



# Security Design

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### Introduction

Security architecture is a vast topic in security engineering, which deals with all facets of securing systems, networks, and data. In security architecture, Security architects design security in two stages; High-level design and low-level design (may also be referred to Detailed Level Design).

Both designs serve a similar purpose but are still fundamentally different. High-level design deals with the big picture or conceptual design, which does not include technical details. On the other hand, the low-level design gives us a closer point of view or detailed plan, which serves as the blueprint for all engineering work.

### What Is High-Level Design?

High-Level design, or HLD for short, refers to the system's overall design in which the general architecture of the system is described. It includes information regarding the design principal investigator, systems and independent modules, the computing platform, and the interfaces between them.

A solution architect creates the High-level design. It is first created before low-level design and converts the Business/client needs into a High-Level Solution. It is also known as macro-level system design.

### What Is Low-Level Design?

Low-level design, or LLP for short, refers to the design of the different components of a system in more detail. It includes technical details about each component, including software components, hardware components, and interconnection between the two.

Designers and developers create the Low-level design. It is second created after getting a High-level solution from the architect. It is also known as micro-level design or process model.

## Differences Between High-Level Design and Low-Level Design

The following are the key difference between High-Level Design and Low-Level Design.

	<b>High-Level Design</b>	<b>Low-Level Design</b>
<b>Abbreviation</b>	It is abbreviated as HLD	It is abbreviated as LLD
<b>Definition</b>	It is a design system that encompasses the complete system as a whole.	It is a more detailed version of the high-level design that encompasses the design at the component level as well as the design process and everything else.
<b>Alternative Name</b>	High-level design is also referred to as system or macro-level design.	Low-level design is also known as detailed or micro-level design.
<b>Functions Description</b>	It briefly outlines the functionalities of each module.	It aids in explaining the detailed functional logic of each module in a system.
<b>Participants</b>	The high-level design team members are the client, review, and design teams.	Participants in low-level design are the operation teams, design teams, and implementers.
<b>Time of Creation</b>	High-level design is created and implemented before the Low-level design.	Low-level design is created and implemented after the High-level design.
<b>Input Criteria</b>	In the case of high-level design, the SRS (Software Requirement Specification) is the input criteria.	The evaluated High-Level Design is the input criteria for low-level design.
<b>Conversion</b>	It converts a client or business requirement into a high-level solution	It converts a solution of a higher level into a detailed solution.
<b>Output Criteria</b>	Review document, function design, and database design are the output requirements for Higher-level design	The unit test plan and program specification are the output criteria of the Low-level design.
<b>The Creator</b>	The solution architect creates high-level design.	The developer and designer create the low-level design.

Working with Project managers and solution architects on designing high-level and low-level designs is essential for the project's success. Understanding high-level design and a clear picture of how it works with low-level design will help a security architect and his team plan their work, improve the software architecture, and align it with security standards. Sharing design patterns between both levels will also help to increase the quality of both designs and the security of a project.

## Conclusion

In conclusion, high-level design and low-level design serve the same purpose: to ensure that design decisions will not cause any flaws in the system. However, they address different aspects of system architecture. High-level design deals mainly with the big picture or conceptual design, which does not include technical details; it illustrates key functions to be provided by the system by the client's business needs and is converted into a High-Level Solution. Low-level design, on the other hand, deals with the detailed design of each module of the system; it describes the functions and logic of each function in detail.