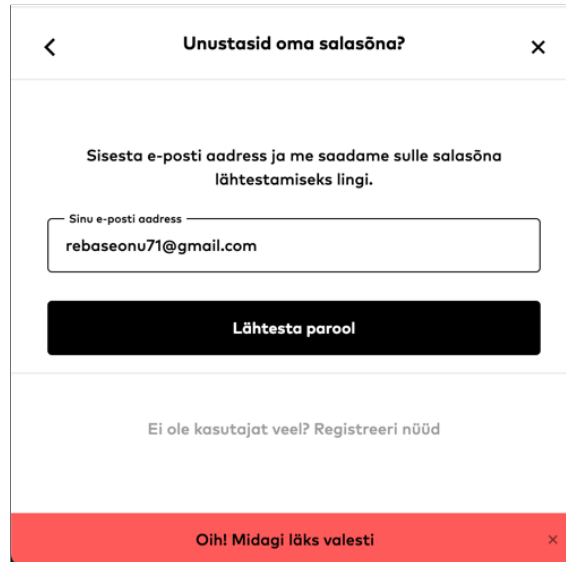
On 2025-01-11, we tested **aboutyou.ee** and found that the service is vulnerable to account enumeration. **The vulnerability allows any party to test whether a user with a specific email address is registered with the service.** Disclosing such information to third parties constitutes a data breach, as an email address and the fact of whether its holder has an account with an online service are considered personal data, and may be disclosed to third parties only if there is a legal basis for doing so [1].

We advise you to investigate the potential data breach, and notify the supervisory authority and the affected data subjects, if necessary. After **2025-04-15**, we will reassess the service and notify the Estonian Data Protection Inspectorate in case the vulnerability has not been mitigated. Detailed guidelines for mitigating this type of flaw are available in [2].

## 2 Vulnerabilities Found

We tested the login form, password reset form, account registration form and email change form of **aboutyou.ee**. No issues appeared on the login form. However, we identified security issues on the password reset form, account registration form and email change form. The vulnerabilities found are described in more detail in subsections below.

## 2.1 Password Reset Form



<

Unustasid oma salasõna?

✕

Sisesta e-posti aadress ja me saadame sulle salasõna  
lähtestamiseks lingi.

Sinu e-posti aadress

rebaseonu71@gmail.com

Lähtesta parool

Ei ole kasutajat veel? Registreeri nüüd

Oih! Midagi läks valesti

✕

Figure 1: The vulnerability in the password reset form

The password reset form is susceptible to account enumeration attacks. This is because when a password reset is requested for an email address that is not registered with the service, the form shows an error message (see Figure 1). Additionally, the form appears to lack anti-bot measures such as CAPTCHA, enabling attackers to easily automate these attacks [3].

It is also crucial to eliminate any side-channels that an attacker could exploit to differentiate between account existence and non-existence. For example, the response should not be faster for an existing account than for an email with which an account does not exist.

**To mitigate the flaw**, return the same message whether the email is registered or not. For example, the message could read as follows: “A password reset link has been sent if an account with this email exists”. [2]

## 2.2 Account Registration Form

Logi sisse

Registreeri Logi sisse

Facebook Apple

Või kasuta oma e-posti aadressi

Eesnimi  
Rebase

Perekonnanimi  
Tädi

Sinu e-posti aadress  
rebaseonu73@gmail.com

Salasõna (vähemalt 6 tähtemärki)  
..... Näita

Kuidas sooviksid, et pöörduksime Sinu poole?

☒ Pr. ☐ Hr. ☐ Mitmesugust ☐ Määramata

☐ Soovin saada uudiskirju ABOUT YOU-lt praeguste trendide, pakumiste ja kupongide kohta vastavalt veebilehele [Privaatsuspoliitika](#). Te saate oma nõusoleku igal ajal tagasi... Näita rohkem

Selle e-posti aadressiga rebaseonu73@gmail.com on juba konto olemas.

[Unustasid oma salasõna?](#) või [liigu otse sisse logima?](#)

Figure 2: The vulnerability in the account registration form

The account registration form is also susceptible to account enumeration attacks. This is because when the provided email address is already taken, the form shows an error message (see Figure 2).

Moreover, no confirmation email is sent to the provided email address after this form is submitted. This allows the attacker to verify unregistered email addresses, ensuring that the email owner remains unaware of the potential attack.

It is also crucial to eliminate any side-channels that an attacker could exploit to differentiate between account existence and non-existence. For example, the response should not be faster for an existing account than for an email with which an account does not exist.

**To mitigate the flaw**, return the same message whether the email is registered or not. For example, the message could read as follows: “We have sent further instructions to the provided email address”. Send an email in both cases, but differentiate the content based on account existence. For example, for new registration, provide means for account activation, and for existing accounts, provide means for account recovery. [2]

## 2.3 Email Change Form

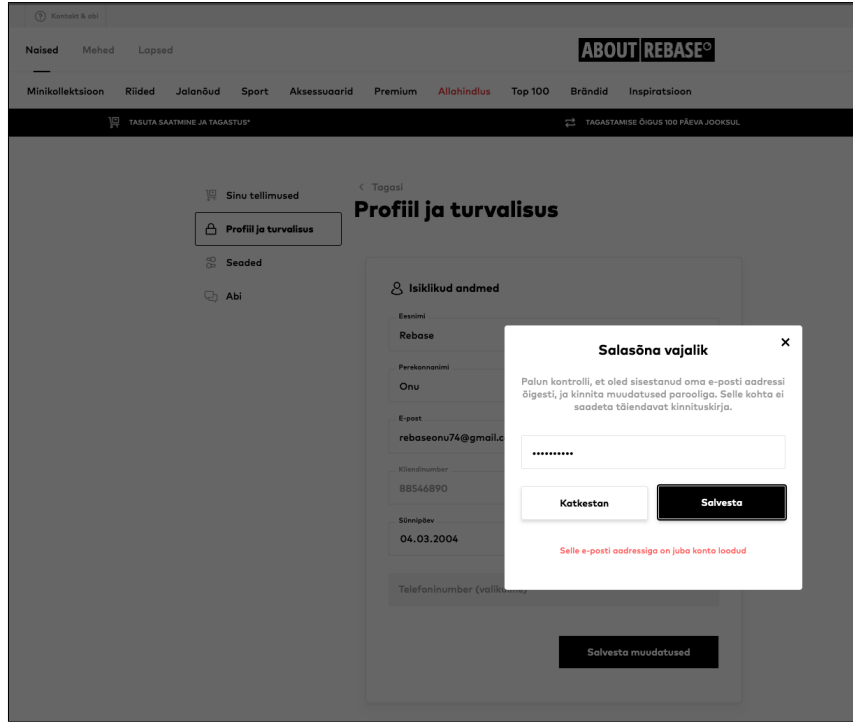


Figure 3: The vulnerability in the email change form

The email change form is also susceptible to account enumeration attacks. This is because when the provided email address is already taken, the form shows an error message (see Figure 3). Additionally, the form appears to lack anti-bot measures such as CAPTCHA, enabling attackers to easily automate these attacks [3].

Moreover, no confirmation email is sent to the provided email address after this form is submitted. This allows the attacker to verify unregistered email addresses, ensuring that the email owner remains unaware of the potential attack.

It is also crucial to eliminate any side-channels that an attacker could exploit to differentiate between account existence and non-existence. For example, the response should not be faster for an existing account than for an email with which an account does not exist.

**To mitigate the flaw**, return the same message whether the email is registered or not. For example, the message could read as follows: “We have sent further instructions to the provided new email address”. Send an email in both cases, but differentiate the content based on account existence. For example, if the email is unused, provide means for confirming the new email, but if the email is used, provide means for account recovery.

### 3 Security Contacts

To responsibly disclose this vulnerability, this report is shared solely in accordance with the guidelines outlined in the `security.txt`[4] file of `aboutyou.ee`.

**About** This vulnerability report is part of an ongoing study on user enumeration vulnerabilities in Estonian online services. The study is conducted by the University of Tartu master's student Gregor Eesmaa (supervised by Arnis Paršovs - `arnis.parsovs@ut.ee`). The findings of this study will be published in a master's thesis scheduled for defence in May 2025.

### References

- [1] European Union. *General Data Protection Regulation (GDPR): Regulation (EU) 2016/679*. Official Journal of the European Union, L 119/1. 2016. URL: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32016R0679>.
- [2] OWASP. *Authentication Cheat Sheet - Authentication and Error Messages*. Accessed: 2025-01-26. URL: [https://cheatsheetseries.owasp.org/cheatsheets/Authentication\\_Cheat\\_Sheet.html#authentication-and-error-messages](https://cheatsheetseries.owasp.org/cheatsheets/Authentication_Cheat_Sheet.html#authentication-and-error-messages).
- [3] OWASP. *Authentication Cheat Sheet - Protect Against Automated Attacks*. Accessed: 2025-01-26. URL: [https://cheatsheetseries.owasp.org/cheatsheets/Authentication\\_Cheat\\_Sheet.html#protect-against-automated-attacks](https://cheatsheetseries.owasp.org/cheatsheets/Authentication_Cheat_Sheet.html#protect-against-automated-attacks).
- [4] EdOverflow and Yakov Shafranovich. *security.txt - A proposed standard which allows websites to define security policies*. Accessed: 2025-01-26. URL: <https://securitytxt.org/>.