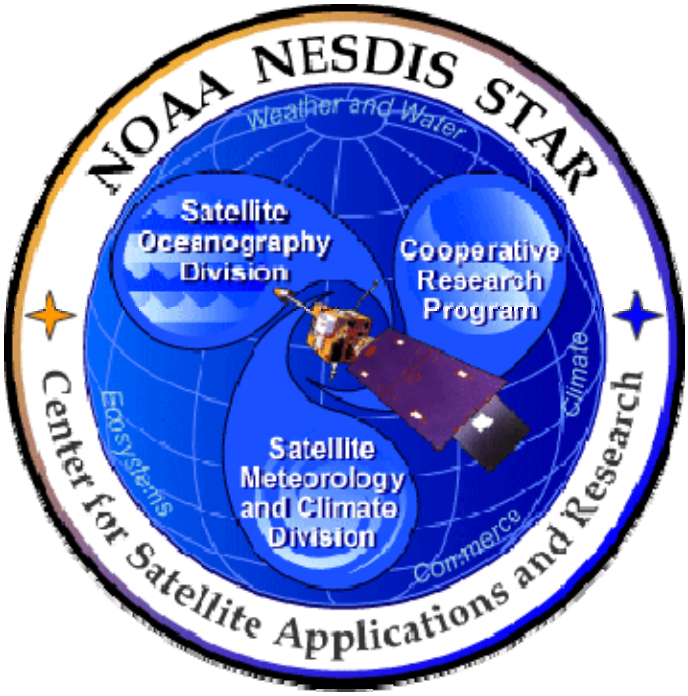

NOAA NESDIS
CENTER for SATELLITE APPLICATIONS and RESEARCH

DOCUMENTATION GUIDELINE

DG-11.3
METADATA DOCUMENT GUIDELINE
Version 3.0

TITLE: DG-11.3: METADATA DOCUMENT GUIDELINE VERSION 3.0

AUTHORS:

Ken Jensen (Raytheon Information Solutions)

METADATA DOCUMENT GUIDELINE
VERSION HISTORY SUMMARY

Version	Description	Revised Sections	Date
1.0	New Documentation Guideline (DG-11.4) adapted from SPSRB draft guidelines by Ken Jensen (Raytheon Information Solutions)	New Document	05/05/2006
1.1	Revision by Ken Jensen (Raytheon Information Solutions). Added Section 3. Renumbered later sections. Applied STAR standard style to entire document.	All	06/02/2006
2.0	Revision by Ken Jensen (Raytheon Information Solutions. Removed Section 3. Renumbered later sections.		10/19/2007
3.0	Renamed DG-11.3 and revised by Ken Jensen (RIS) for version 3. Substantial revision responding to NESDIS requirements for ISO metadata.	All	10/1/2009

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LIST OF ACRONYMS

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
CL	Check List
CL	Check List Item
CREST	Cooperative Remote Sensing and Technology Center
DDD	Detailed Design Document
DG	Document Guideline
DSA	Data Submission Agreement
EPL	Enterprise Project Lifecycle
MDD	Metadata Document
NESDIS	National Environmental Satellite, Data, and Information Service
NOAA	National Oceanic and Atmospheric Administration
PAR	Process Asset Repository
PG	Process Guideline
PRG	Peer Review Guideline
SPSRB	Satellite Products and Services Review Board
SRR	System Readiness Review
STAR	Center for Satellite Applications and Research
TG	Task Guideline

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 Metadata Document (MDD) is one component of this process.

1.1. Objective

The objective of this Document Guideline (DG) is to provide STAR standards for the Metadata Document. The intended users of this DG are the personnel assigned by the Development Lead to the task of creating a product MDD.

1.2. The Metadata Document

The purpose of the MDD is to provide information that addresses NESDIS (ISO) guidelines for data providers to describe the content, quality, condition and characteristics of data generated by the product application system.

A separate MDD is produced for each distinct product in the STAR Enterprise during the Build phase of the STAR Enterprise Product Lifecycle (EPL)[1]. The MDD is a standard artifact for the System Readiness Review (SRR)[2].

The content of the MDD is intended to be used as primary input for populating Data Submission Agreements (DSA) that will be used to request the archival of a product at NOAA Data Centers. Typically, the MDD is prepared by personnel designated by the Development Lead.

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

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

1.3. Background

This DG defines guidelines for producing an MDD. This DG has been adapted from the draft Satellite Products and Services Review Board (SPSRB) Standard Documentation guidelines. It has been tailored to fit the STAR EPL process.

1.4. Benefits

An MDD developed in accordance with the standards in this DG will be compliant with NESDIS (ISO) standards. It is therefore a requirement that the MDD be developed in accordance with the guidelines in this document before pre-operational code is approved for transition to operations. The MDD will be reviewed at the SRR to help determine whether the pre-operational product system is ready for transition to operations.

1.5. Overview

This DG contains the following sections:

Section 1.0	-	Introduction
Section 2.0	-	References
Section 3.0	-	Document Generation Tools
Section 4.0	-	Standard Table of Contents
Section 5.0	-	Section Guidelines
Appendix A		Templates
Appendix B		Example Document

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 the definitive description of the standard set of processes of the STAR EPL.

PG-1.A: STAR EPL Process Guideline Appendix, an appendix to PG-1, 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.

PRG-11.1: System Readiness Review Guidelines are the guidelines for the SRR. It is useful for the developer of the VVR to understand what the reviewers will expect when reviewing the VVR.

CL-11.1: System Readiness Review Check List is the check list for the SRR. It is useful for the developer of the VVR to understand the specific Check List items (CLI) that the reviewers of the VVR will be required to approve.

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

TG-11: STAR EPL System Integration and Test Task Guidelines provides a description of standard tasks for process step 11, during which the MDD is developed.

3. STANDARD TABLE OF CONTENTS

4. SECTION GUIDELINES

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

4.1 Section 1 – Introduction

The MDD 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

4.2 Section 2 – Metadata Production System

The MDD shall include a Metadata Production System Section. This section should discuss the software components and tools that generate the system metadata.

There should be subsections for Programs and Tools

The subsection for Programs should describe the software programs that are used to generate metadata.

The subsection for Tools should describe any tools that are used to generate metadata.

4.3 Section 3 – Metadata Data Sets

The MDD shall include a Metadata Data Sets Section. This section should describe the input and output metadata files.

There should be subsections for Input Data Files and Output Data Files

The subsection for Input Data Files should describe all input files used by the metadata generation programs and tools at a detailed design level, including purpose and function, file structure and contents. Use separate subsections for each input data file. Refer to the appropriate DDD for information on the detailed design of these files.

The subsection for Output Data Files should describe all output files used by the metadata generation programs and tools at a detailed design level, including purpose and function, file structure and contents. Use separate subsections for each output data file. Refer to the appropriate DDD for information on the detailed design of these files.

4.4 Section 4 – List of References

The MDD shall include an List of References Section. This section should consist of a List of References that includes all references cited in the document.

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 G.

4.5 Appendix A – Metadata Samples

The MDD shall include an Appendix that provides a dump of the contents of metadata data sets. The purpose is to give metadata file users an example from which they can verify their own metadata reader. A partial dump will usually suffice, as long as the contents of the partial dump are sufficient to allow users to verify their readers.

The Appendix should include each metadata data set that is deemed useful to the users. If more than one data set is dumped, use separate subsections for each data set.

APPENDIX A - TEMPLATES

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

A.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.

NOAA NESDIS
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<PROJECT NAME>
METADATA DOCUMENT

Version <X>

A.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

METADATA DOCUMENT
Version: <X>
Date: <Date of Latest Signature Approval>

<Project Name>
Metadata Document

Page <Y> of <Z>

A.3 Document Cover Page Footer Template:

Hardcopy Uncontrolled

A.4 Document Footer Template:

A.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> METADATA DOCUMENT VERSION <X>

AUTHORS:

<Lead Author>

<Co-Author 1>

<Co-Author 2>

<etc.>

APPROVAL SIGNATURES:

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

_____ <Actual Signature Date>
<Name of Product Area Lead> Date
Product Area Lead

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

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

A.6 Version History Page Template:

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

<PROJECT NAME>
METADATA DOCUMENT
VERSION HISTORY SUMMARY

Version	Description	Revised Sections	Date
1.0	Created by <Name of Developer(s)> of <Name of Developers' Agency/Company> for <Project Name> Critical Design Review.	New Document	<Actual date of Latest approval signature>
1.1	[As needed] Revised by <Name of Developer(s)> of <Name of Developers' Agency/Company> to reflect design changes.	<applicable sections>	<Actual date of Latest approval signature>
1.2	Ditto	Ditto	Ditto
2.0	Revised by <Name of Developer(s)> of <Name of Developers' Agency/Company> to add specific metadata content produced by the pre-operational code		
2.1	[As needed] Revised by <Name of Developer(s)> of <Name of Developers' Agency/Company> to reflect metadata content changes.	Ditto	Ditto
etc.			

A.7 Figure Caption Template:

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

A.8 Table Title Template:

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

A.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.

APPENDIX B – EXAMPLE DOCUMENT

An example of an MDD that follows the STAR standards and guidelines will be placed in the STAR EPL PAR.

END OF DOCUMENT