Template for IDA Project (Project Id)

Template for specific development (Contract Id)

Change Control Procedure

Issue 1

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0 PREFACE

0.1 PURPOSE OF THIS DOCUMENT

#1 This document is a generic Change Control Procedure document for use by IDA Projects. It provides guidance and template material which is intended to assist the relevant management or technical staff, whether client or supplier, in producing a projectspecific Change Control Procedure document. It is also useful background reading for anyone involved in developing or monitoring the IDA Management System (IDAMS).

0.2 USE OF THIS DOCUMENT

#1 This Preface is addressed to the users of this generic document and is not meant to be retained in any projectspecific Change Control Procedure documents based on it.

#2 The remaining sections (numbered 1, 2, 3,…) constitute a template that should be used to construct the project-specific Change Control Procedure document.

- *Text in normal case is in the most part "boilerplate" that can be retained, amended or deleted in the document.*
- *Text in* italics *provides instructions on how to complete a section and should be removed once the section is written.*

#3 The template should be used pragmatically, that is - where a section is not relevant it should be omitted. Conversely, the material contained in this document is not necessarily exhaustive; if there is a subject that is relevant to the IDA Project, but is not included in this document, it should still be included.

#4 This document has been prepared using MS Word 97. The following variables are currently recorded as File "Properties" under MS Word. They may be modified by that means or overwritten directly at each occurrence in the document, at the discretion of the user.

a. <u>"Summary" Properties</u>

Title	Type of document (i.e. Change Control Procedure)
Author	Author(s) of document
Keywords	Document reference (i.e. IDA-MS-CCP)

b. <u>"Custom" Properties</u>

Proj Id	Short mnemonic of IDA Project (set, in this document, to "**Project Id**")
Project	Full name of IDA Project (set, in this document, to "**Template for IDA Project**")
Contr Id	Short identifier of contract (set, in this document, to "**Contract Id**")
Contract	Full name of contract (set, in this document, to "**Template for specific development**")
Version	Issue number (currently Issue 1)
Date	Date of document (currently 17 January 2001)

0.3 PURPOSE OF CONFIGURATION MANAGEMENT

#1 *Change Control is the process of handling proposed alterations to items that have been previously designated as fixed. This means that an item only becomes subject to change control once it has been signed-off, stored in a baseline and placed under configuration control. The aim of change control is to ensure that if a signed-off item is changed then*

a. all stakeholders have an opportunity to participate in the control of any subsequent changes

b. all recipients are made aware of any changes that occur

c. there is an audit trail which connects a change to a configuration item to the reason for its change, and which records the participation and authorisation of those people concerned with the change.

#2 *Proper change control requires definition of the:*

a. level of authority required to change each Configuration Item (CI);

b. methods for handling proposals for changing any CI.

#3 *As a configuration item passes through unit, integration, system and acceptance tests, a higher level of authority is needed to approve changes. This is called the promotion of a CI. Just as programmers sign off unit tests, team leaders sign off integration tests, and project leaders sign off system tests, so change approval demands a level of authority corresponding to the status of the CI.*

#4 *Changes occur naturally in the evolution of the software system. This evolution should be planned and implemented using controlled libraries of software and documentation. Changes can also occur because of problems in development or operation. Such changes require backtracking through the life cycle to ensure that the corrections are carried out at the appropriate level (e.g. system design or module design), and with the same degree of quality control as was used for the original development. The level of authority for each change depends on the part to be changed, and on the phase in the lifecycle that has been reached.*

#5 *Change control, whether it be for software, documentation or contractual matters, typically follows the following generic process:*

a. identify reason for change

b. investigate impact – configuration items to be changed, costs, timescales, risks

c. review change – accept or reject

d. make changes as agreed, and update configuration status

e. release changes.

#6 *Review of changes is normally undertaken by a nominated Change Review Board (CRB). This has the authority to accept or reject the change. Note, however, that its responsibilities should be wider than reviewing individual changes in isolation. It needs to take a broader and longer term view of a system and assess, for example*

a. *whether the number and extent of proposed changes indicate that requirements are changing, and the current system is unlikely to meet future requirements cost-effectively, and*

b. *whether a group of low-level software changes*

- *can be more cost-effectively implemented through a re-write of a higher-level module; or*
- *are symptomatic of a fault in the design, which should be rectified by re-design and re-write; or*
- *can be delayed for more cost-effective implementation within a batch containing additional future changes.*

#7 *This document contains procedures for three types of change control:*

a. *software change control*

b. *document change control*

c. *contractual change control.*

#8 *The underlying philosophy is the same, however the forms used, and the details of the procedures vary, so they are described separately.*

1 INTRODUCTION

1.1 PURPOSE

/1 This procedure defines how change control is handled in <*Project Id*>.

1.2 OVERVIEW

/1 There are three types of change control :

software change control

document change control

contract change control.

/2 The underlying philosophy is the same, however the forms and the details of the procedures varies so they are described separately.

1.3 DEFINITIONS

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1.4 ACRONYMS

CI	Configuration Item

2 SOFTWARE CHANGE CONTROL

#1 *This section of this procedure applies to software that has been placed under configuration management.*

#2 *Software problems can be reported at any stage in the lifecycle. Problems can fall into a number of categories according to the degree of regression in the life cycle - i.e. how far back you need to go to fix the problem. Problem categories include:*

- *operations error;*
- *user documentation does not conform to code;*
- *code does not conform to design;*
- *design does not conform to requirements;*
- *new or changed requirements.*

#3 *Selection of the problem category defines the phase of the lifecycle at which corrective action needs to start.*

2.1 DIAGNOSE PROBLEM

2.1.1 Identification of the Problem

/1 If a discrepancy between desired and actual behaviour is identified (this covers both “bugs” and modification requests) then Section A of a Problem Report Form (see Appendix A) should be completed. The Problem Report Form should be given a unique reference.

/2 The form should be passed to the individual responsible for the configuration management of the software (e.g. Maintenance Manager, project Technical Architect - known as the Controller). That individual should maintain a file of all such forms received, and place a copy of the form into that file.

/3 The individual should then arrange for a review of the issue on the form, this may be a bug that needs a fix or an enhancement that is being proposed.

2.1.2 Investigation

/1 The investigation may be performed by the Controller, or any other suitably knowledgeable individual. The investigator should record the results of the investigation in Section B of the Problem Report Form. The suggested action can include no action.

2.1.3 Review investigation results

/1 All parties with a legitimate interest in the software should review the results of the investigation. They may be formally constituted into a Software Change Review Board (SCRB). The Reviewers should indicate whether the recommended action arising from the investigation should be implemented or rejected.

/2 If the recommendations are rejected then the Controller should file the completed Problem Report Form for future reference.

/3 If the recommendations are accepted and a decision is made to implement then the process moves on to the next stage – Make changes.

2.2 MAKE CHANGES

/1 The fix may vary from a simple change to one software module to extensive changes to design, documentation and code. In all cases, the changes need to be tied back to the authorised Problem Report Form.

2.3 SOFTWARE CONFIGURATION CONTROL

/1 The Controller should log and file the Problem Report Form. The Fix should be allocated to developers and scheduled.

2.3.2 Fix

/1 The software should be fixed in line with the recommendations on the Problem Report Form.

/2 The new version of the software should be stored as a separate version in the configuration management (CM) library that holds the software. The change to the code should be identified in the relevant code headers, and also in any available comment fields in the CM library.

2.3.3 Test

/1 Test and verification activities should match the extent of the changes. All code should be tested, but if there are design and documentation changes then these should also be reviewed, and be subject to similar quality control measures as for a original development. The impact of the changes on other areas of the system should be assessed, and if the risk of introducing new problems is significant, then regression tests should be run.

2.4 RELEASE CHANGE

/1 Completed changes will be incorporated into a new release of the software. The release may include other changes as well, or may just include the changes required by the one Problem Report Form.

/2 The release is tracked on the Release Note (see Appendix B) using a unique release number.

/3 The Controller schedules the fix so that it is included in a controlled release of the revised system. This may be a matter of hours if the fix is an urgent bug-fix to keep the system running, or it may not occur for a number of weeks.

/4 The release may be performed by the Controller or another developer (known as the Releaser). The Releaser should record all release details on the Release Note. The release number should also be recorded on the original Problem Report Form.

/5 The Releaser arranges for the fix to be delivered and installed. Once the client has expressed satisfaction about the correctness of the fix, the releaser signs the Release Note and files it.

3 DOCUMENT CHANGE CONTROL

#1 *This section applies to documents that have been placed under configuration management.*

#2 *Document Change Control is very similar to Software Change Control; indeed changes to documents are sometimes triggered by a Problem Report Form. However, the following procedure is based upon use of a Change Control Form (see Appendix C). In general a Problem Report Form is used to record problems, while a Change Control Form is used to record proposed enhancements. As both lead to changes, in many situations the two forms are interchangeable.*

3.1 IDENTIFY NEED FOR DOCUMENT TO BE CHANGED

3.1.1 Identification of the enhancement

/1 If an enhancement to a document (e.g. a change required to a functional specification) is identified then Section A of a Change Control Form should be completed. The Change Control Form should be given a unique reference.

/2 The form should be passed to the individual responsible for the configuration management of the document (eg Author, project Technical Architect) known as the Controller. That individual should maintain a file of all such forms received, and place a copy of the form into that file.

/3 The individual should then arrange for a review of the issue on the form, this may be an error that needs correction or an enhancement that is being proposed.

3.1.2 Investigation

/1 The investigation may be performed by the Controller, or any other suitably knowledgeable individual. The investigator should record the results of the investigation in Section B of the Change Control Form. The suggested action can include no action.

1.1.1.1 Reviewers of the Investigation Results

/1 All parties with a legitimate interest in the document should review the results of the investigation. They may be formally constituted into a Change Review Board (CRB), or may more informally consist of designated representatives from project stakeholders. The Reviewers should indicate whether the recommended action arising from the investigation should be implemented or rejected.

/2 If the recommendations are rejected then the Controller should file the completed Change Control Form for future reference.

/3 If the recommendations are accepted and a decision is made to implement the change then the process moves on to the next stage: Change document.

1.2 CHANGE DOCUMENT

/1 The amendment to the document is tracked on the Change Control Form.

1.2.2 Update

/1 The Author should review the Change Control Form, and apply the change requested.

/2 The new version of the document should be stored as a separate version in the configuration management (CM) library that holds the documents. The change to the document should be identified in the change history of the document, and by marking-up the text.

1.2.3 Review

/1 The author should double-check that the change has been applied consistently and correctly to all relevant documents, but where beneficial a separate individual (known as the Reviewer) should also check the new version of the document. If it appears that the impact of the change on the system could be significant, full review of all other related documentation should be done.

/2 The reviewer completes the Change Control Form and signs it off when the review is complete.

1.3 RELEASE CHANGE

/1 The Controller schedules the change so that it is included in a controlled release of the revised document. This may be a matter of hours if the change is urgent and needed to keep the project running to schedule, or it may not occur for a number of weeks.

/2 The release is recorded on the Change Control Form.

/3 The release may be performed by the controller or the project manager (known as the Releaser). The Releaser should record all release details on the Change Control Form.

/4 The Releaser arranges for the new version of the document to be delivered to all its readers.

/5 The Releaser then signs the Change Control Form to indicate the change is complete.

2 CONTRACTUAL CHANGE CONTROL

#1 *Change control procedures may be included in contracts with suppliers. They should describe the processes for*

- *identifying reasons for change*
- *investigating impact – configuration items to be changed, costs, timescales, risks*
- *reviewing change – accept or reject.*

#2 *Note that the role of the Change Review Board (CRB) or its equivalent (represents of both parties to the contract who have sufficient authorisation to make contractual changes) is a crucial one: agreed changes will be contractually binding on both parties.*

#3 *Wording for a change control procedure for inclusion in a contract should be carefully checked. The approval of the Legal Service should be sought.*

#4 *The process for change control and configuration management of the contract document itself should be similar to that for documents described in Section 2 above.*

A PROBLEM REPORT FORM

Problem Report Form

Section A

Project / System	Give System Name	**Problem Reference Number**	
Location of Problem	Give Module, Screen or Report name	System Version Number	
Environment Details	Give details such as Operating System / Machine / Office / City / Country		
Problem Details Include indication of importance & any **Business Deadlines** Critical □ High □ Medium □ Low □	Give details such as : Specification that defines how the system should operate, Step-by-step description of what happened and how to reproduce the problem, Location of any supporting evidence (eg report, screen print, log file). Tick if Continued Overleaf □		
Problem Date	Give Date Problem Raised		
Person Raising Problem	Give Name, Organisation, and Contact Number		

Section B

Investigator of Problem	Print Name
Investigation Outcome	Suggested Action and details of other items affected
Suggested Priority Critical / High / Medium / Low	Give Schedule for Resolution
Release Number	

Signoff	Signature	Date
Reviewer		
Project Manager		

How to Use this Form
Problem Raiser completes ALL boxes in ***Section A*** and passes to Project Manager.
Project Manager arranges investigation of problem, depending on outcome problem is rejected, or given a priority, and sometimes a cost. Project Manager completes ***Section B***.
Form is then retained in project files.

B RELEASE NOTE

Release Note

Section A

Project / System	System Name
Problem Reference Numbers	List all problem reference numbers resolved by this Release
Changes in Release	Describe changes in this release
Items Being Changed	List **ALL** items being changed Tick if Continued Overleaf □
Installation Instructions	Give as much detail as possible or cross reference relevant documents Tick if Continued Overleaf □

Section B

Attachments

□ Source Code □ Build Scripts □ Executables □ Data □ Documentation Updates

Release Reference	Give reference number and / or date for release to customer
Signoff	Signature
Releaser	To indicate release is complete
Project Manager	To indicate release has been fully reviewed

How to Use this Form

Person Making Release completes ALL boxes in ***Section A*** and passes to Project Manager.

Project Manager reviews release pack and completes ***Section B***.

Form is then retained in project files

C CHANGE CONTROL FORM

Change Control Form

Section A

Project		Change Number	
Controlled Item		Item Version	
Identification of Aspect to be Change	For Document give section number / page number For Software give Module, Screen or Report name		
Change Details Include indication of importance and urgency		Tick if Continued Overleaf ☐	
Requester of Change Print Name		Date Raised	

Section B

Investigator of Change		
Impact, give details of other items affected		
Investigation Outcome Reject / Action at No Cost / Action at Cost	Suggested Priority High / Medium / Low	Date Investigated

Section C

Implementor		Date Scheduled

Section D

Change Implemented	Signature	Date
Implementator		
Project Manager		

How to Use this Form
Change Requester completes ALL boxes in ***Section A*** and passes to Project Manager.
Project Manager arranges investigation of request, depending on outcome request is rejected, or given a priority and cost, and with investigator completes ***Section B & C***, form is then retained in project files.
Once change is implemented ***Section D*** is signed-off.

DOCUMENT CONTROL

Title:	Change Control Procedure
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DOCUMENT SIGNOFF

Nature of Signoff	Person	Signature	Date	Role
Author	Mark Pillatt			Senior Consultant
Reviewer	John Brinkworth			Project Controller

DOCUMENT CHANGE RECORD

Date	Version	Author	Change Details
08 December 2000	Issue 1 Draft 1	Mark Pillatt	Initial Draft
14 December 2000	Issue 1 Draft 2	Mark Pillatt	Update following John Brinkworth review comments
15 January 2001	Issue 1 Draft 3	Sue Turner	Re-formatting
17 January 2001	Issue 1	Mark Pillatt	Add Introduction and issue