NOAA NESDIS
CENTER for SATELLITE APPLICATIONS and RESEARCH

DOCUMENT GUIDELINE

DG-5.4
PROJECT BASELINE REPORT GUIDELINE
Version 3.0

NOAA NESDIS STAR

DOCUMENT GUIDELINE
DG-5.4
Version: 3.0
Date: October 1, 2009

TITLE: Project Baseline Report Guideline

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TITLE: DG-5.4: PROJECT BASELINE REPORT GUIDELINE VERSION 3.0

AUTHORS:

Ken Jensen (Raytheon Information Solutions)

PROJECT BASELINE REPORT GUIDELINE
VERSION HISTORY SUMMARY

Version	Description	Revised Sections	Date
1.0	No version 1.0.		
2.0	New Document Guideline (DG-6.2) adapted from CMMI guidelines by Ken Jensen (Raytheon Information Solutions)	New Document	03/30/2008
3.0	Renamed DG-5.4 and revised by Ken Jensen	1, 2	10/1/2009

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LIST OF ACRONYMS

BB	Baseline Build
CDR	Critical Design Review
CICS	Cooperative Institute for Climate Studies
CIMSS	Cooperative Institute for Meteorological Satellite Studies
CIOSS	Cooperative Institute for Oceanographic Satellite Studies
CIRA	Cooperative Institute for Research in the Atmosphere
CM	Configuration Management
CMMI	Capability Maturity Model Integration
CREST	Cooperative Remote Sensing and Technology Center
CTR	Code Test Review
DG	Document Guideline
EPL	Enterprise Product Lifecycle
NESDIS	National Environmental Satellite, Data, and Information Service
NOAA	National Oceanic and Atmospheric Administration
PAR	Process Asset Repository
PBR	Project Baseline Report
PDR	Preliminary Design Review
PG	Process Guideline
PRR	Project Requirements Review
RCS	Revision Control System
SEI	Software Engineering Institute
SG	Stakeholder Guideline
SRR	System Readiness Review
STAR	Center for Satellite Applications and Research
TD	Training Document
TG	Task Guideline
TRR	Test Readiness Review

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1. INTRODUCTION

The NOAA/NESDIS Center for Satellite Applications and Research (STAR) develops a diverse spectrum of complex, often interrelated, environmental algorithms and software systems. These systems are developed through extensive research programs, and transitioned from research to operations when a sufficient level of maturity and end-user acceptance is achieved. Progress is often iterative, with subsequent deliveries providing additional robustness and functionality. Development and deployment is distributed, involving STAR, the Cooperative Institutes (CICS, CIMSS, CIOSS, CIRA, CREST) distributed throughout the US, multiple support contractors, and NESDIS Operations.

NESDIS/STAR is implementing an increased level of process maturity to support the exchange of these software systems from one location or platform to another. The Project Baseline Report (PBR) is one component of this process.

1.1. Objective

The objective of this Document Guideline (DG) is to provide STAR standards for the PBR. The intended users of this DG are the personnel assigned by the Project Lead to the task of creating a PBR for the project.

1.2. The Project Baseline Report

The PBR is the document that describes the status of the configuration items that comprise the project baseline. As a project progresses through the STAR Enterprise Product Lifecycle (EPL)[1], the project baseline is updated through a sequence of Baseline Builds (BB). The BBs are described in detail in several STAR EPL process assets, including the STAR EPL Process Guidelines (PG-1), and the STAR CM/DM Stakeholder Guidelines (SG-4).

Version 1 of the PBR should document the status of the project baseline through the conclusion of the Plan phase of the STAR EPL.

- PBR v1r0, produced for the Gate 3 Review [2], should include a listing of all project artifacts that are included in BB 1.0.

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[1] For a description of the STAR EPL, refer to the STAR EPL Process Guidelines (PG-1).

[2] Refer to the STAR EPL Process Guidelines (PG-1 and PG-1.A) for a description of the STAR EPL gates and reviews.

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- PBR v1r1 should include a listing of all project artifacts that are included in BB 1.1. This should include a Gate 3 Review Report and all post-Gate 3 revisions to project artifacts that are made before the completion of the Gate 3 Review Report.

Version 2 of the PBR should document the status of the project baseline through the conclusion of the Design phase of the STAR EPL.

- PBR v2r0, produced for the Project Requirements Review (PRR), should include a listing of all project artifacts that are included in BB 2.0 This includes all revisions to project artifacts as a result of Gate 3 Review actions and the addition of PRR artifacts.

- PBR v2r1 should include a listing of all project artifacts that are included in BB 2.1. This should include a PRR Report and all post-PRR revisions to project artifacts that are made before the completion of the PRR Report.

- PBR v2r2, produced for the Preliminary Design Review (PDR), should include a listing of all project artifacts that are included in BB 2.2. This includes all revisions to project artifacts as a result of PRR actions and the addition of PDR artifacts.

- PBR v2r3 should include a listing of all project artifacts that are included in BB 2.3. This should include a PDR Report and all post-PDR revisions to project artifacts that are made before the completion of the PDR Report.

- PBR v2r4, produced for the Critical Design Review (CDR), should include a listing of all project artifacts that are included in BB 2.4. This includes all revisions to project artifacts as a result of PDR actions and the addition of CDR artifacts.

- PBR v2r5, produced for the Gate 4 Review, should include a listing of all project artifacts that are included in BB 2.5. This should include all post-CDR revisions to project artifacts and the addition of the CDR Report.

- PBR v2r6 should include a listing of all project artifacts that are included in BB 2.6. This should include a Gate 4 Review Report and all post-Gate 4 revisions to project artifacts that are made before the completion of the Gate 4 Review Report.

Version 3 of the PBR is intended to document the status of the project baseline through the conclusion of the Build phase of the STAR EPL.

- PBR v3r0, produced for the Test Readiness Review (TRR), should include a listing of all project artifacts that are included in BB 3.0 This includes all revisions to project artifacts as a result of Gate 4 Review actions and the addition of TRR artifacts.

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- PBR v3r1 should include a listing of all project artifacts that are included in BB 3.1. This should include a TRR Report and all post-TRR revisions to project artifacts that are made before the completion of the TRR Report.

- PBR v3r2, produced for the Code Test Review (CTR), should include a listing of all project artifacts that are included in BB 3.2 This includes all revisions to project artifacts as a result of TRR actions and the addition of CTR artifacts.

- PBR v3r3 should include a listing of all project artifacts that are included in BB 3.3. This should include a CTR Report and all post-CTR revisions to project artifacts that are made before the completion of the CTR Report.

- PBR v3r4, produced for the System Readiness Review (SRR), should include a listing of all project artifacts that are included in BB 3.4 This includes all revisions to project artifacts as a result of CTR actions and the addition of SRR artifacts.

- PBR v3r5, produced for the Gate 5 Review, should include a listing of all project artifacts that are included in BB 3.5. This should include all post-SRR revisions to project artifacts and the addition of the SRR Report.

- PBR v3r6 should include a listing of all project artifacts that are included in BB 3.6. This should include a Development Project Report, a Gate 5 Review Report and all post-Gate 5 revisions to project artifacts that are made before the completion of the Gate 5 Review Report.

Following Gate 5 Review, ownership of the project baseline passes to the agency responsible for operations and maintenance (O&M). It is expected that the O&M agency will maintain a PBR according to its standards.

The PBR should be developed as a Microsoft Word document. Upon approval, the approved version of the PBR may be converted to an Adobe pdf file for storage in the project artifact repository.

1.3. Background

This DG defines guidelines for producing a PBR. This DG has been adapted from Capability Maturity Model Integration (CMMI) guidelines (CMMI-DEV-v1.2, 2006). It has been tailored to fit the STAR EPL process.

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1.4. Benefits

A PBR developed in accordance with the standards in this DG assists the development team to provide necessary quality assurance of the products and product components. It is therefore a requirement that a PBR be developed in accordance with the guidelines in this document.

1.5. Overview

This DG contains the following sections:

Section 1.0 -   Introduction
Section 2.0 -   References
Section 3.0 -   Standard Table of Contents
Section 4.0 -   Section Guidelines
Appendix A -   Examples
Appendix B -   Templates

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2. REFERENCE DOCUMENTS

All of the following references are STAR EPL process assets that are accessible in a STAR EPL Process Asset Repository (PAR) on the STAR web site:

http://www.star.nesdis.noaa.gov/star/EPL_index.php.

PG-1: STAR EPL Process Guideline, provides a description of the standard practices of the STAR EPL.

PG-1.A: STAR EPL Process Guideline Appendix, is a Microsoft Excel file that contains the STAR EPL process matrix (Stakeholder/Process Step matrix), listings of the process assets and standard artifacts, descriptions of process gates and reviews, and descriptions of stakeholder roles and functions.

DG-0.1: STAR Document Style Guideline is a STAR EPL Document Guideline (DG) that provides STAR standards for the style and appearance of STAR documents developed as Microsoft Word files. This document will be accessible to approved users in the STAR EPL PAR.

TG-5: STAR EPL Step 5 Task Guidelines provides a description of standard tasks for process step 5, during which the PBR is initially developed.

SG-4: STAR CM/DM Stakeholder Guidelines provides a description of standard tasks for STAR CM/DM stakeholders, who will be responsible for establishing and maintaining the project baseline and PBR.

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3.   STANDARD TABLE OF CONTENTS

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LIST OF TABLES

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2.0   CONFIGURATION MANAGEMENT

2.1   Configuration Environment

2.2   Configuration Management Tools

2.3   Configuration Management Procedures

3.0   CONFIGURATION ITEMS

4.0   LIST OF REFERENCES

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4. SECTION GUIDELINES

This section contains the STAR guidelines for each section of the PBR.

The PBR should follow the STAR standard for style and appearance, as stated in DG-0.1.

4.1. Table of Contents

The Table of Contents can be inserted by using Word's Insert → Reference → Index and Tables → Table of Contents function or by pasting the Table of Contents from this DG into your document and updating it for the section headers you make for your document. Use a page break if necessary to ensure that the Table of Contents appears at the top of a page.

4.2. List of Figures

A List of Figures should be provided after the Table of Contents. A page break should be used if necessary to ensure that the List of Figures appears at the top of a page. To create a List of Figures, use Word's Insert → Reference → Index and Tables → Table of Figures function, selecting the "Table of Figures" Style. Alternatively, the List of Figures can be created by pasting the List of Figures for this DG into your document.

Figures should be created by using Word's Insert → Picture → From File function or Word's Insert → Object function. Figures should be numbered X.Y, where X is the main section number where the figure resides and Y = 1,N is the ordered number of the figure in the section. Figure captions should have Arial bold 12 point font, should be center justified, and should have a "Table of Figures" Style. A Figure Caption template is provided in Appendix B of this DG.

4.3. List of Tables

A List of Tables should be provided after the List of Figures. The List of Tables can appear on the same page as the List of Figures, with three blank lines separating them, provided both lists can fit on the same page. If both lists cannot fit on the same page, a page break should be used to ensure that the List of Tables appears at the top of a page.

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To create a List of Tables, use Word's Insert → Reference → Index and Tables → Table of Figures function, selecting the "Table - Header" Style. Alternatively, the List of Tables can be created by pasting the List of Tables for this DG into your document.

Tables should be created with the Table → Insert → Table function. Tables should be numbered X.Y, where X is the main section number where the table resides and Y = 1,N is the ordered number of the table in the section. Table titles should have Arial bold 12 point font, should be center justified, and should have a "Table - Header" Style. A Table Title template is provided in Appendix B of this DG. Table text should have Arial regular 10 point font.

4.4. List of Acronyms

The use of acronyms is encouraged. A two word or longer name for an item (e.g., Project Baseline Report) should be given an acronym (e.g., PBR) if the name is used more than once in the document. A List of Acronyms should be provided after the List of Tables. The List of Acronyms should be in alphanumeric order. Use the List of Acronyms in this DG as a template. A page break should be used if necessary to ensure that the List of Acronyms appears at the top of a page.

4.5. Section 1 – Introduction

The PBR shall include an Introduction Section. This section shall include

- A well-defined purpose and function for the document
- Specific intended user(s)
- How the intended user(s) should use the document
- A responsible entity for generating the document
- A responsible entity for review/approval of the document
- A responsible entity for storage, accessibility, and dissemination
- A brief overview of the contents of each main section

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4.6. Section 2 – Configuration Management

Identify and describe the environment, tools, and procedures for the configuration management of the project baseline.

- A "Configuration Environment" subsection should identify the physical location or locations for the configuration items. Specify hardware, directories, web interfaces where approved users can obtain access to these items.

- A "Configuration Management Tools" subsection should identify and describe tools used for CM of the baseline (e.g. RCS, Subversion, ClearCase) at a level of detail sufficient for a reviewer to verify that CM tools are adequate to provide the expected control of the baseline. Desirable, but not necessary, is a description with a level of detail that is sufficient for a user to be able to use the tools to obtain and possibly modify configuration items.

- A "Configuration Management Procedures" subsection should describe the procedures for making approved changes to the baseline (adding, deleting, or modifying configuration items). The description can be in the form of text, bulleted text, tables, flow diagrams, or some combination of these.

4.7. Section 3 – Configuration Items

List the items (all code, test data and documents) in the project baseline. For each item, identify its location (e.g. server and directory), important characteristics (e.g., author/owner, document or file type, and programming language for software code files), its change history, and its approval status (this is usually the approval date). The description can be in the form of a table, text, bulleted text, or some combination of the above. Code items and document items may be listed in separate tables or separate subsections.

It is recommended that the list of configuration items be maintained and updated in a Microsoft Excel spreadsheet that can be imported into this document as a figure or table. Supplement the table with text if a more detailed description is desired.

What is essential is that a reviewer of this section be able to verify that all items identified in the project artifacts for the current stage of project development are in the project baseline under configuration control.

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4.8. Section 4 – List of References

This section should consist of a List of References that includes all references cited in the document. Include all references deemed useful by the Product Team. References should be listed in alphabetical order. References that begin with an author list should begin with the last name of the lead author. A template is provided in Appendix B.

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APPENDIX A - EXAMPLES

An example of a PBR that follows the STAR standards and guidelines will be developed and made accessible from the STAR Process Asset Repository (PAR).

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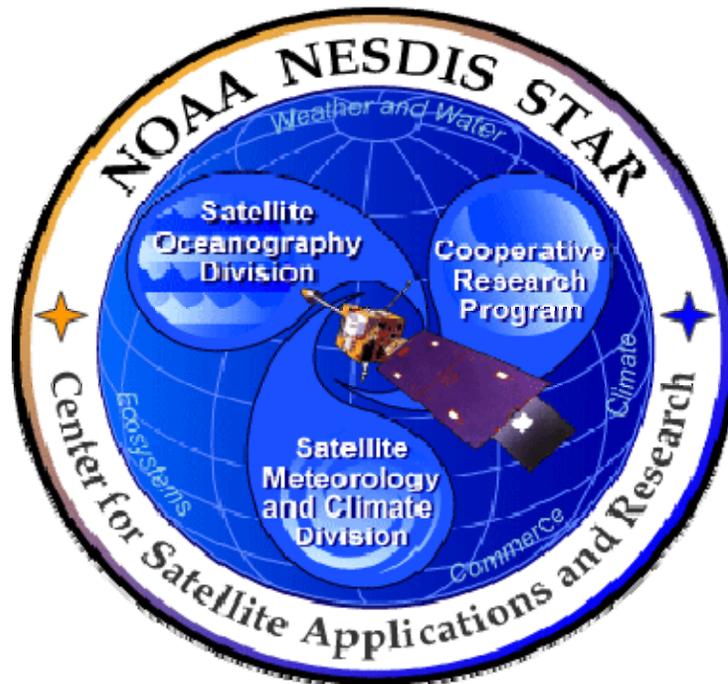Version: 3.0
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APPENDIX B - TEMPLATES

This appendix contains templates for specific pages and sections of the PBR.

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B.1 Cover Page Template:

In this template, <X> = 1.0 for version 1, <X> = 1.1 for version 1 revision 1, <X> = 2.0 for version 2 etc. <Project Name> should be the actual approved name of the Project.

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and RESEARCH

<PROJECT NAME>
PROJECT BASELINE REPORT
Version <X>

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B.2   Document Header Template:

In this template, <X> = 1.0 for version 1, <X> = 1.1 for version 1 revision 1, <X> = 2.0 for version 2 etc.

In this template, <Project Name> should be the actual approved name of the Project.

In this template, <Y> = the actual page number.

In this template, <Z> = the actual total number of pages

NOAA/NESDIS/STAR

PROJECT BASELINE REPORT
Version: <X>
Date: <Date of Latest Signature Approval>

<Project Name>
Project Baseline Report

Page <Y> of <Z>

B.3   Document Cover Page Footer Template:

Hardcopy Uncontrolled

B.4   Document Footer Template:

Hardcopy Uncontrolled

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B.5 Approval Page Template:

In this template, <X> = 1.0 for version 1, <X> = 1.1 for version 1 revision 1, <X> = 2.0 for version 2 etc. <Project Name> should be the actual approved name of the Project.

TITLE: <PROJECT NAME> PROJECT BASELINE REPORT VERSION <X>

AUTHORS:

<Lead Author>

<Co-Author 1>

<Co-Author 2>

<etc.>

APPROVAL SIGNATURES:

_____ <u><Actual Signature Date></u>
   <Name of Project Development Lead>   Date
   Project Development Lead

_____ <u><Actual Signature Date></u>
   <Name of Project Manager>   Date
   Project Manager

_____ <u><Actual Signature Date></u>
   <Name of Agency Approver>   Date
   Agency

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B.6   Version History Page Template:

In this template, <Project Name> should be the actual approved name of the Project.

<PROJECT NAME>
PROJECT BASELINE REPORT
VERSION HISTORY SUMMARY

Version	Description	Revised Sections	Date
1.0	Created by <Name of Developer(s)> of <Name of Developers' Agency/Company> for Baseline Build 1.0	New Document	<Actual date of Latest approval signature>
1.1	Revised by <Name of Developer(s)> of <Name of Developers' Agency/Company> for Baseline Build 1.1	<applicable sections, usually Section 3>	<Actual date of Latest approval signature>
2.0	Revised by <Name of Developer(s)> of <Name of Developers' Agency/Company> for Baseline Build 2.0	<applicable sections, usually Section 3>	<Actual date of Latest approval signature>
etc.			
etc.			

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B.7 **Figure Caption Template:**

Figure 2.3 - <Figure caption in Arial regular 12 point font>

B.8 **Table Title Template:**

Table 4.5 - <Table title in Arial regular 12 point font>

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B.9   List of References Template:

Ackerman, S. *et al.* (1997). Discriminating clear-sky from cloud with MODIS: Algorithm Theoretical Basis Document, Version 3.2.

Asrar, G., M. Fuchs, E. T. Kanemasu, and J. L. Hatfield (1984). Estimating absorbed photosynthetically active radiation and leaf area index from spectral reflectance in wheat. *Agron. J.*, 76:300-306.

Bauer, E., and Kohavi, R., (1998). An empirical comparison of voting classification algorithms: bagging, boosting, and variants, *Machine Learning*, **5**: 1-38.

Bonan, G.B. (1995). Land-atmosphere interactions for climate system models: Coupling biophysical, biogeochemical, and ecosystem dynamical processes. *Remote Sens. Environ.*, 51:57-73.

Food and Agriculture Organization of the United Nations*, Digital Soil Map of the World and Derived Soil Properties-Version 3.5*, FAO/UNESCO, Rome, 1995.

Friedl, M. A., and C.E. Brodley (1997). Decision tree classification of land cover from remotely sensed data. *Remote Sens. Environ.*, 61:399-409.

Scepan, J. (1999), Thematic validation of high-resolution global land-cover data sets. *Photogramm. Eng. Remote Sens.*, 65:1051-1060.

Shukla, J., C. Nobre, and P. Sellers (1990). Amazon deforestation and climate change. *Science*, 247:1322-1325.

Wilson, M.F., and A. Henderson-Sellers (1985). A global archive of land cover and soils data for use in general circulation models. *J. Clim.*, 5:119-143.

Wu, A., Z. Li, and J. Cihlar (1995). Effects of land cover type and greenness on advanced very high resolution radiometer bidirectional reflectances: analysis and removal. *J. Geophys. Res.*, 100: 9179-9192.

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