# CWE Detail – CWE-654

## Description

A protection mechanism relies exclusively, or to a large extent, on the evaluation of a single condition or the integrity of a single object or entity in order to make a decision about granting access to restricted resources or functionality.

## Extended Description

N/A

## Threat-Mapped Scoring

Score: 1.8

Priority: P4 - Informational (Low)

## Observed Examples (CVEs)

**•** CVE-2022-35248: Chat application skips validation when Central Authentication Service  
 (CAS) is enabled, effectively removing the second factor from  
 two-factor authentication

## Related Attack Patterns (CAPEC)

* CAPEC-16
* CAPEC-274
* CAPEC-49
* CAPEC-55
* CAPEC-560
* CAPEC-565
* CAPEC-600
* CAPEC-652
* CAPEC-653
* CAPEC-70

## Attack TTPs

**•** T1110.001: Password Guessing (Tactics: credential-access)

**•** T1110.002: Password Cracking (Tactics: credential-access)

**•** T1558: Steal or Forge Kerberos Tickets (Tactics: credential-access)

**•** T1078.001: Default Accounts (Tactics: defense-evasion, persistence, privilege-escalation, initial-access)

**•** T1110.003: Password Spraying (Tactics: credential-access)

**•** T1078: Valid Accounts (Tactics: defense-evasion, persistence, privilege-escalation, initial-access)

**•** T1110.004: Credential Stuffing (Tactics: credential-access)

## Modes of Introduction

**•** Architecture and Design: N/A

**•** Implementation: N/A

**•** Operation: N/A

## Common Consequences

**•** Impact: Gain Privileges or Assume Identity — Notes: If the single factor is compromised (e.g. by theft or spoofing), then the integrity of the entire security mechanism can be violated with respect to the user that is identified by that factor.

**•** Impact: Hide Activities — Notes: It can become difficult or impossible for the product to be able to distinguish between legitimate activities by the entity who provided the factor, versus illegitimate activities by an attacker.

## Potential Mitigations

**•** Architecture and Design: Use multiple simultaneous checks before granting access to critical operations or granting critical privileges. A weaker but helpful mitigation is to use several successive checks (multiple layers of security). (Effectiveness: N/A)

**•** Architecture and Design: Use redundant access rules on different choke points (e.g., firewalls). (Effectiveness: N/A)

## Applicable Platforms

**•** None (Class: Not Language-Specific, Prevalence: Undetermined)

## Demonstrative Examples

**•** N/A

**•** N/A

## Notes

**•** Maintenance: This entry is closely associated with the term "Separation of Privilege." This term is used in several different ways in the industry, but they generally combine two closely related principles: compartmentalization (CWE-653) and using only one factor in a security decision (this entry). Proper compartmentalization implicitly introduces multiple factors into a security decision, but there can be cases in which multiple factors are required for authentication or other mechanisms that do not involve compartmentalization, such as performing all required checks on a submitted certificate. It is likely that CWE-653 and CWE-654 will provoke further discussion.