# U.S. Department of Energy

*Project Name*

## System Design Document

*September 2002*

# TEMPLATE

**U. S. DEPARTMENT OF ENERGY**

***Organizational Title 1***
***Organizational Title 2***

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# Title Page

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# Preface

**Document Version Control:** It is the reader's responsibility to ensure they have the latest version of this document. Questions should be directed to the owner of this document, or the project manager.

This document was generated by the ***Project Name*** project team. ***System/Project Name*** will be developed for the ***Organizational Name*** of the U.S. Department of Energy.

**Lifecycle Stage**: ***Project Name*** is in the ***System Design*** stage of the project lifecycle.

**Approval**: ***A completed stage exit will constitute approval of this document.***

**Document Owner**: The primary contact for questions regarding this document is:

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This document may contain information of a sensitive nature. This information should not be given to persons other than those who are involved in the ***Project Name*** project or who will become involved during the lifecycle.

# 1. Introduction

## 1.1 System Objectives

Identify the system and the system owner. Briefly describe the functions of the system.

## 1.2 Plan Objectives

Briefly describe the objectives of the System Design Document. Explain how this document will transform the requirements and the user-oriented functional design into more technical system design specifications.

## 1.3 References

Identify any sources of information used to develop this document. Include the requirements and design documents that serve as inputs to the System Design Document.

# 2. System Architecture

## 2.1 Hardware

Describe the system hardware architecture, and indicate whether the processing system is distributed or centralized. Identify the type and number of servers, workstations, processors, backup systems, output devices, etc. Specify the location of all equipment.

## 2.2 Data Communications

Provide a detailed description of the system's communications network, denoting how system components are linked. Describe any Local or Wide Area Networks. Include descriptions of necessary equipment, such as hubs, routers, cabling, transmitters, etc.

## 2.3 Software

Describe all software that is needed to support the system, and specify the physical location of all software systems. List database platforms, compilers, utilities, operating systems, communications software, etc.

## 2.4 Architecture Diagram

Using the hardware, software, and communications designs above, depict the structure of the system.

# 3. Data Design

## 3.1 Data Objects and Resultant Data Structures

For each functional data object, specify the data structure(s) which will be used to store and process the data.

## 3.2 File and Database Structures

Using the logical data model, create a physical data model that describes data storage and manipulation in the systems architectural setting. Describe file structures and their locations. Explain how data may be structured in the selected database management system. For networks, detail the specific distribution of data. Note any changes to the logical data model which occur because of software or hardware requirements.

# 4. Modular Design

## 4.1 Modules

Use the functional design elements to describe the software modules which are needed to satisfy the system's operational requirements. These modules will act as transformations of the data structures described in 3.1.

## 4.2 Processing Narrative

Explain the process by which each module interacts with other parts of the system, including other modules. Describe the data elements and data structures which serve as input to each module. Indicate the method or algorithm by which the module transforms the data, and detail the data elements or data structures that are output.

## 4.3 Internal Data Structures

Describe the internal data structures of each module.

## 4.4 Design Language

Specify the programming language for each module.