

SYSTEM DESIGN STANDARDS

Guide S51

Working Draft, Version 3

Ministry of Forests

Information Management Group

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1.0 INTRODUCTION

This guideline describes the preparation of a Technical Systems Design Specification deliverable. The fundamental process of this deliverable is to provide information, sufficient in extent and detail, to develop an application's software-components. The scope, substance, and content of the System Design Specification is determined, in part, by the threefold assumption that a Business Requirement Specification deliverable has been completed to serve as input into the formation of this specification; and that Test Plan and Implementation Plan deliverables are contemplated for the application under consideration for design.

1.1 **Purpose**

This guideline is applicable to any software development project that delivers a business-oriented-application on behalf of the Ministry of Forests.

1.2 **Audience**

This document is intended for the use of all Business Project Leads, Project Managers, IMG Technical Project Leads, Project Leaders, Development Analysts, Database Designers and Developers involved in planning and delivering application systems for the Ministry of Forests.

All contractors engaged to perform all or some of the SDLC Phases are instructed to follow and conform to the SDLC outlined in this document, always producing the mandatory deliverables.

This must be specified in the Request for Proposal (RFP) and contract.

1.3 Other Standards

Other related standards can be found on the IMG Standards web page (<http://wwwinternal.for.gov.bc.ca/isb/sysguide/index.htm>).

While this guideline offers very specific guidance toward the preparation of the Design-Specification, the Ministry has several guidelines that provide direction for other aspects related to or affecting software design-considerations for Ministry applications.

a) Guidelines Relevant to Software Design	
Document Title	Focus area
GUI Development Standards Guide	Graphical User Interface
Process Modeling Guide	Process modelling
Data Modeling Guide	Data Modelling
Windows Help Standards	Presentation and automated-support
System Development to Windows Naming Standards	Naming convention
Web - IIS Application Development and Deployment Guide	Develop/deploy Internet-Information-Server Applications
Data Naming Standards for Systems Development Guide	Naming convention
Standard Code Tables in Relational Applications Guide	Data classification
To be continued...? (based on feedback)	tbc...

2.0 Specification Contents

For an application to be developed the following must be covered.

2.1 **Application objectives**

The overall objectives to be achieved by the application are described. (From the Project Charter and/or the Requirements)

2.2 **Summary and Application context**

An overview of the design reduced from the detailed sections of a specification. The intent is for the reader to obtain a concise understanding of a specification without having to read each and every section. Show how the application is placed in the ministry's context.

2.3 **Statement of application**

Show the primary inputs, process functions, and outputs presented at a high level using charts and diagrams. For example, context diagrams, HIPO charts Gane/Sarson diagrams, and generally stated process narratives would be appropriate.

2.4 **Architectural statement**

A description of the application's architecture is presented indicating how the application is to be deployed in the ministry's current infrastructure. Any exceptions should be listed.

2.5 **Major constraints affecting design**

Any constraints that will affect the manner in which the software is to be specified, designed, or implemented are discussed in this section. This would include, and not be limited by:

- Business constraints
- Infrastructure constraints
- Capacity
- Transaction Volumes
- Operating systems constraints
- Software type of language constraints
- Firmware constraints
- Other project dependency constraints
- Other software dependency constraints, i.e. features in a version of software not yet released with a planned release that meets scheduling criteria.
- Database constraints.
- Technical expertise/knowledge constraints, i.e. availability of appropriate human resources may require scheduling or pre-requisite training.

2.6 Data design

All Ministry applications must follow the Data Modelling standards documented in the guides listed in this document. If there are entities or attributes that are not on the Data Model for an agreed to reason between the Business Owner, Business Analyst and Data Analyst then they must be documented somewhere in a MoF compatible piece of software. If tables are created temporarily in an application, this is required on the Data Model.

2.7 Process Structure

A detailed description of the processing framework chosen for the application is presented. This description shall be in accordance with the Ministry's process modeling guidelines.

b) For each online software process component show:

Description: what is the screen for.

Screen Layout.

Business Rules.

Field Descriptions.

Controls.

Database Transactions.

c) For each batch software process component show.

Description of Batch Process

d) For each Reporting component show:

Description of report and its purpose. .

2.8 Restrictions, limitations, and constraints

Special design issues, which impact the design or implementation of the software, are stated here. An example of a design limitation would be the requirement that application software shall interact with existing databases and the physical structures of those databases cannot be altered. Whereas, an example of implementation constraint would be the need to convert pre-existing production data prior to implementation.

2.12 Security Model

Specify security model to be used.

2.13 Infrastructure Requirements

List required infrastructure.

Show the performance and capacity calculation to back-up this required infrastructure.

3.0 Appendices

Presents information that supplements the design specification.

3.1 *Requirements trace-ability matrix*

If relevant, a matrix that traces stated components and data structures to software requirements is stated.

3.2 *Other related documents*

Other related documents such as the related business requirement and project charter are referenced here.