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### CIA Triad and Authentication vs Authorization

The CIA triad is a very important concept to understand in the field of cybersecurity, as well as understanding the difference between authentication and authorization. Starting with the CIA triad, this is a model believed to consist of the three most crucial cybersecurity needs (Chai Article, 1). It is an acronym for confidentiality, integrity, and availability; to understand why this is important one must understand each layer. Confidentiality is the prevention of sensitive data from being accessed by unauthorized users (Chai Article, 1). This is an essential part of maintaining a secure system. The next part of the triad is integrity, which is essential to make sure data has not been changed when being moved or altered by someone without authorization (Chai Article, 2). For data to retain integrity, it must consistently be checked and verified by authorized users. The last part of the triad is availability, which explains that keeping data readily available to authorized users is an integral part of a secure system.

Next, we must understand the difference between authentication and authorization as these are two critical parts of a security system. The difference is extremely simple, but confusing the two could lead to issues down the road. First, authentication is the process of verifying who a user is. Has a website ever asked for your phone number then proceeded to send you a code to your number for you to enter? This is an example of authentication, and it is crucial in a security system because identity theft happens often, which makes it important for users to authenticate themselves. Authorization, however, refers to what information the authenticated user has access to. While these two work together, they are not synonymous. For

example, an authorized user must be authenticated to access something, but not all authenticated users may have authorization. They work together to build a secure foundation and prevent unwanted users from accessing sensitive information.

Chai Article:

Hashemi-Pour, C., & Chai, W. (2023, December 21). *What is the CIA triad (confidentiality, integrity and availability)?* WhatIs? Retrieved September 27, 2025, from <https://www.techtarget.com/whatis/definition/Confidentiality-integrity-and-availability-CIA?jr=on>

Authentication vs Authorization:

<https://auth0.com/docs/get-started/identity-fundamentals/authentication-and-authorization#what-are-authentication-and-authorization->