

**ELECTRONIC TECHNICAL MANUAL
OPERATION PLAN (ETMOP) for 2RI IETM
PROCESS (2RIIP) IETMs - Version 1.8**

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SECTION 1

INTRODUCTION

The purpose of this document is to define the overall project architecture and functional requirements of the 2RI IETM PROCESS (2RIIP) Interactive Electronic Technical Manuals (IETMs). Data and images used in the IETM shall meet the requirement of this document. All corrections required due to verification and review shall be incorporated. Data shall conform to the requirements specified in the Technical Manual Contract Requirement (TMCR) and this document.

1-1 Purpose

This document is intended to be used by all activities developing and delivering 2RIIP IETMs.

1-1.1 Background. The 2RI IETM, like most IETMs designed 5 years ago, was a great step forward when conceived and developed; but, the 2RI IETM is now incompatible with the evolving distribution process, particularly Technical Data Knowledge Management (TDKM) which is located on the Navy Information Application Product Suite (NIAPS) server. NIAPS incompatibility with the executable products of the Tamino, Pamina, and Apache applications used in the development of the 2RI IETMs necessitated a re-engineered IETM.

NSWC PHD VB revised the existing 2RI IETM development process to eliminate executables by using Extensible Stylesheet Language Transformations (XSLTs) in the 2RIIP re-engineered IETM. XSLT displays Extensible Markup Language (XML) data in Internet Explorer by transforming the XML data into Hyper Text Markup Language (HTML), which tells the Web Browser how to display the page. This approach eliminates the need for a launcher (Pamina) and an additional web server (Apache), thus eliminating all the executables involved. A publishing tool (also developed by NSWC PHD VB) bundles the XSLTs, HTML and, creates the Advanced Technical Information Support System (ATIS) files.

1-2 Audience

The intended audience for this document includes Technical Manual Management Activities (TMMAs), Subject Matter Experts (SMEs), In-Service Engineering Agents (ISEAs), Program Managers, and contractors/developers.

1-3 Reference Documents

The documents listed below were used as guidance in the development of this document. Unless otherwise specified, the issues of these documents are those listed in the latest issue of the Department of Defense Index of Specifications and Standards (DoDISS), and supplements thereto, and are referenced for guidance only. Unless otherwise indicated, copies of the below specifications, standards, and handbooks are available from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.

1-3.1 Government.

- DoD Directive 5000.1, "The Defense Acquisition System,"
- DoD Instruction 5000.2, "Operation of the Defense Acquisition System,"
- DoD 5220.22-M - National Industrial Security Program Operating Manual (NISPOM)
- DoD Directive 5230.24 - Distribution Statements on Technical Documents References

- DoD 5230.25 - Control of Unclassified Technical Data with Military of Space Application
- DON XML Policy DON XML Naming and Design Rules MIL-PRF-28002C - Raster Graphics Representation in Binary Format, Requirements for. Navy Standards for Integrated Shipboard Network System (ISNS) Standards

1-3.2 Commercial. ANSI X3.5-1966 - Flow Chart Symbols and Their Usage in Information Processing
IEEE 945-84 - IEEE Recommended Practice for Preferred Metric Units for Use in Electrical and Electronics Science and Technology

W3C Recommendations:

- XML Schema Part 1: Structures
- XML Schema Part 2: Datatypes
- Extensible Stylesheet Language (XSL)
- XSL Transformation (XSLT)
- XML Path Language (XPath)
- Scalable Vector Graphics (SVG) Specification
- XML Linking Language (XLink)
- XML Query Language (XQuery)

1-4 Source Data

The format of all digital source files shall be in accordance with the TMCR and this document. Source data is defined as editable text or image files that can be modified within the program that created it or modified using another program with similar capabilities. The contractor shall utilize data provided as Government Furnished Information (GFI) or data currently being developed under other contracts to the fullest extent possible in the development of the technical data described herein.

1-4.1 General Requirements. Data and images in digital form, developed in accordance with this document, shall meet the requirements contained within the TMCR and this document. Corrections required as a result of reviews/verifications shall be incorporated. It is the source files to which all subsequent changes and updates must be made to maintain the IETM data throughout its operational life.

1-4.2 Textual Source File Requirements. Textual material developed in accordance with this document is referred to as a text source file. A complete XML-tagged source file(s) of all text data (XML Instance) is a mandatory part of each final IETM product.

1-4.3 Image and Multimedia Source File Requirements. Images, multimedia and other graphic material shall be developed in accordance with this document and the TMCR. This data is referred to as an image/multimedia source file (non-xml content). Image source files for all illustrations shall be a mandatory part of each final data product.

1-5 Human Systems Integration

Human System Integration is a multi-disciplinary marriage of system engineering and behavior science that is predominantly concerned with the safety, performance and interactions of the human with other elements (e.g. hardware, software) of the system. When designing data, graphics or multimedia to populate an IETM, careful consideration should be given to how the end-user may perceive and interpret the information.

SECTION 2

ROLES AND RESPONSIBILITIES

2-1 Government

The TMMA and the IETM Team are responsible for ensuring that data requirements, functionality, updates, reviews, validation, deployment, certification, and management of 2RIIP IETMs are adequately supported. The TMMA will make every effort to ensure that the IETM Team contains adequate representation from project engineers, ISEAs, contractors, and training commands. A brief description of responsibilities for these representatives is described below.

- TMMA. Responsible for implementation, execution and management of IETM processes supporting Systems; provides the IETM developers with engineering and technical data from ISEAs; assigns Technical Manual Identification Number (TMIN), Volume ID numbers, TMCRs, and stock numbers for IETM.
- IETM Team. Responsible for ensuring IETM data requirements are supported, IETM functionality is supported and reviewed, participation in IPRs and validation/verification.
- Project Engineer. Defines technical requirements for the system and assists in interpreting and validating technical information that will produce the IETM and courseware.
- ISEA. The Government agent for technical issues and provides additional technical support functions; part of the verification team for the IETM. Provides proposed changes and alterations to the deliverable products; provides engineering and technical data to the TMMA.
- Contractor. Provides technical data for the system and prepares the IETM data content (see Appendix B Section 1).
- Training Command. Responsible for ensuring that the IETM reflects the current Navy Training System Plan (NTSP), in accordance with technical data, and a usable aide in the training command.

SECTION 3

PEO 2RI IETM OVERVIEW

3-1 General Project Architecture

The 2RIIP IETM will utilize the Standard NAVSEA Integrated Publishing Process (SNIPP). This is a conforming process for the acquisition, development, maintenance, storage and distribution of Naval Sea Systems Command (NAVSEA) Technical Manuals. This process ensures that Technical Manuals are produced in conformance with approved specifications, and meets the needs of the current Navy infrastructure, security requirements and Fleet and other user display requirements.

The Content@ XML data management and publishing solution will store all 2RIIP IETMs. Contractors will develop the IETMs using the existing 15 XML and non-XML schemas. With the IETM, NSWC PHD VB also developed unique ID elements, XSLTs and, Cascading Style Sheets (CSS) to the 15 XML/Non-XML IETM schemas. NSWC PHD (or the requiring activity) will download/upload existing files needed by contractors for developing revised data. The Contractors will deliver to NSWC PHD VB (or the requiring activity), the final data for uploading into Content@.

NSWC PHD VB (or the requiring activity) will provide contractors with a program to build the IETM during development. This will allow them to see what the IETM will look like and review their data (see Appendix A for details on how to use the build tool).

3-1.1 Schema. The schema defines the organization and hierarchical structure of tagged data within the database thereby acting as the database map. The Schema also provides support for data typing where applicable. The IETM schemas were defined using the W3C XML schema definition language. The schema is an essential part of the project and encompasses all types of data including text, tables, images, multimedia, etc.

Schemas and Electronic Technical Manual Operation Plan (ETMOP) content developed for the 2RIIP IETM shall be the responsibility of the Government. Suggestions for modifications may be submitted to the TMMA for consideration. Suggestions should include the benefits of performing such modifications; however, implementation shall be at the discretion of the Government. Modifications resulting in a version change to any schema shall apply to the schema authoring guidelines as well and shall be distributed to the contractor upon completion.

3-1.2 2RIIP IETM Data. The IETMs contain technical information including, but not limited to, maintenance data, operation data, functional descriptions, troubleshooting, parts lists, and installation. Functional descriptions should include data that describes who, what, when, where, why, and how the system, subsystems, and other parts function down to the lowest repairable unit.

3-2 System Requirements for Viewing IETM

IETMs developed in accordance with the TMCR and this document are designed to run based on the following system requirements.

- Windows 2000+ Operating System
- 512 MB Random Access Memory (RAM)
- Screen resolution of 800 × 600
- Microsoft Internet Explorer® Version 5.5+

- Pentium III/233 w/512K Cache
- CD-ROM drive (48 or higher)
- Super Video Graphics Array (SVGA) video card
- Sound card with speakers/headphones
- 700 MB of available hard disk space

3-2.1 Browser Plug-ins. Plug-ins are software programs that extend the capabilities of the browser. The following plug ins may be required in order to view parts of the IETM.

- Macromedia Flash Player
- Adobe Acrobat Reader
- Microsoft Media Player

NOTE

When developing data that utilizes plug-ins, it is important to design the data to the currently approved ISNS standards or Navy Marine Corps Intranet (NMCI) Core Build. You must have Internet access in order to test and/or install browser plug-ins. For computer systems under the cognizance of ISNS/IT 21 or NMCI, administrator privileges may be required in order to install plug ins if they are not already installed on the computer that you are using to view the IETM.

3-2.1.1 Macromedia Flash/Shockwave™ Players. IETMs may contain animated demonstrations for which you may need Macromedia Flash/Shockwave™ players. These players can be downloaded and installed at no cost from the Macromedia® Website.

3-2.1.1.1 Test to determine if Macromedia Flash/Shockwave™ Player plug-ins are installed.

To test for installation of the Flash/Shockwave players, visit Macromedia's Flash test page at <http://www.macromedia.com/shockwave/welcome>. If you cannot see the animations on that page, download and install the recommended version of the Flash player.

3-2.1.2 Adobe Acrobat Reader. IETMs may contain Portable Document Format (PDF) files for which you will need Adobe Acrobat Reader™. This plug-in may be downloaded and installed at no cost from the Adobe® Website.

3-2.1.3 Microsoft Windows Media Player. IETMs may contain animated demonstrations for which you will need Microsoft Windows Media™ player. This player can be downloaded and installed at no cost from the Microsoft® Website.

SECTION 4

2RIIP IETM DEVELOPMENT REQUIREMENTS

4-1 Legacy Technical Manual Conversion/IETM New Development

Whether converting a legacy technical manual or developing a new IETM, each pose a unique situation where the baseline document may contain alterations that are embedded in the baseline manual but are directly related to equipment changes/alterations (e.g. Field Changes), Technical Manual Deficiency/Evaluation Report (TMDER(s)) or general updates. Care must be taken to ensure that each equipment alteration that is tagged only applies to that particular equipment change/alteration. Alterations shall be tagged separately whereas TMDER and general updates shall be directly updated in the baseline. Updates based on alterations shall be tagged using the field change schema. Updates resulting from equipment changes/alterations that are tagged as configuration changes require a review by an SME/ISEA in order to determine if the change is applicable to the baseline or specific to that particular alteration.

4-2 Technical Manual Identification Number (TMIN)

The TMIN number is a tracking number assigned by the TMMA. It is used by the 2RIIP IETM process to associate all the information that composes a particular IETM based on a configuration of the system. When tagging, developers must ensure that the TMIN matches on all applicable documents for an IETM version. The TMIN number acts as a primary key within the IETM. This TMIN number must match the applicable TMIN listed in the configuration element of the RadarList.xml document (see Appendix B for more details).

4-2.1 Revision TMIN Designation. Revisions to IETMs, which are a result of an alteration (Field Change, Ordance Alteration (ORDALT), or Ship Alteration (SHIPALT)), TMDER, or general update, shall be implemented as either a superseding or non-superseding revision. This will be determined by the TMMA prior to development of the revision IETM. Revision designations shall be assigned by the TMMA and provided to each contractor.

Revisions to IETMs shall be initiated based on an equipment change or alteration. The IETM shall be tagged in accordance with the applicable field change or alteration, permitting the user to only see the data applicable to a particular configuration of a system.

Table 4-1. Revision TMIN Designations Example			
TMIN	Baseline/FieldChange/ ORDALT/SHIPALT Designation		Revision
SE212-V9-IEM-010	010	Baseline	Superseding
SE212-V9-IEM-A10	A10	Field Change 1	Non-Superseding
SE212-V9-IEM-B10	B10	Field Change 2	Non-Superseding

There is more than one time where the baseline IETM will incorporate several Field Changes. In these cases a new TMIN and volume I.D. is acquired. The title of the IETM would state for example AN/SPS-48E Radar Set with Field Changes 1,2,3,4 and 5.

4-3 2-D Drawings, Illustrations, and Schematics

Two dimensional drawings, illustrations, and schematics may be delivered in several different formats. The individual program governs the choice of format based on the following information.

- Nature of the image
- Intended use of the image
- Software tools used to create the image
- Hardware and software available to users for viewing the image

Two-dimensional drawings, illustrations and schematics intended for static image presentations are usually delivered in either a raster (bitmap) or vector format. The raster formats are recommended for the simple capture of existing drawings not already in an acceptable vector format and also half-tone images, and photographs.

NOTE

Vector formats are required for all new 2-D drawings, schematics, and illustrations to be delivered to the Government. Acceptable raster and vector formats are discussed in the following sections.

4-4 Image Conversion

Conversion of legacy data (bitmap and raster) to digital (vector) involves careful business decisions regarding what to convert and what format the conversion should deliver.

- Conversion of drawings or images (hard copy) to vector formats is more expensive than conversion to bitmap or raster format but the vector format can be more versatile and easier to update.
- Before deciding the target conversion format, you should carefully assess the legacy images for
 1. Their importance
 2. Their future usefulness with respect to product life cycle and maintenance
 3. Their anticipated frequency of use and modification
- Drawings that will require frequent modifications are best candidates for vector conversion because the vector formats are easier to modify.
- Conversion to the raster format is generally cheaper and provides a bitmap image of the original that is not easy to modify. However, a desirable measure of human intervention should be included in the conversion process to improve the vector images and to minimize file sizes.
- Images that are not converted to SVGs can be embedded in an SVG using the <image> element. For more information see the World Wide Web Consortium's SVG 1.1 Recommendation.

SECTION 5

AUTHORING GUIDELINES

5-1 Schemas

Refer to Appendix C for a list of current schemas.

NOTE

The use of empty elements is strongly discouraged except for circumstances listed in this document. In most cases empty elements will cause the Radar IETM application to not function properly.

5-2 Optional Functionality

The following optional functionality may be incorporated into an IETM based upon a mutual agreement between the Government and contractor/data developer.

- Wire/Fluid System Tracing: The capability to select wires, fluid, or signal flows in a diagram or schematic using a right or double click function and have continuity highlighted through the circuit or schematic diagrams or to generate a pop-up window identifying the path of the circuit/signal and links to enable following the flow of the circuit or signal between diagrams.
- System Simulation: Capability to identify continuity in wiring diagrams and circuit simulation, for passive and active circuits including activating switches applying power, etc. The goal is to simulate signal flow, fluid flow or other internal system processes in order to demonstrate system operations for training, troubleshooting and fault isolation needs.
- Assembly/Disassembly: Images shall be included that can be used to allow virtual assembly, disassembly, removal, and installation of parts of the system. These can be implemented through linked drawings or through manipulation of modeled vector graphics. In cases where modeling and animation are not cost effective due to the limitations of source data, video or pictures should be used.
- Audio: Examples of these include operator alerts, presentation clips, and complete audio representation of the data. Consideration must be given to the anticipated environment to determine the usability of audio.
- Video: Motion video may be used to show or reinforce a procedure. Presentation standards must be addressed as well as content, duration and context of the video.
- Animation: Animation may be used to show a variety of system functions from theory of operations (signal flows) to maintenance procedures (how to access a specific part or an illustrated parts breakdown).

SECTION 6

DELIVERABLES

6-1 Government Furnished Information/Property (GFI/GFP)

6-1.1 Electronic Technical Manual Operation Plan (ETMOP).

6-1.2 Schemas. See Appendix C.

6-1.3 2RI IETM PROCESS (2RIIP) Authoring Guide. See Appendix B.

6-2 Contractor

6-2.1 XML Tagged Documents(s).

- AudioVideoList.xml (as applicable)
- Function.xml (required)
- GeneralInformation.xml (required)
- ImageList.xml (required)
- IncludeTable.xml (as applicable)
- IncludeText.xml (as applicable)
- Installation.xml (required)
- IntroductionMaterial.xml (required)
- Operation.xml (required)
- PartsList.xml (required)
- RadarList.xml (required)
- Troubleshooting.xml (required)
- WireList.xml (as applicable)

6-2.2 Source Data. Digital data resources or source data (libraries of historical data) used to generate data deliverables.

6-2.3 Electronic Data Development Plan (EDDP). See paragraph 1.2 of Appendix B for requirements.

6-2.4 Quality Assurance (QA) Plan. See TMCR for requirements.

6-2.5 Validation/Verification Plan (Val/Ver) Plan. See TMCR for requirements.

SECTION 7

ABBREVIATIONS/ACRONYMS

Table 7-1. Glossary	
Abbreviation/Acronym	Meaning
2RIIP	2RI IETM Process
ACN	Advanced Change Notice
ASF	Advanced Systems Format
ATIS	Advanced Technical Information Support System
AVI	Audio Video Interleaved
BIT	Built-In Tests
BMP	BitMap
CAGE	Commercial And Government Entity
CD-ROM	Compact Disc Read-Only-Memory
COTS	Commercial Off The Shelf
CSS	Cascading Style Sheets
DoD	Department of Defense
DoDISS	Department of Defense Index of Specifications and Standards
DON CIO	Department of Navy Chief Information Officer
EDDP	Electronic Data Development Plan
ESD	Electrostatic Discharge
ETMOP	Electronic Technical Manual Organization Plan
IETM	Interactive Electronic Technical Manual
GFI/GFP	Government Furnished Information/Property
GIF	Graphic Interchange Format
GUI	Graphic User Interface
HTML	Hyper Text Markup Language
IPR	In Process Review
ISEA	In-Service Engineering Activity
ISNS	Integrated Shipboard Network System
IT-21	Information Technology for the 21st Century
JPEG/JPG	Joint Photographic Experts Group

Table 7-1. Glossary	
Abbreviation/Acronym	Meaning
MOV	QuickTime Movie
MP3	Motion Picture Experts Group Audio layer 3
MPEG/MPG	Motion Picture Experts Group
N/A	Not Applicable
NAVSEA	Naval Sea Systems Command
NIAPS	Navy Information Application Product Suite
NISPOM	National Industrial Security Program Operating Manual
NTSP	Navy Training System Plan
NMCI	Navy Marine Corps Intranet
NSDSA	Naval System Data Support Activity
NSWC PHD	Naval Surface Warfare Center Port Hueneme Division
NTSP	Navy Training System Plan
ORDALT	Ordance Alteration
PARM	Program Acquisition Resource Manager
PDF	Portable Document Format
PEO	Program Executive Office
PNG	Portable Network Graphic
QA	Quality Assurance
RA / RM / RAM	Real Player
RAM	Random Access Memory
RAC	Rapid Action Change
SHIPALT	Ship Alteration
SME	Subject Matter Expert
SM&R	Source, Maintenance and Recoverability
SNIPP	Standard NAVSEA Integrated Publishing Process
SOW	Statement of Work
SPAWAR	Naval Space and Warfare Command, Charleston Division Norfolk Detachment
SVG	Scalable Vector Graphic
SVGA	Super Video Graphics Array
TDKM	Technical Data Knowledge Management

Table 7-1. Glossary	
Abbreviation/Acronym	Meaning
TDMIS	Technical Data Management Information System
TIFF	Tagged Image File Format
TMCR	Technical Manual Contract Requirement
TMDER	Technical Manual Deficiency/Evaluation Report
TMIN	Technical Manual Identification Number
TMMA	Technical Manual Management Activity/Agent
TOC	Table of Contents
W3C	World Wide Web Consortium
WAV	Windows Wave (audio format file extension)
WEA	Web-Enabled Application
WMA	Windows Media Audio
WMV	Windows Media Video
XML	Extensible Markup Language
XSL	Extensible Stylesheet Language
XSLT	Extensible Stylesheet Language Transformation

Appendix A
2RI PROCESS (2RIIP) GUIDELINES

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SECTION 1

INTRODUCTION

This document serves as a guideline to define: the folder architecture, the build tool instructions for publishing, the launcher instructions, and the functionality in the Graphical User Interface (GUI). This document will provide step-by-step instructions, as well as, descriptions to familiarize the user with the 2RIIP PROCESS (2RIIP).

SECTION 2

FOLDER ARCHITECTURE

2-1 Folder Set Up

Before you can build a 2RI IETM the data architecture needs to be set up according to these instructions. The folders contained on the GFI source data CD-ROM of the 2RI IETM are already predefined and set up accordingly. The folder path is set to copy to the local drive C:\. To ensure that the data folders are set up properly complete the following steps:

1. Open the GFI source data CD-ROM. The content of the CD contains a zip file.
2. Unzip the file and copy the contents to the predefined path.
3. Once the folder is unzipped, it will contain a main folder named 2RI_IETM which contains the subfolders: bin, input, output, schema, and temp folder.

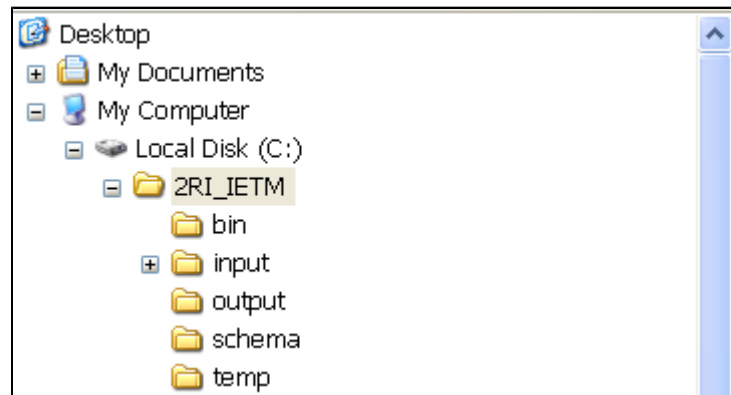


Figure 2-1. Set Up Example

2-2 Folder Description

Below is a break down and familiarization of each folder to ensure the contents are correct and the folders are set up properly.

2-2.1 Bin Folder. This folder contains the subfolders: ietm_files folder which are the build files, saxon folder which is the parser, and xslt folder which contain the stylesheets for XML transformations.

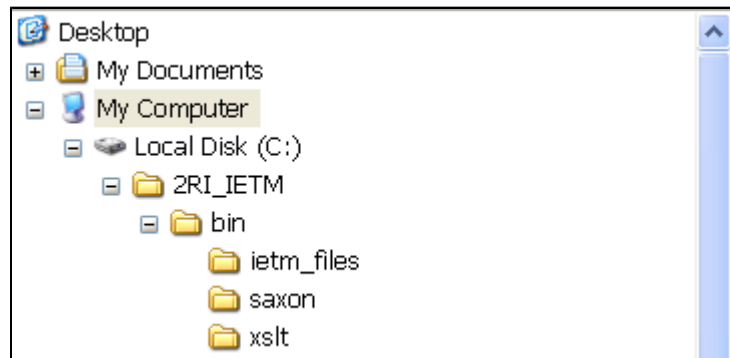


Figure 2-2. Bin Folder Example

NOTE

Do not change the contents of the bin directory unless instructed by NSW PHD VB.

2-2.1.1 ietm files. This folder contains all the files needed to build the IETM. The build files include all the html files and the subfolders: css, help_files and images. The images folder contains the interface or GUI images; this is not to be confused with the graphics folder located in the input folder which contain all the SVGs.

2-2.2 Input Folder. The input folder is the base location for tech manual data. This folder contains the master_data folder and the RadarList.xml file.

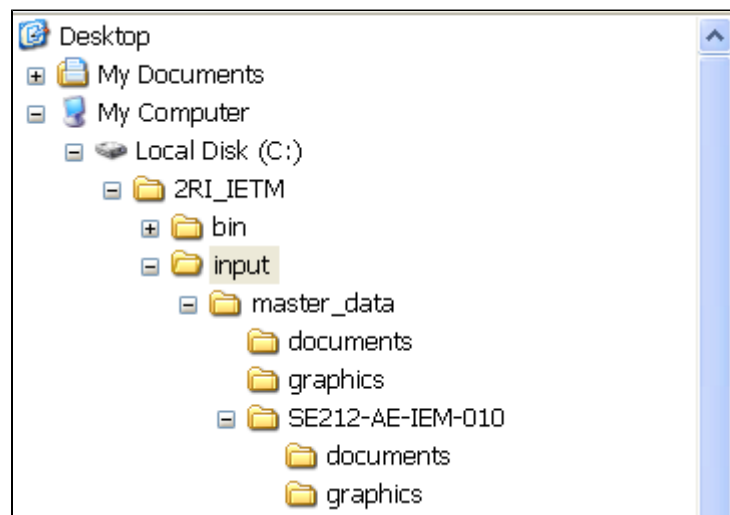


Figure 2-3. Input Folder Example

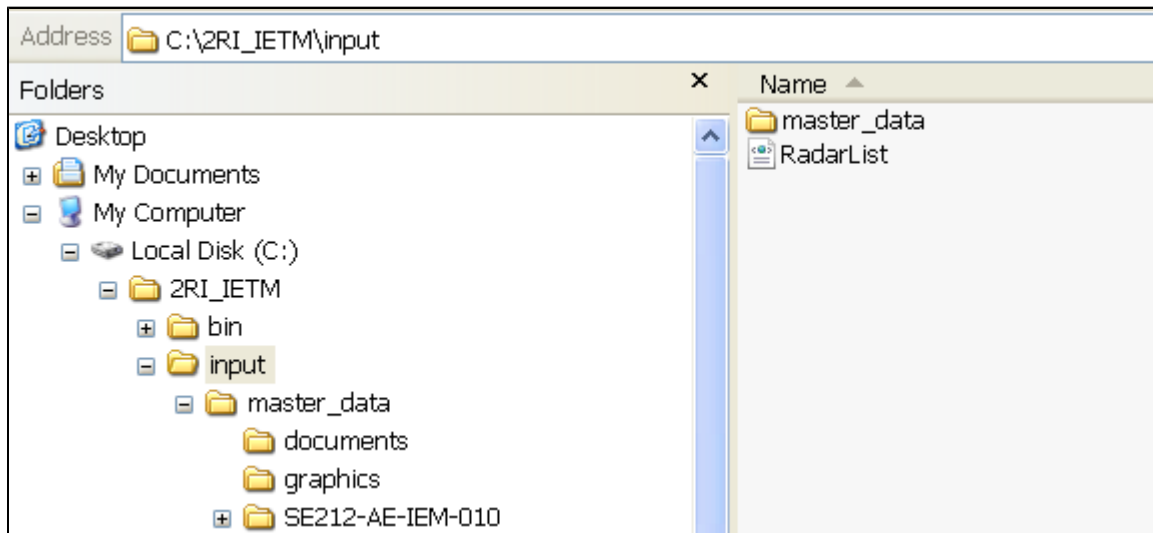


Figure 2-4. Input Folder Example 2

2-2.2.1 Master Data Folder This folder contains the master xml data and the subfolders "documents" and "graphics". These two folders contain all the related non-xml data such as .PDFs and images applicable to all configurations. Additionally, each configuration must also have a folder inside the master_data directory. This folder must be named with the configuration's TMINs specified in the RadarList.xml file. The configuration folder must contain "documents" and "graphics" subdirectories which are used to hold non-xml data applicable only to that configuration. Non-xml files such as .PDFs and video files are placed in the "documents" folder while all SVG and image graphics should be placed in the "graphics" folder.

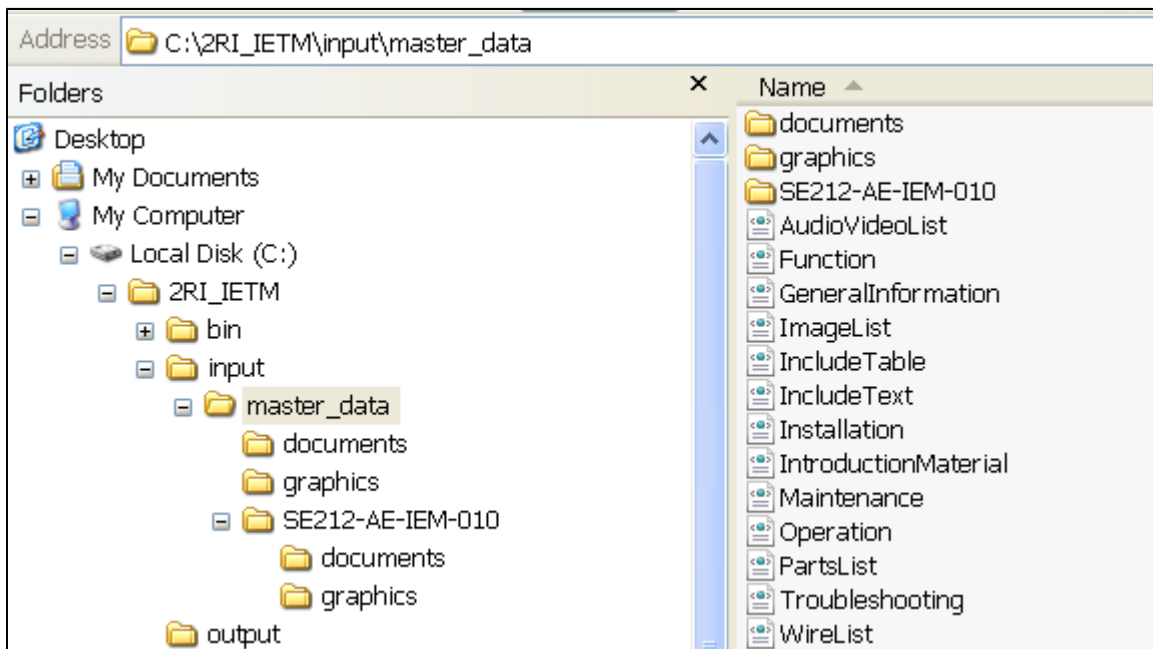


Figure 2-5. Master Data Folder Example

2-2.3 Output Folder. Initially this folder is empty. It is the result of 2ri_ietm_build.pl, which is the CD build tool.

The publishing tool gathers the content found in both the bin and input folders then renders the appropriate output based on the TMIN selected. These output files are placed in the output folder.

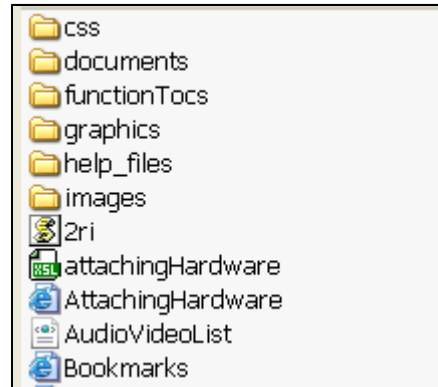


Figure 2-6. Output Folder Example

2-2.4 Schema Folder. This folder contains the most current Schemas.

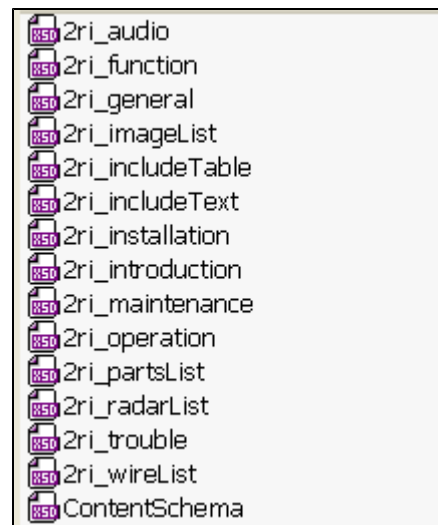


Figure 2-7. Schema Folder Example

2-2.5 Temp Folder. This folder holds temporary data used during an IETM build.

SECTION 3

CD BUILD

3-1 2RI PROCESS Build Tool

The 2RIIP Build Tool is used to bundle the 2RI IETM xml and non-xml data into a folder from where a CD-ROM may be made. Below is a step-by-step instruction on how to use the 2RIIP Build Tool.

1. Open the GFI CD-ROM containing the build tool. Copy the build tool to the bin directory of the 2RI_IETM folder. C:\2RI_IETM\bin

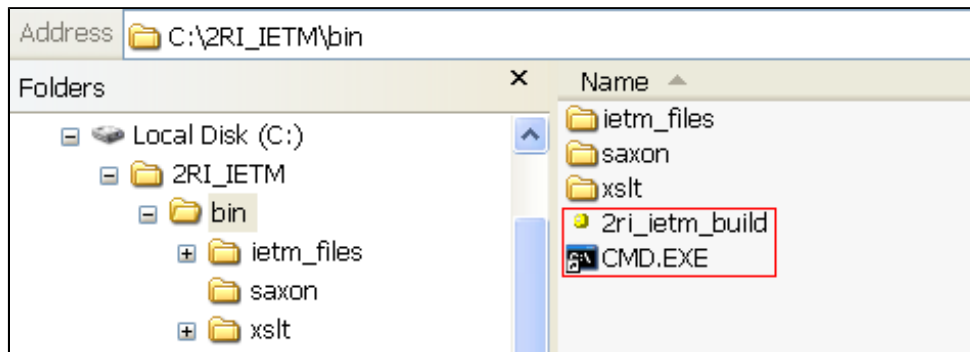


Figure 3-1. Build Tool

2. Double click on the command window shortcut (CMD.exe) located in the bin directory. The first line in the command window is the location of the bin directory where the build tool is contained.

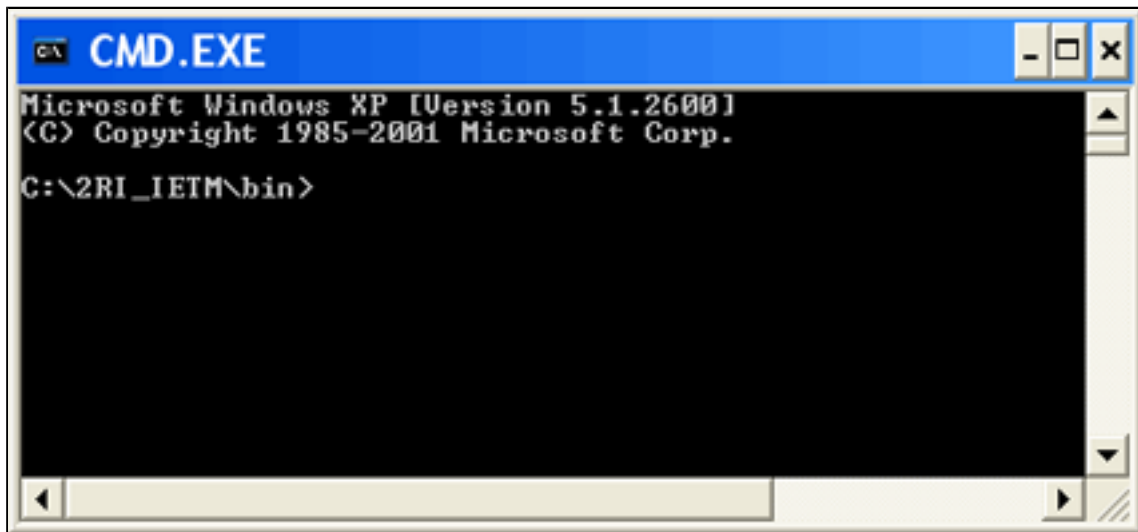


Figure 3-2. Build Step 1

3. Type in "2ri_ietm_build.pl" in the command line and press enter to start the 2RIIP Build Tool.

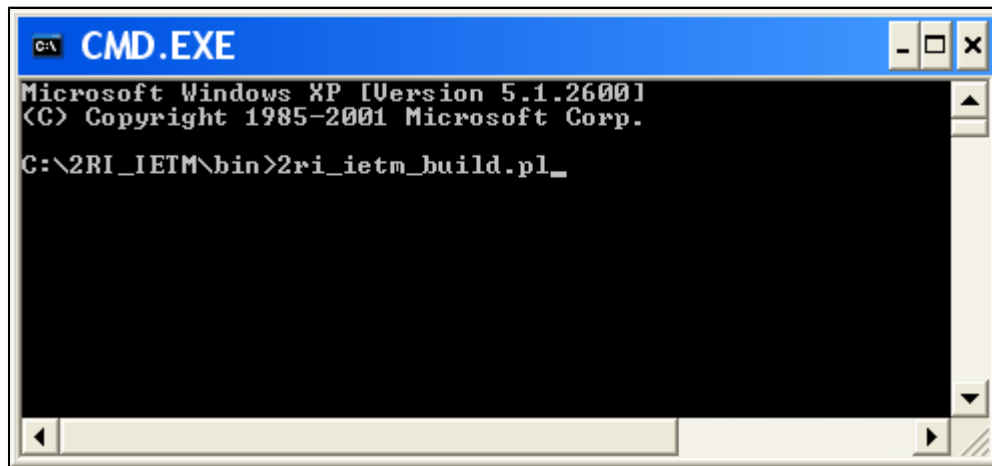


Figure 3-3. Build Step 2

4. The user is prompted to "Enter selection:"

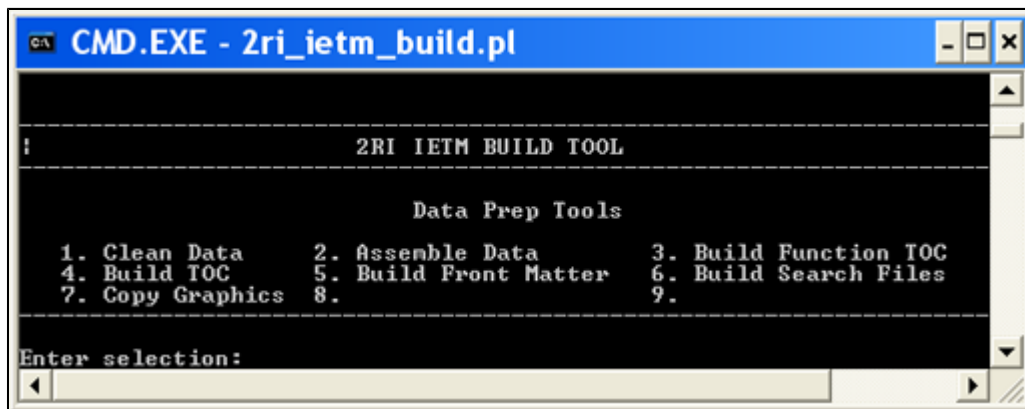


Figure 3-4. Build Step 3

5. Type in the number "1" and press enter to start the first step in the Data Prep Tool. This brings up a configuration list of all the radars and their associated TMIN numbers.

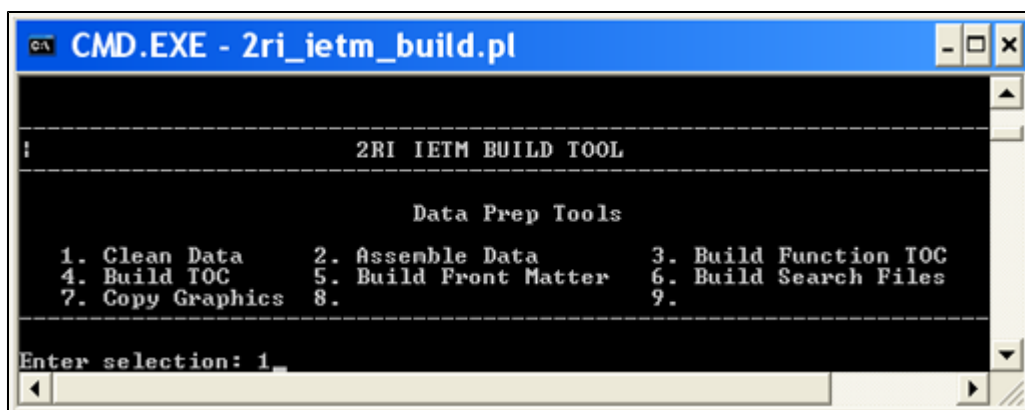
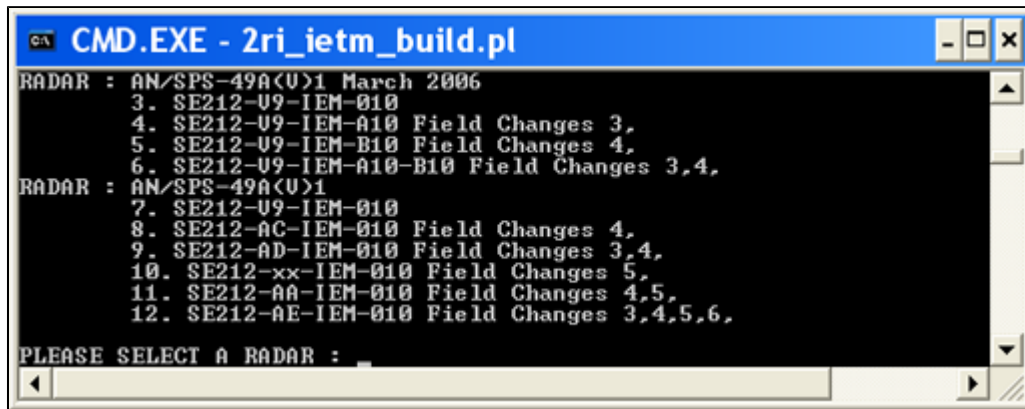


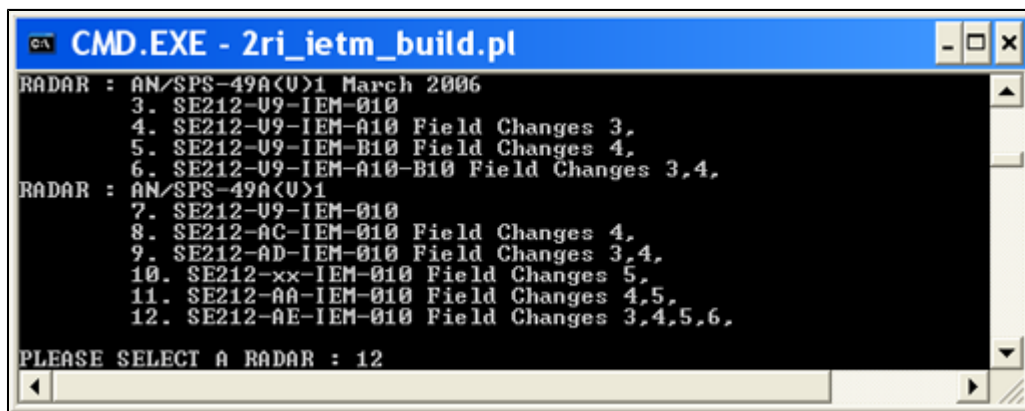
Figure 3-5. Build Step 4

6. The user is prompted to "PLEASE SELECT A RADAR:". Type in the number of the radar based on the TMIN number you choose to build and press enter.



```
CMD.EXE - 2ri_ietm_build.pl
RADAR : AN/SPS-49A(U)1 March 2006
3. SE212-U9-IEM-010
4. SE212-U9-IEM-A10 Field Changes 3,
5. SE212-U9-IEM-B10 Field Changes 4,
6. SE212-U9-IEM-A10-B10 Field Changes 3,4,
RADAR : AN/SPS-49A(U)1
7. SE212-U9-IEM-010
8. SE212-AC-IEM-010 Field Changes 4,
9. SE212-AD-IEM-010 Field Changes 3,4,
10. SE212-xx-IEM-010 Field Changes 5,
11. SE212-AA-IEM-010 Field Changes 4,5,
12. SE212-AE-IEM-010 Field Changes 3,4,5,6,
PLEASE SELECT A RADAR : 
```

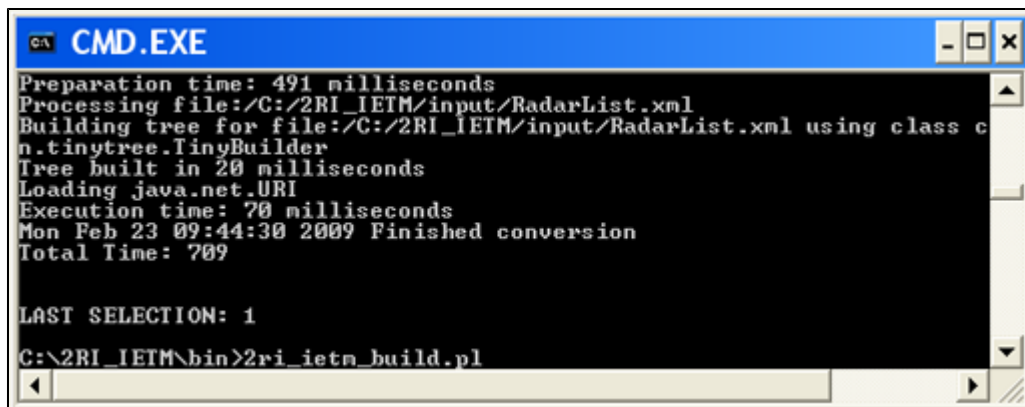
Figure 3-6. Build Step 5



```
CMD.EXE - 2ri_ietm_build.pl
RADAR : AN/SPS-49A(U)1 March 2006
3. SE212-U9-IEM-010
4. SE212-U9-IEM-A10 Field Changes 3,
5. SE212-U9-IEM-B10 Field Changes 4,
6. SE212-U9-IEM-A10-B10 Field Changes 3,4,
RADAR : AN/SPS-49A(U)1
7. SE212-U9-IEM-010
8. SE212-AC-IEM-010 Field Changes 4,
9. SE212-AD-IEM-010 Field Changes 3,4,
10. SE212-xx-IEM-010 Field Changes 5,
11. SE212-AA-IEM-010 Field Changes 4,5,
12. SE212-AE-IEM-010 Field Changes 3,4,5,6,
PLEASE SELECT A RADAR : 12
```

Figure 3-7. Build Step 6

7. When a step is done running the user is informed of the last selection ran by displaying: "LAST SELECTION:" and the selection number chosen in the Data Prep Tools menu list.



```
CMD.EXE
Preparation time: 491 milliseconds
Processing file:/C:/2RI_IETM/input/RadarList.xml
Building tree for file:/C:/2RI_IETM/input/RadarList.xml using class c
n.tinytree.TinyBuilder
Tree built in 20 milliseconds
Loading java.net.URI
Execution time: 70 milliseconds
Mon Feb 23 09:44:30 2009 Finished conversion
Total Time: 709

LAST SELECTION: 1
C:\2RI_IETM\bin>2ri_ietm_build.pl
```

Figure 3-8. Build Step 7

8. To select the next step in the Data Prep Tools menu list the user can either: Retype "2ri_ietm_build.pl" in the command window line and press enter.

OR

Use the up arrow key on the keyboard to recall 2ri_ietm_build.pl in the command line and press enter.

9. Continue to select each step in the Data Prep Tools menu until the final step is finished. Remember after each step the user is informed of the Last Selection: and selection number; this ensures that the step has finished.

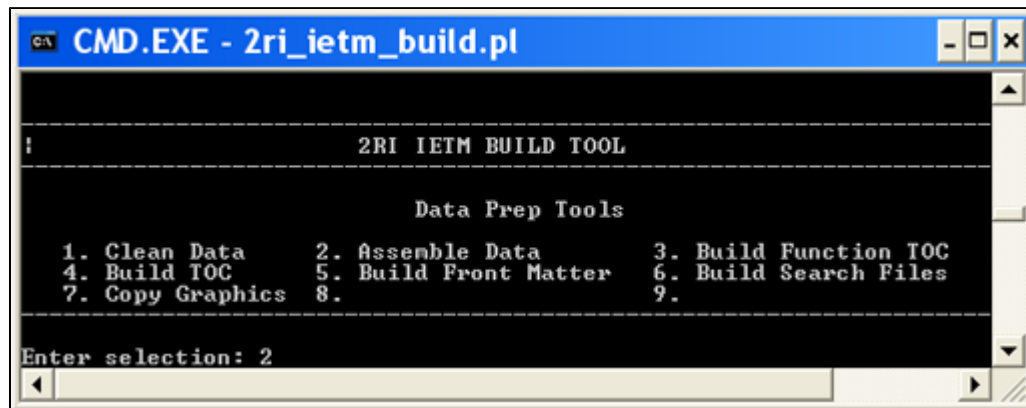


Figure 3-9. Build Step 8

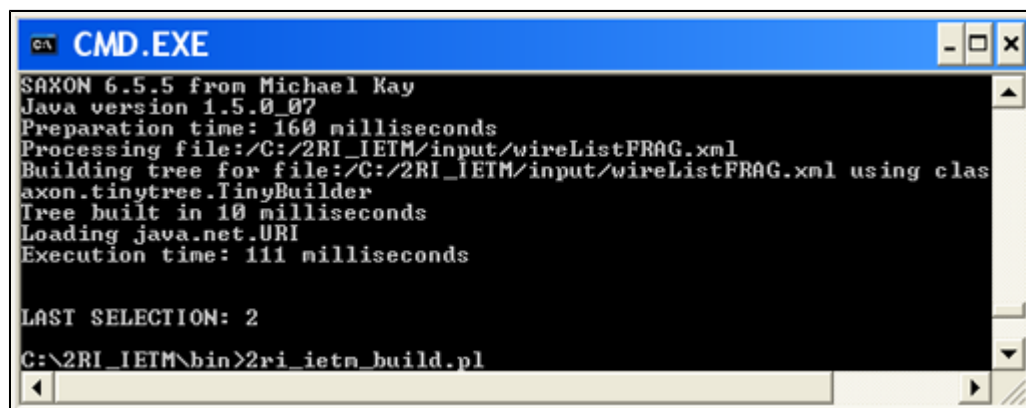


Figure 3-10. Build Step 9

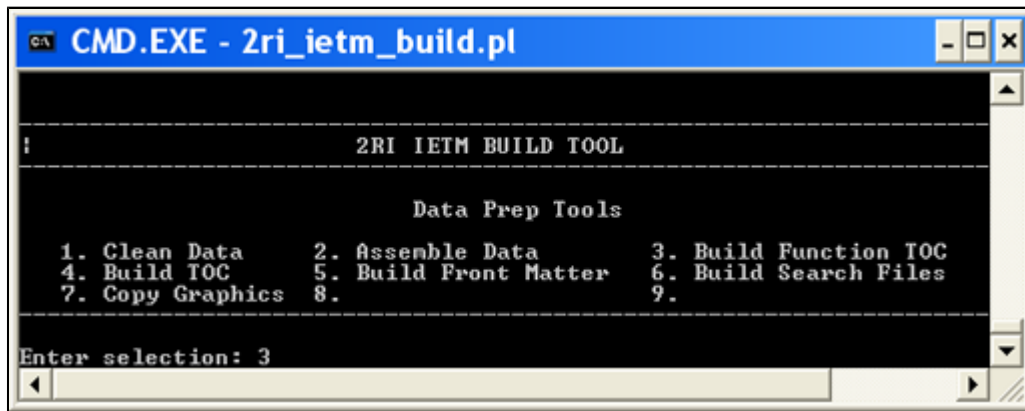


Figure 3-11. Build Step 10

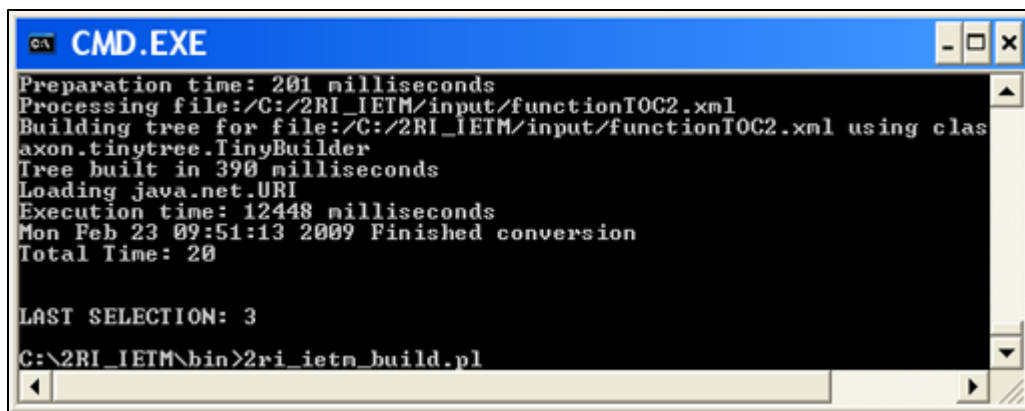


Figure 3-12. Build Step 11

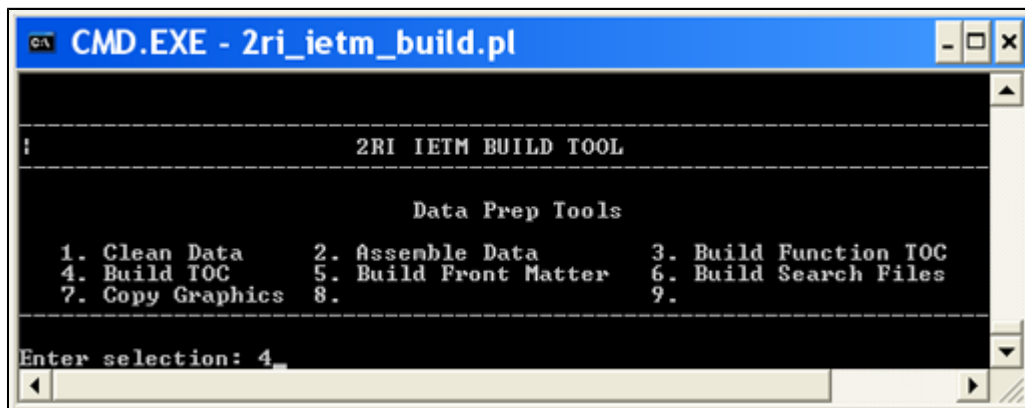
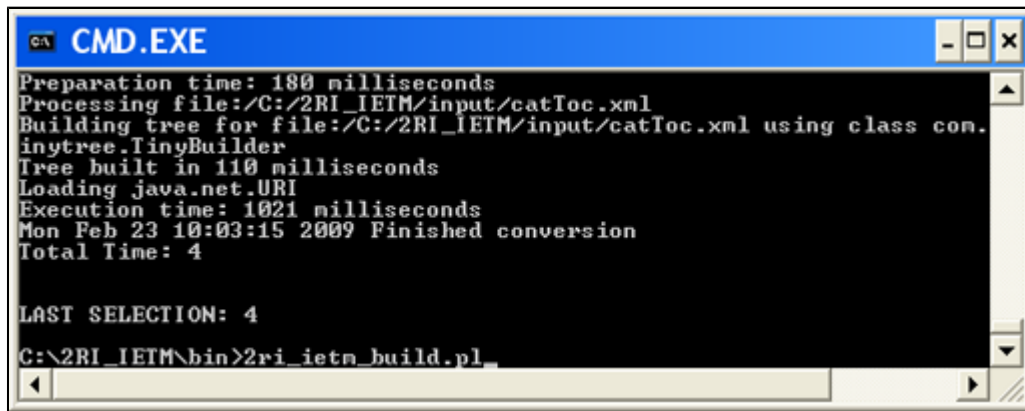


Figure 3-13. Build Step 12

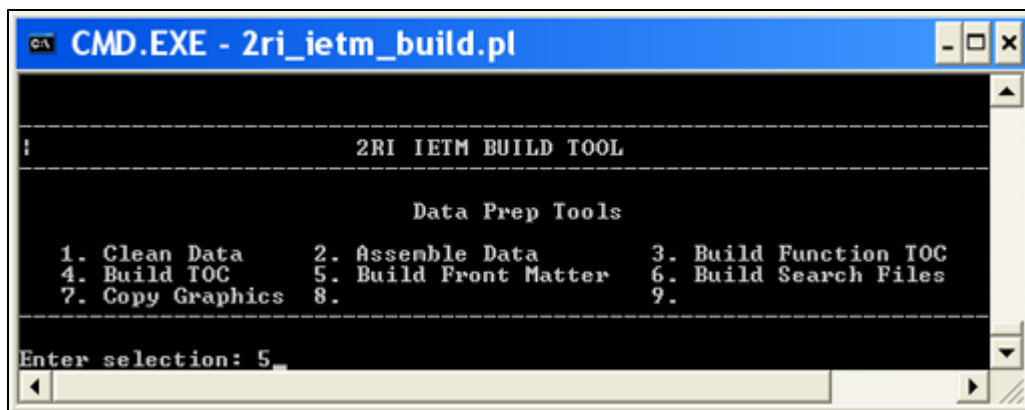


```
CMD.EXE
Preparation time: 180 milliseconds
Processing file:/C:/2RI_IETM/input/catToc.xml
Building tree for file:/C:/2RI_IETM/input/catToc.xml using class com.
inytree.TinyBuilder
Tree built in 110 milliseconds
Loading java.net.URI
Execution time: 1021 milliseconds
Mon Feb 23 10:03:15 2009 Finished conversion
Total Time: 4

LAST SELECTION: 4

C:\2RI_IETM\bin>2ri_ietm_build.pl_
```

Figure 3-14. Build Step 13



```
CMD.EXE - 2ri_ietm_build.pl

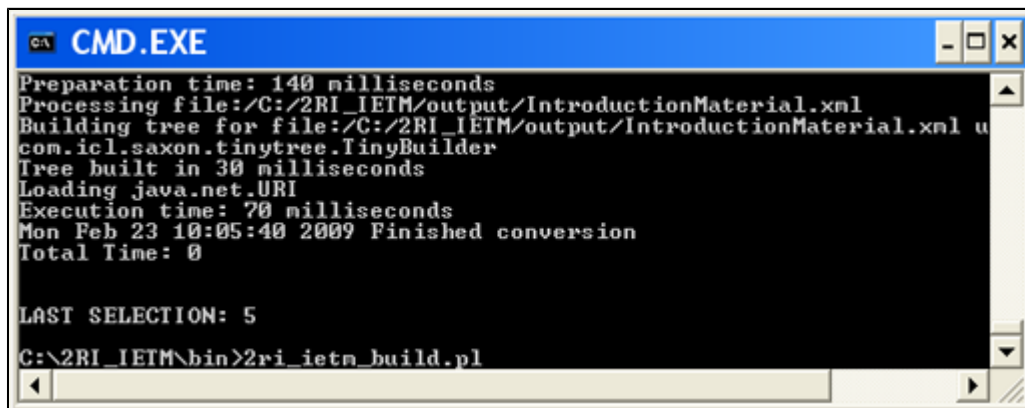
-----
2RI IETM BUILD TOOL
-----

Data Prep Tools

1. Clean Data      2. Assemble Data    3. Build Function TOC
4. Build TOC       5. Build Front Matter 6. Build Search Files
7. Copy Graphics   8.                  9.

Enter selection: 5_
```

Figure 3-15. Build Step 14



```
CMD.EXE
Preparation time: 140 milliseconds
Processing file:/C:/2RI_IETM/output/IntroductionMaterial.xml
Building tree for file:/C:/2RI_IETM/output/IntroductionMaterial.xml u
com.icl.saxon.tinytree.TinyBuilder
Tree built in 30 milliseconds
Loading java.net.URI
Execution time: 70 milliseconds
Mon Feb 23 10:05:40 2009 Finished conversion
Total Time: 0

LAST SELECTION: 5

C:\2RI_IETM\bin>2ri_ietm_build.pl
```

Figure 3-16. Build Step 15

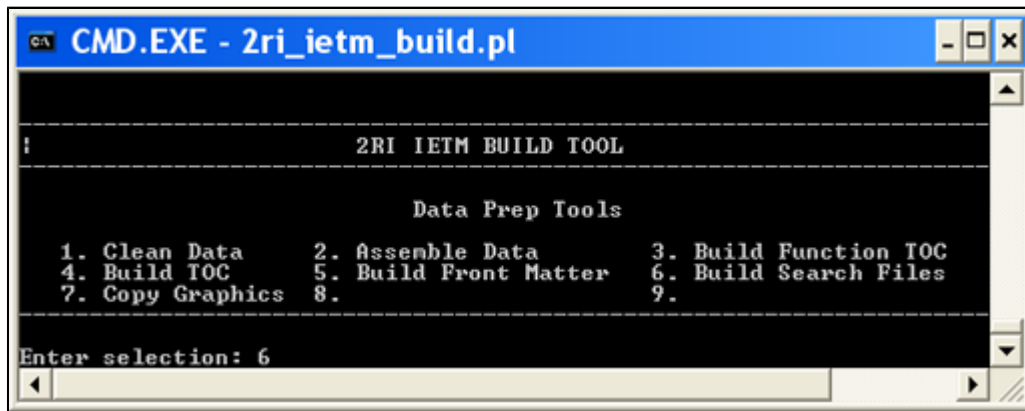


Figure 3-17. Build Step 16

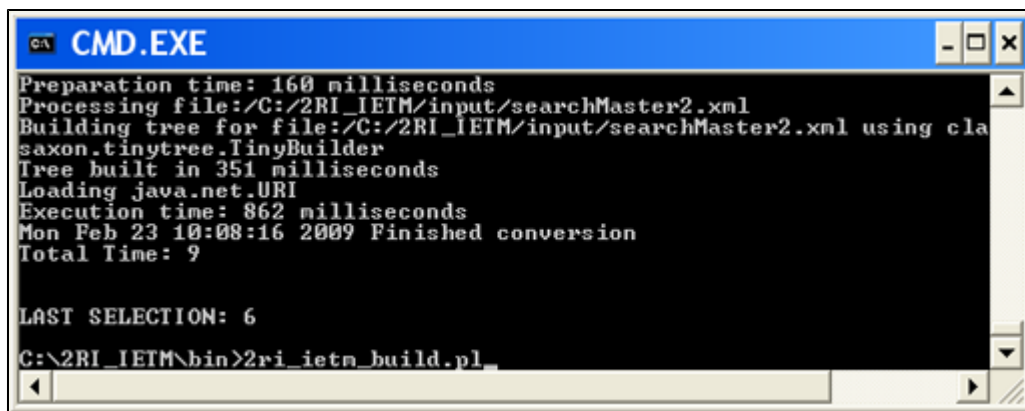


Figure 3-18. Build Step 17

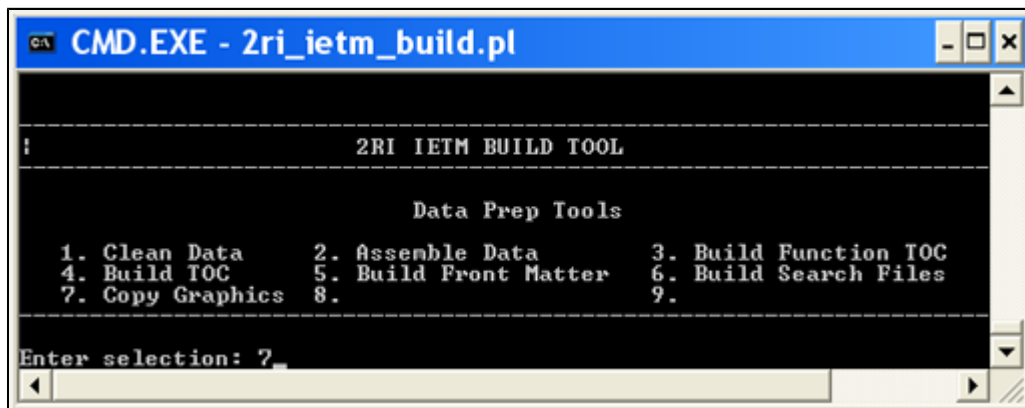
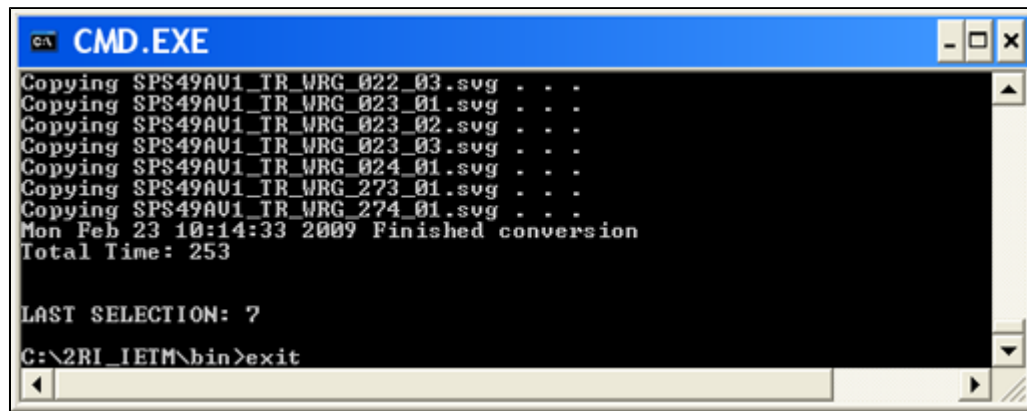


Figure 3-19. Build Step 18

10. When the final step is finished exit the command window by typing "exit" in the command line and press enter.

OR

Clicking the "X" in the upper right hand corner of the command window.



```
CMD.EXE
Copying SPS49A01_TR_WRG_022_03.svg . . .
Copying SPS49A01_TR_WRG_023_01.svg . . .
Copying SPS49A01_TR_WRG_023_02.svg . . .
Copying SPS49A01_TR_WRG_023_03.svg . . .
Copying SPS49A01_TR_WRG_024_01.svg . . .
Copying SPS49A01_TR_WRG_273_01.svg . . .
Copying SPS49A01_TR_WRG_274_01.svg . . .
Mon Feb 23 10:14:33 2009 Finished conversion
Total Time: 253

LAST SELECTION: 7
C:\2RI_IETM\bin>exit
```

Figure 3-20. Build Step 19

SECTION 4

LAUNCHER INSTRUCTIONS

Once the build is complete the IETM is now accessible through the output folder. Follow these steps to launch the IETM.

1. Navigate under the local drive C:\ to the 2RI_ IETM folder. For example: C:\2RI_IETM.
2. Expand the 2RI_IETM folder and click on the output folder.
3. Navigate to the index.htm file in the output folder and double click to launch.

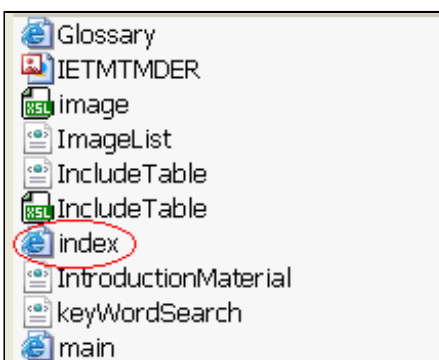


Figure 4-1. Launcher Example

4. When the opening IETM screen appears, scroll down and click on the button "Click Here to Continue" at the bottom of the page.

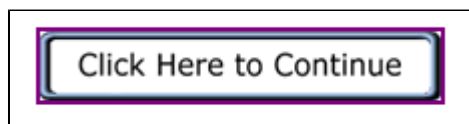


Figure 4-2. Click Here To Continue Example

5. An Internet Explorer alert will appear stating "The webpage you are viewing is trying to close the window. Do you want to close this window?" Click "Yes" to close the window or "No" to keep the window open.

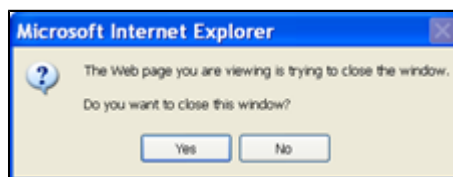


Figure 4-3. Alert Example

6. This will direct the user to the main screen of the IETM application.

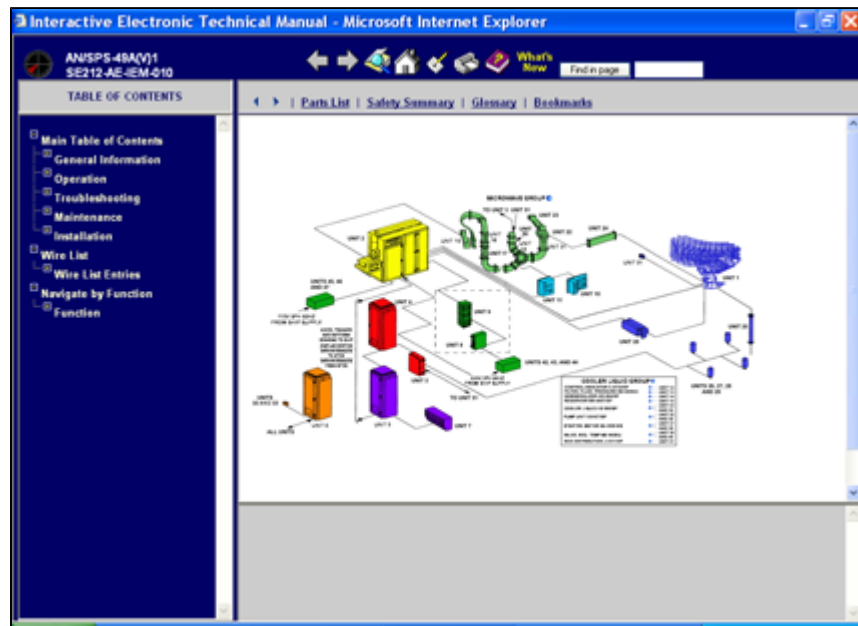


Figure 4-4. Main Screen

SECTION 5

GRAPHICAL USER INTERFACE (GUI) LAYOUT

5-1 Main Screen

The Main Screen is comprised of the Table of Contents Frame, Tool Bar Frame, Menu Bar Frame, Main Frame and Description Frame. The functionality of each frame is identified in the subsequent sections.

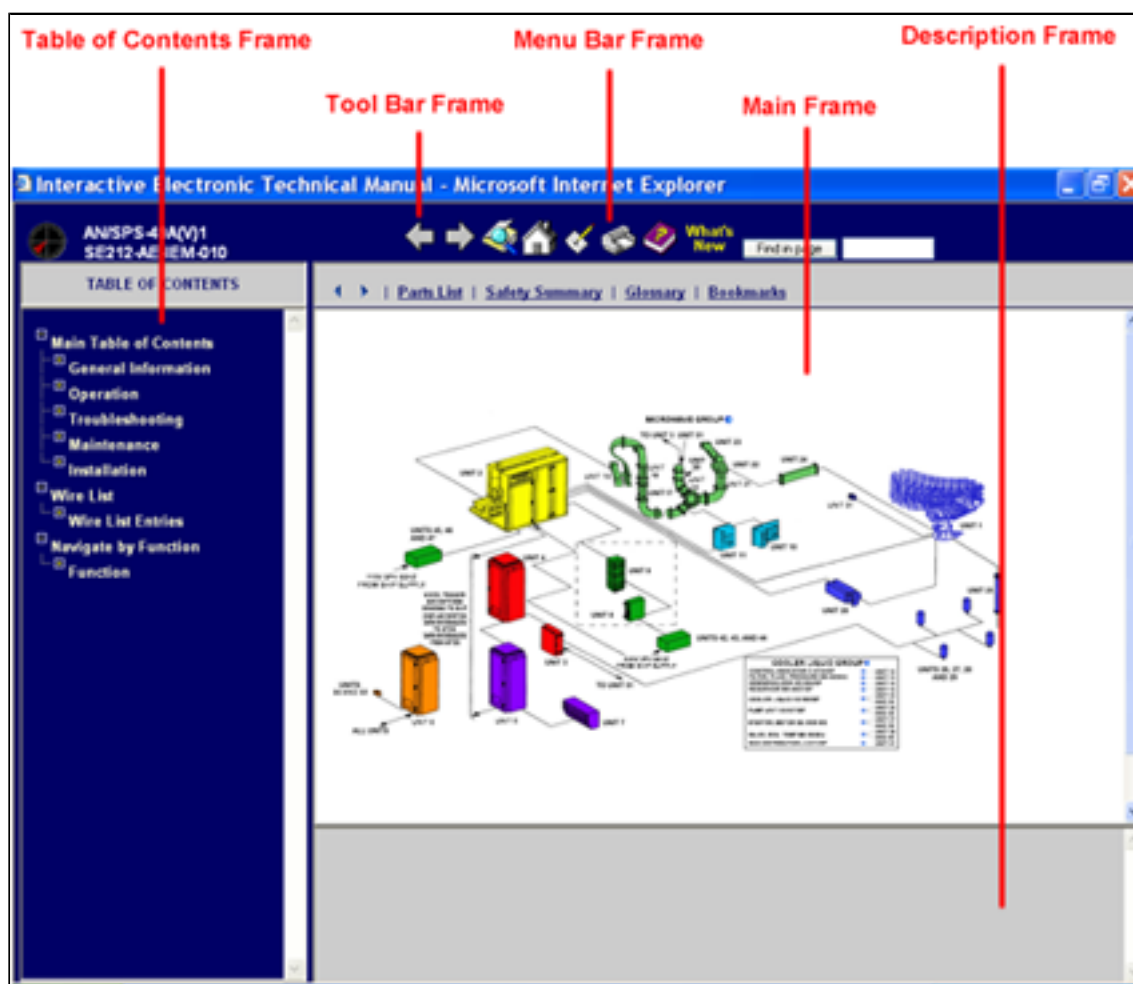


Figure 5-1. Main Screen

5-2 Tool Bar

This is a fixed size frame and cannot be resized. This section describes the tool bar options.



Figure 5-2. Tool Bar

5-3 Back (Historical)

The Back button allows the user to move backwards through the screens visited during the current session.



Figure 5-3. Back Button

5-4 Forward (Historical)

The Forward button allows the user to move forward through the screens visited during the current session.



Figure 5-4. Forward Button

5-5 Search

The Search button launches a new browser window called IETM Search. To exit the Search window click on the white "x" in the upper right hand corner of the search frame or click on the "Close Search Window" button. The user will return to the Main screen.



Figure 5-5. Search Button

The User may type text in the Search text field to "Find pages that have... these words:" or "this exact wording or phrase:". The results are based on "Match all search criteria" or "Match any search criteria".

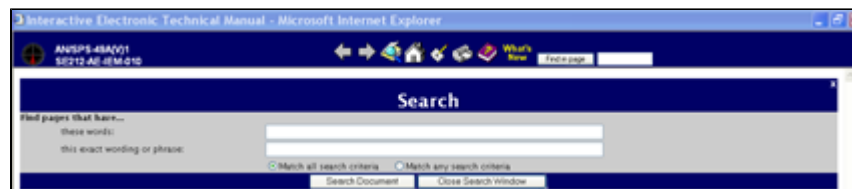


Figure 5-6. Search Window

Results returned from a search are displayed in the IETM Search window. Upon selecting the results link, the section of the IETM that contains the desired selection will be displayed in the Main Frame. The Search results are preserved until the ITEM is closed.

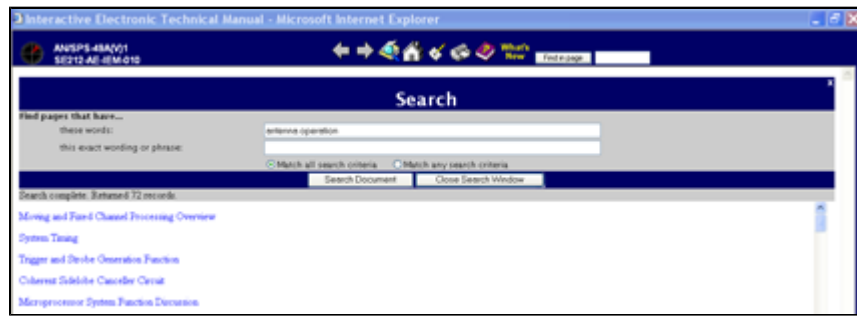


Figure 5-7. Search Results

5-6 Home

The Home button returns the user to the Main Screen of the IETM.



Figure 5-8. Home Button

5-7 Technical Manual Deficiency/Evaluation Report (TMDER)

The TMDER button launches the TMDER Report screen, providing instructions for reporting deficiencies, problems or recommendations relating to this IETM.



Figure 5-9. TMDER

5-8 Print

The Print button launches a new browser window called Print Options. There are two print options available in the IETM. The ability to Zoom In and print a specific area is also available. With the cursor in the Print Preview window, use (CTRL + left mouse button) to zoom into an area to print.



Figure 5-10. Print Button

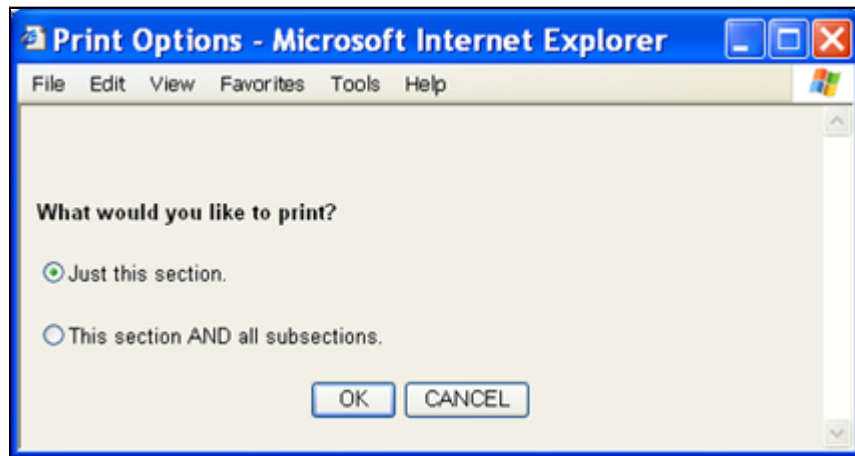


Figure 5-11. Print Options

By clicking the "OK" button your selection will display in a separate print preview window. To print out the content located in the print preview window click the print bar.

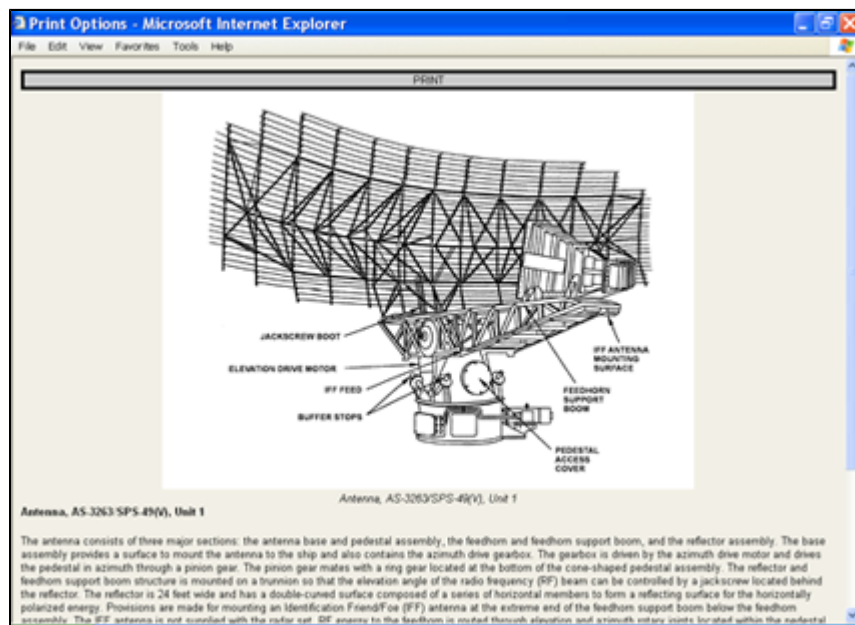


Figure 5-12. Print Preview Window

5-9 Help

The Help button launches a new browser window called IETM Help. This section contains a list of contents that when selected, will provide an explanation on the layout and navigation features within each section. The Help section also provides shortcut keys and system requirements for running and navigating throughout the IETM.



Figure 5-13. Help Button

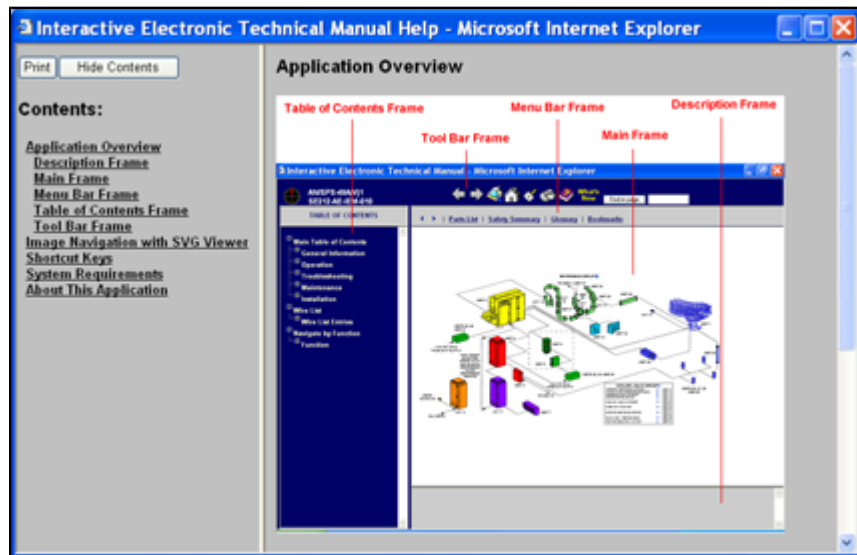


Figure 5-14. Help Files

5-10 What's New

The What's New button launches a browser window called What's New with a summary of updates included in the IETM.



Figure 5-15. What's New Button

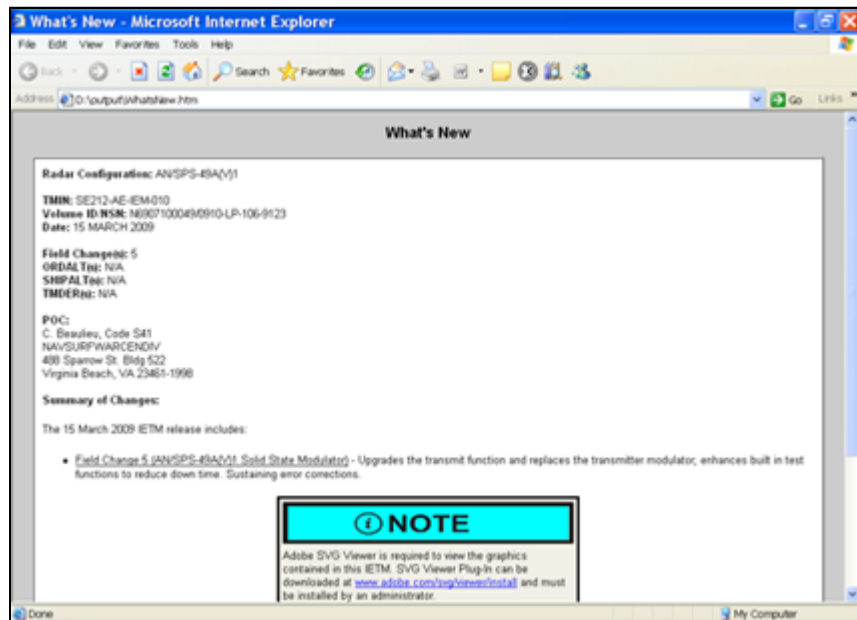


Figure 5-16. What's New Window

5-11 Find In Page

The Find in page option allows the User to search a text item within the current screen.



Figure 5-17. Find in Page Button

5-12 Menu Bar Frame

The Menu Bar Frame contains the menu items Logical Next/Back, Parts List, Safety Summary, Glossary and Bookmarks.



Figure 5-18. Menu Bar Frame

5-12.1 Logical Next/Back. The Logical Next/Back buttons are designed to navigate the table of contents structure in a logical/linear progression, as if reading the IETM like a book. The Logical Next button takes the user to the next page and the Logical Back button returns the user to the previous page.



Figure 5-19. Logical Next/Back

5-12.2 Parts List. The Parts List button launches a new window displaying a scrollable parts list for a system. The Parts List window provides search features as well as other options.



Figure 5-20. Parts List

RefDes	Part No.	Description	Qty per Assy	SM&R Code	Figure	Cage Code	Attaching H/W
1	912008-1	ANTENNA AS-3263/SPS-49(V)	1			49956	
2	G165509-2	TRANSMITTER, RADAR T-1297B	1			49956	48 parts
3	G613382-1	CONVERTER FREQUENCY, ELECTRONIC CV-3689	1			49956	
4	1065238-2	RECEIVER, RADAR R-2199A	1			49956	
5	G553330-1	PROCESSOR, DATA CP-2237	1			49956	
6	G577311-1 OR G26295-1	MONITOR TEST SET AN/SPM-238 OR 23A	1			49956	

Figure 5-21. Parts List Window.

5-12.2.1 Parts List Search Feature. The Search Feature allows the user to type text in a text box and search within the current screen or the entire parts list. Once the search is complete, the user may use the Enter key to progress to the next item found during the search.

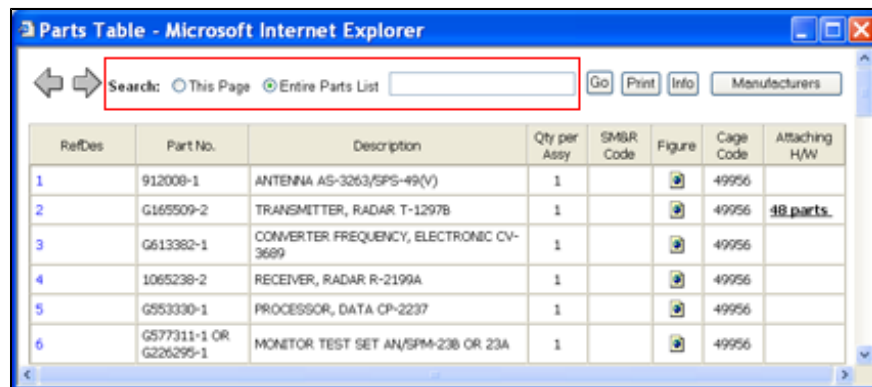


Figure 5-22. Search Feature

5-12.2.2 Parts List Print. The Print button prints the parts list table.

5-12.2.3 Parts List Info. The Info button opens a PDF file which contains definitions of the parts list data displayed in each column.

5-12.2.4 Parts List Manufacturers. The Manufacturers button launches a new window containing a Manufacturers table. This window contains a Find option that allows the user to type text into a text box and search within the current screen.

5-13 Safety Summary

The Safety Summary link launches a new window displaying safety related information. See Appendix B for tagging and examples of the Dangers, Warnings, Cautions, and Notes. These are displayed in a predefined manner.



Figure 5-23. Safety Summary

5-14 Glossary

The Glossary button launches a new window displaying terms, acronyms, and abbreviations used throughout the IETM. To search the Glossary table, enter text in the Find box to search within the Glossary table.



Figure 5-24. Glossary Button

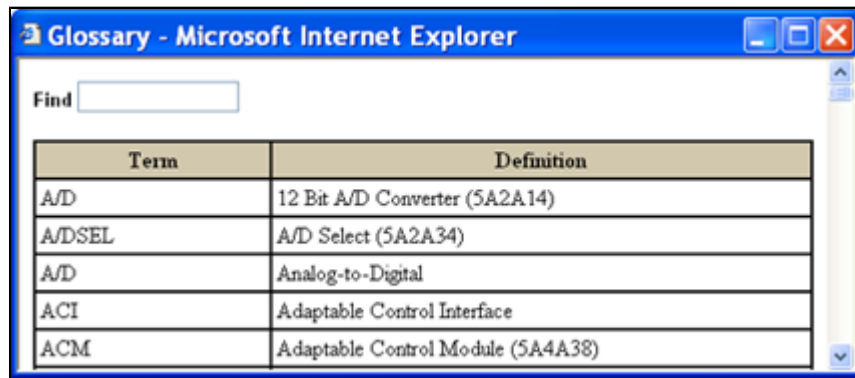


Figure 5-25. Glossary Window

5-15 Bookmarks

The Bookmarks button launches a new window that allows the user to flag certain locations for later access. It allows the user to build their own index of links to specific locations in the data. The Bookmark name is limited to 20 characters. The bookmark may be removed by selecting the Remove button.

NOTE

In order to save a bookmark there must be hard drive space on the computer. Also, in the event that internet cookies are deleted from the computer, all bookmarks will be lost as well.



Figure 5-26. Bookmarks Link

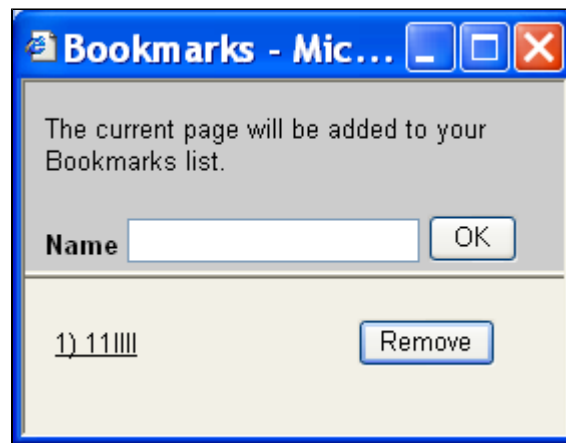


Figure 5-27. Bookmarks Example

5-16 Faults/Alerts

The Faults/Alerts button opens the faults/operation alerts data in an independent window. The contents of this screen are derived from the OperationAlert elements specified in Troubleshooting.

Figure 5-28. Faults/Alerts Link

Alert Fault Indication	Problem	Corrective Action
Antenna motor failed	Antenna motor enabled, but no ACP/ARP rotation detected within last 20-seconds.	Refer to Alert Response No. 1
Cannot Open NSIU Port SIU (tyCo/18)	Unable to open specified serial port for reading data. Loss of own ship Gyro and Speed log data.	Check NSIU card failure. Check serial cable from NSIU CCA to the CPU in slot 1 not seated properly. Check CPU serial port failure.
No TxHV being output to radar	No TxHV being output to radar. 115VAC into power supply but no TxHV out.	INTERSTAGE ATTACHMENTS AND SEPARATIONS

Figure 5-29. Faults/Alerts Window

5-17 SVG Image Viewer

The SVG Image Viewer is launched by clicking on an image title within the IETM. This independent viewer allows the user to print the image to a variety of page sizes. Clicking on the 'Print' button opens a selection dialog asking for the desired page size (5-31). After 'OK' is clicked the image is rendered so that it maximizes the available space.

NOTE

If a page size larger than 8x11 portrait is selected verify that the correct page size and page orientation settings are made for the target printer.

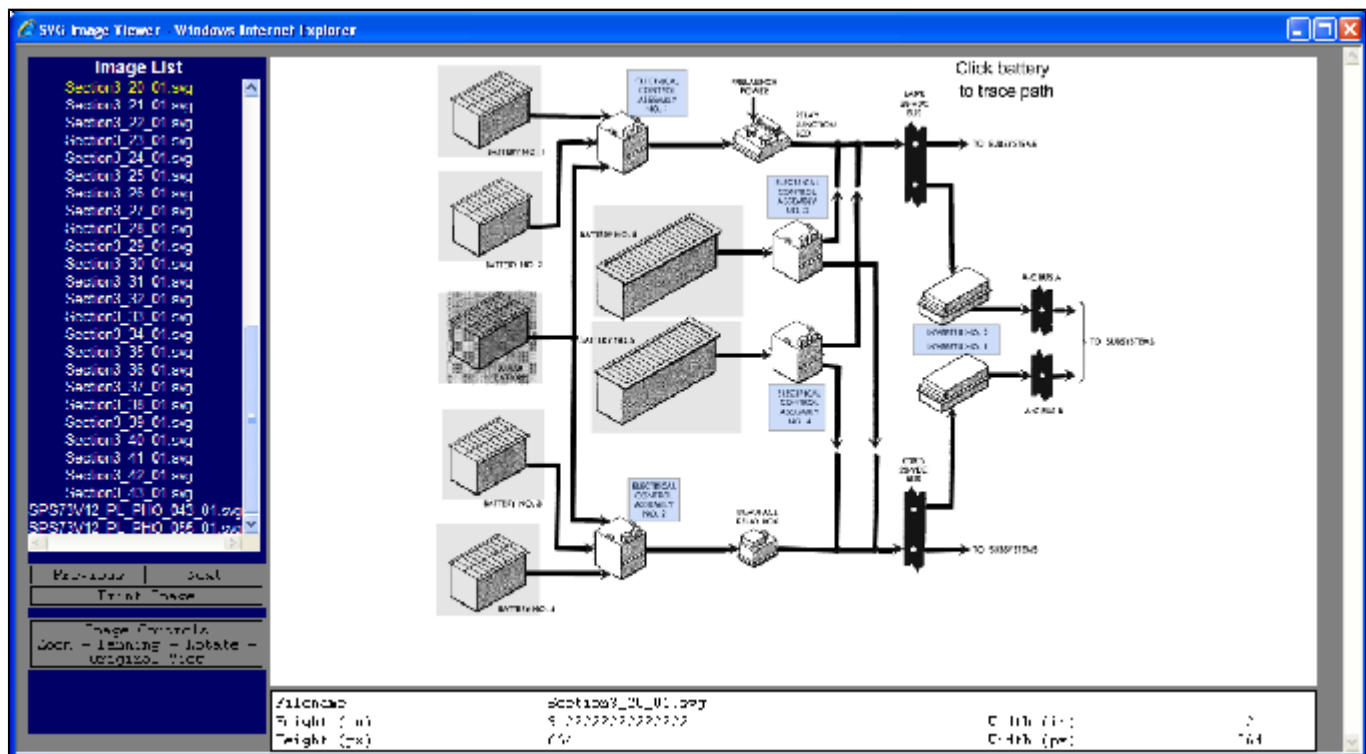


Figure 5-30. Image Viewer Screen

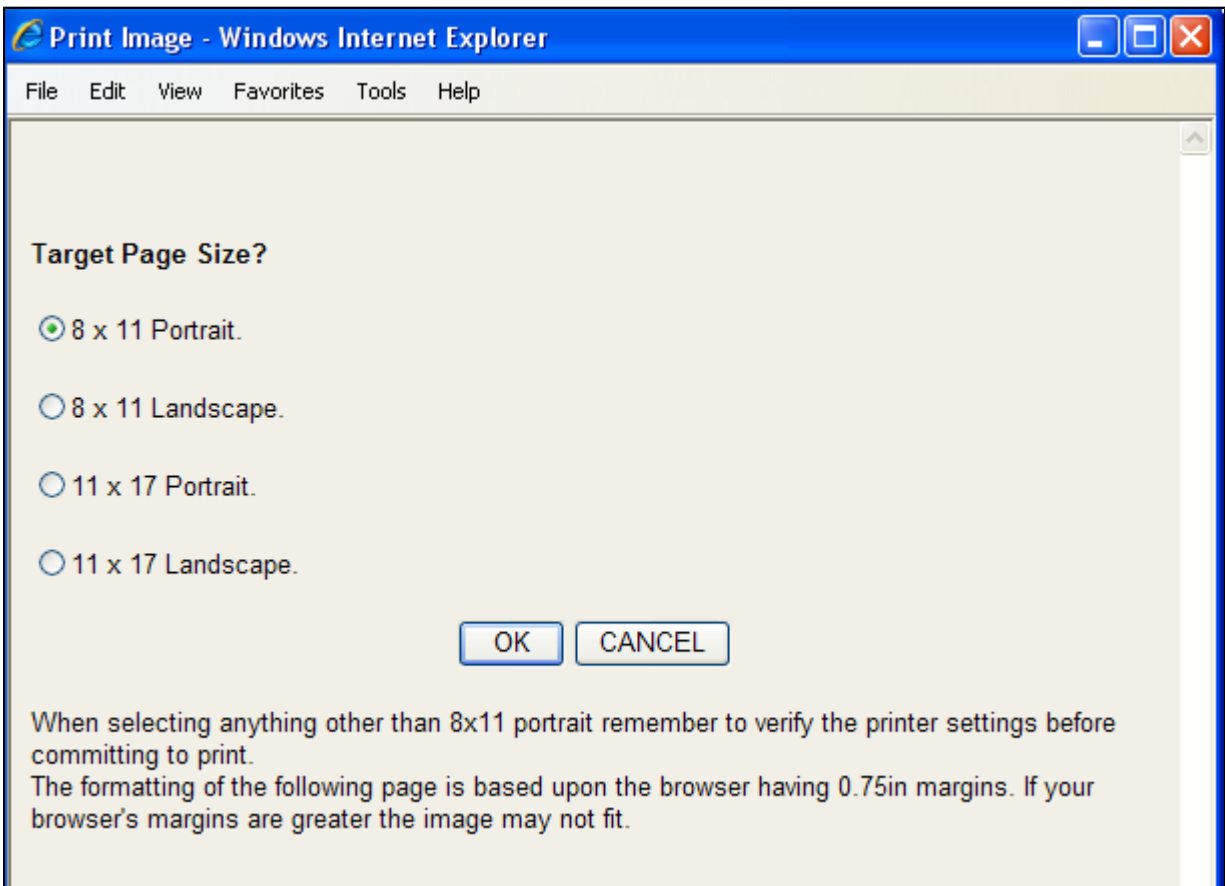


Figure 5-31. Page Size Selection






The viewer displays the selected image, but also provides access to all other IETM images. This can be very useful during IETM development and QA since it allows for quick image rendering and viewing. The "Next" and "Prev" buttons can be used to rapidly review images. Image interactivity with the IETM is retained in this stand alone viewer.

5-18 Table Of Contents (TOC) Frame

The Table of Contents frame is mainly for navigating through the IETM, either by content or function. The Wire List is also included in this Frame. The frame may be resized or hidden completely to increase the display area of the main frame. When a link has been selected it will turn yellow. This feature allows the User to see where they currently are in the IETM.

TABLE OF CONTENTS	
[-]	Main Table of Contents
[+]	General Information
[+]	Operation
[+]	Troubleshooting
[+]	Maintenance
[+]	Installation
[-]	Wire List
[+]	Wire List Entries
[-]	Navigate by Function
[+]	Function

Figure 5-32. Table of Contents

5-18.1 Main Table of Contents (TOC). Each heading is either preceded by a plus , minus  or document  icon. Headings with a plus (+) may be expanded and a minus (-) collapsed. Selecting a heading with a minus (-) or document  icon next to it will cause the associated text/image to display. Headings preceded by a document  icon cannot be expanded or collapsed. As items are expanded within this window, this window will scroll vertically and horizontally. Data displayed will be dependent upon how the document is tagged.

5-18.2 Wire List. The Wire List link launches a new window displaying a Wire Table link and a list of associated diagrams for a system. A list of associated diagrams is displayed below the Wire Table link and provides a link in order to view each diagram.

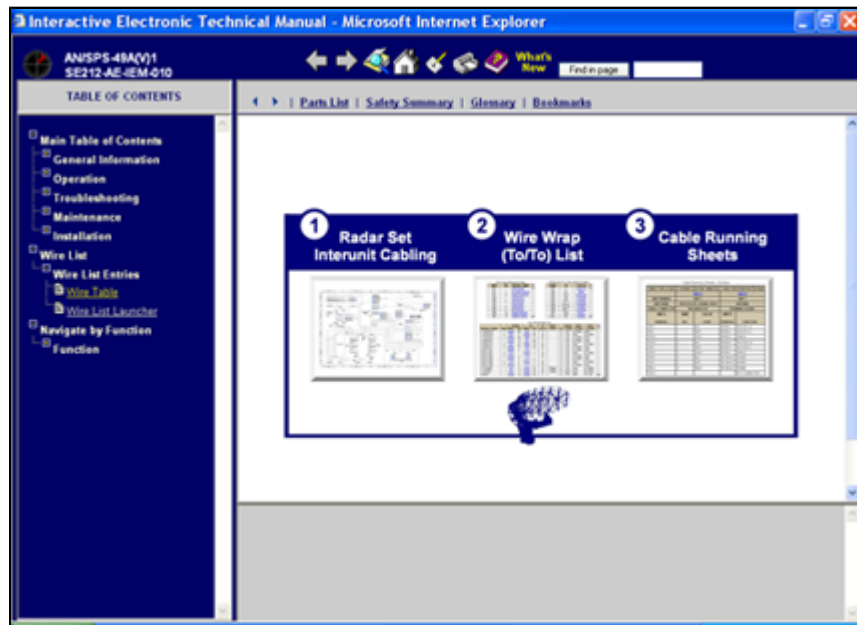


Figure 5-33. Wire List

5-18.3 Navigate By Function. For each heading selected, the heading name will be displayed in the bottom frame of the Navigate by Function window. Troubleshooting, Maintenance and Parts in this frame will reflect only those associated with the selected heading.

If the heading selected has associated parts a mini parts table will appear below the Maintenance and Troubleshooting section. This mini parts table will display the part's Ref Des number and the Part Number. Click on the Ref Des number to see an expanded detailed view of the Parts List Table.

TABLE OF CONTENTS							
[-]	Navigate by Function						
[-]	Function						
[]	Introduction						
[+]	Overall System Discussion						
[]	General Functional Discussion						
[]	System Timing						
[]	CPI and Sweep Control						
[]	Synchronizer						
[+]	Transmit Synchronizer						
[+]	Transmit Synchronizer						
[]	Maintenance						
[+]	Troubleshooting						
<table border="1"> <thead> <tr> <th colspan="2">Parts</th> </tr> <tr> <th>RefDes</th> <th>Part Number</th> </tr> </thead> <tbody> <tr> <td>5A3A33</td> <td>G526486-11</td> </tr> </tbody> </table>		Parts		RefDes	Part Number	5A3A33	G526486-11
Parts							
RefDes	Part Number						
5A3A33	G526486-11						

Figure 5-34. Navigate By Function

5-19 System Name

The System Name and TMIN shall appear in the top left portion of the tool bar frame. This is based on the tagging guidelines found in the Radar List Schema.

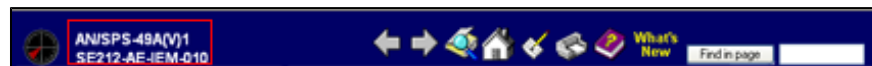


Figure 5-35. System Name

5-20 Main Frame

The Main frame is a large display area for displaying text and/or images. The bars to the left and bottom of the display area may be adjusted by dragging the bar to the desired location.

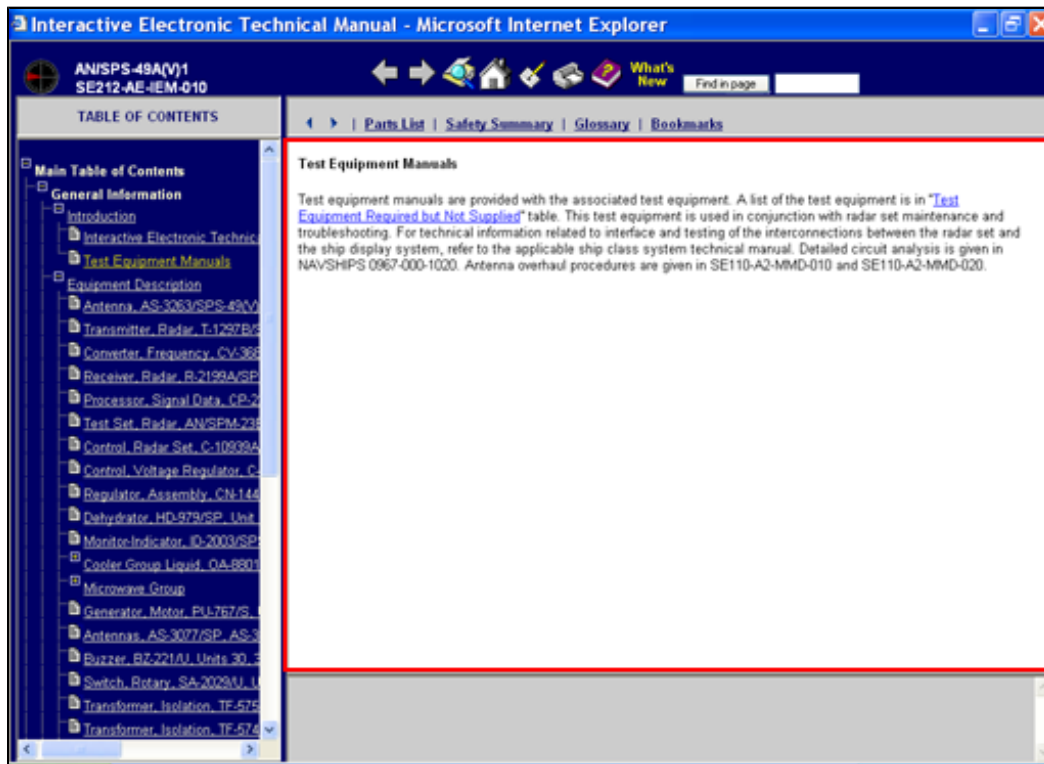


Figure 5-36. Main Frame

5-21 Description Frame

The Description Frame either displays the accompanying text associated with the full screen image shown in the main frame or the hierarchical path of the location of the content displayed when both text and image are displayed in the main frame. This frame can be resized to adjust the size of the main frame.

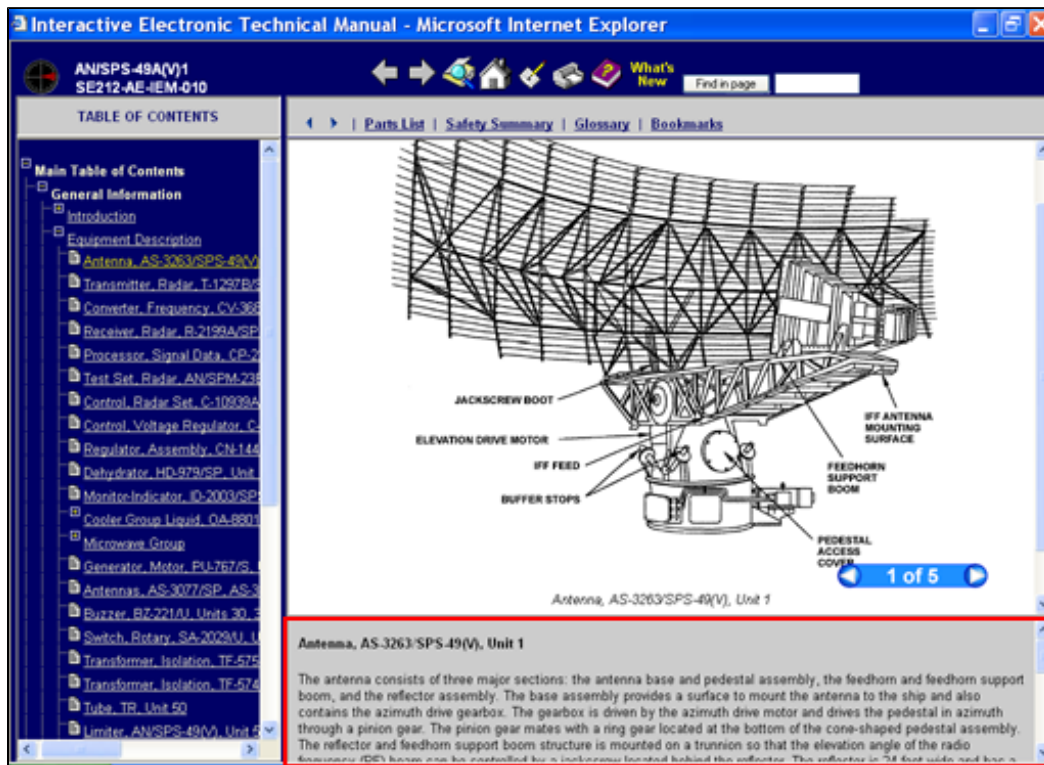


Figure 5-37. Description Frame

Appendix B

2RI IETM Process (2RIIP) Authoring Guide

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SECTION 1

ROLES AND RESPONSIBILITIES

1-1 Contractor

The Contractor shall develop XML tagged data and associated files in accordance with the TMCR and this document, which shall contain the necessary and pertinent data required to assemble a dynamic database driven IETM. The Contractor shall develop a QA, EDDP and Validation/Verification plan to ensure the development of technically accurate and complete IETM XML tagged data, image, and multimedia files in accordance with the TMCR and this document.

IPRs will include evaluation of source data, XML tagged data and IETM plans/outlines/processes to ensure that data is in compliance with the presentation methods, and modes of preparation outlined in the TMCR and this document. The Contractor shall ensure that the most current source data is available and utilized for IETM data development.

1-2 Electronic Data Development Plan (EDDP)

The EDDP shall clearly define the preparing activity's IETM development and integration plan; satisfy the XML document requirements; and describe the plans and procedures for the development of XML document instances (e.g. GeneralInformation.xml, Operation.xml, etc.).

NOTE

Specific requests for deviations to requirements in this document and/or the TMCR shall be specified in this document. No changes to requirements cited above are permitted, unless specifically authorized by Government TM Manager.

The EDDP shall include but not be limited to the following:

- Schedule for IETM production and integration.
- Use of Specifications. Include a listing of software/hardware technical specifications that may specify unique/additional IETM coverage requirements (i.e launching IETM from training courseware or vise versa; running IETM from a console).
- Coordination Between Preparing Activities. An explanation of the methods to be used to coordinate the delivery of IETM data for the purpose of integration into the IETM database.
- Software Information. The EDDP shall list the names of any software programs, including version number, used in all phases of data development.

SECTION 2

IETM DEVELOPMENT REQUIREMENTS

2-1 Table of Contents (TOC)

The General Information, Operation, Troubleshooting, Maintenance and Installation main headings in the main table of contents are predefined by the PEO 2RI IETM Process (2RIIP) application and cannot be modified. Additional headings must be generated under each of these headings during the IETM tagging.

The IETM's table of contents is generated from the GeneralInformation.xml, Operation.xml, Troubleshooting.xml, Maintenance.xml, Installation.xml, WireList.xml and FunctionList.xml files and is ordered accordingly. All of the above follow a similar TOC building logic with the exception of the WireList.

2-1.1 TOC Entries. With the exception of the WireList, all TOC entries come from the Heading element. Clicking on a TOC entry will cause it's parent Content to be displayed in the presentation frames. The nesting of entries follows the nesting of Content elements.

2-1.1.1 Additional Entries For Function List. In addition to the Heading element, Content elements in the Function List may also contain a single supportToc element. This element is used to convey additional parts, maintenance and troubleshooting information about the current item. The supportToc element has three optional children : maint, parts and trouble. Each of these elements can contain multiple pointer elements used to link information. When the supportToc element exists, a supplemental TOC is displayed.

Tagging Example

```
<supportToc>
<maint>
<pointer id="x12345"/>
</maint>
<trouble>
<pointer id="y12345"/>
</trouble>
<parts>
<pointer id="z12345"/>
</parts>
</supportToc>
```

For maintenance and troubleshooting links, the pointer element must point to a Content element, while the pointer id for parts must point to the Designation element.

2-1.2 WireList. The Wire List is an optional IETM component. It is used to convey wiring diagram data. The Wire Table can either be tagged as an XML table, using the WireTable element or provided in an image, using the WireTableImage element. The existence of the WireTable.xml file triggers the creation of the Wire List entry and sub-entries in the Table of Contents.

Tagging Example

```
<WireList>
<WireTableImage fileName="wireTable.svg"/>
<WireDiagram title="Wire Table Title 1" fileName="WireDiagram1.svg">
<WireDiagram title="Wire Table Title 2" fileName="WireDiagram2.svg">
</WireList>
```

2-2 List of Tables/Figures

A "List of Figures" and "List of Tables" shall be developed and tagged so as to allow the user to select a figure or table heading and view that item in the main frame of the IETM.

2-3 Naming Conventions

Naming conventions for all files, with the exception of XML files shall be named in accordance with this section. A complete and accurate record of all files to include: file name, title, number of sheets, etc. shall be maintained by the developer/contractor and delivered to the government. Special characters such as parentheses, asterisks, slashes, decimals, and blank spaces are not permitted.

2-3.1 XML Naming Conventions. XML tagged files shall be named as defined in [Table 2-1](#). Deviations are not allowed, as these file names are required for ensuring that data can be ported into the database.

Revisions to IETMs shall be initiated based on an equipment change or alteration. The IETM shall be tagged in accordance with the applicable field change or alteration, permitting the user to only see the data applicable to a particular configuration of a system.

Table 2-1. XML File Names		
AudioVideoList.xml	Function.xml	ImageList.xml
GeneralInformation.xml	IncludeTable.xml	IncludeText.xml
Installation.xml	IntroductionMaterial.xml	Maintenance.xml
Operation.xml	PartsList.xml	RadarList.xml
Troubleshooting.xml	WireList.xml	

2-3.2 Non-XML Naming Conventions.

2-3.2.1 Configuration Designations. The first part of the file name shall be the System Configuration Designation. This designation shall be upper case and may contain dashes and underscores. Refer to the Configuration Designation [Table 2-2](#) as an example.

Table 2-2. Configuration Designation	
System Configuration	Designation (Example)
AN/BPS-15J, AN/BPS-15H	BPS15J and BPS15H
AN/BPS-16(V)2/3 and AN/BPS-16(V)4	BPS-16V23 or BPS16V2-3 and BPS-16V4
AN/SPA-25G	SPA_25G
AN/SPQ-9B	SPQ_9B
AN/SPS-48E	SPS48E
AN/SPS-49A(V)1	SPS49AV1
AN/SPS-67(V)5	SPS67V5

2-3.2.2 Images. Image file names shall begin with a Configuration Designation (**Table 2-2**), followed by a section designation (**Table 2-3**), Image Type Designation (**Table 2-4**), three-digit sequential number, two-digit sheet number (as applicable), and file extension with each separated by an underscore (_) (e.g. SPS49AV1_MA_FBD_001_01.svg) as shown in (**Table 2-5**).

Table 2-3. Section Designation	
Section	Designation
General Information	GI
Introduction Material	IM
Operation	OP
Installation	IN
Troubleshooting	TR
Maintenance	MA
Function	FN
Parts	PL
Image List	IL

Table 2-4. Image Type Designations	
Image Type	Designation
Line Drawings	LDR
Menus	MEN
Other	OTR
Photographs	PHO
Screen Captures	SCR
Fault Logic Diagram	FLD
Functional Block Diagram	FBD
Power Diagram	PWR
Wiring Diagram	WRG
Schematic Diagram	SCD
Signal Flow Diagram	SFD
Table (image)	TBL

NOTE

Image type designations that do not fit into one of the categories above may be assigned a new designation provided that the Government has approved the new designation.

Table 2-5. Section Designation					
Configuration Designation	Section Designation	Image Type Designation	Three-digit Sequential No. (001-999)	Two-digit Sheet No. (01-99)	File Extension (svg, jpg, gif, etc.)
SPS49AV1	MA	FBD	001	01	.svg

2-3.3 Audio/Video Files. Audio/Video file names shall begin with a Configuration Designation (Table 2-2), followed by a Descriptive Name Designation, Revision Designation, and file extension with each separated by an underscore (_) (e.g. SPS49AV1_Interface-remove_X.avi) as shown in (Table 2-6).

Table 2-6. Audio/Video File Name Designation			
Configuration Designation	Descriptive Name Designation	Revision Designation	File Extension (wav, avi, etc.)
SPS49AV1	Interface-remove	X	.avi

2-3.4 Documents. Document file names shall begin with a Configuration Designation (Table 2-2), followed by a Descriptive Name Designation, Revision Designation, and file extension with each separated by an underscore (_) (e.g. SPS49AV1_SWEEP_X.pdf) as shown in (Table 2-7).

Table 2-7. Document File Name Designation			
Configuration Designation	Descriptive Name Designation	Revision Designation	File Extension (pdf, doc, etc)
SPS49AV1	SWEEP	X	.pdf

SECTION 3

Editing

3-1 Introduction

This section explains how to author and tag data using Epic Editor.

3-2 Configuring Epic Editor

After Epic Editor has been installed it must be configured to use the 2RIIP schemas and entity files. To configure Epic to work with the 2RIIP schemas complete the following steps:

1. Open the Epic catalog file in a text editor. This file is named catalog and is usually located in the Epic/doctypes folder, which is part of Epic install.
2. Open the epic_catalog_fragment.txt file located in the 2RIIP schema directory (C:\2RI_IETM\schema) in a text editor.

NOTE

This is the schema directory found in the GFI Source Data CD-ROM. Refer to the Folder Architecture section of Appendix A for Folder Set Up instructions and Folder Descriptions.

3. Highlight and copy all the lines the epic_catalog_fragment.txt file according to which version of Epic you have installed.
4. Paste these lines at the bottom of the Epic catalog file.
5. Save and close the Epic catalog file.

Epic is now configured to use the 2RIIP schemas. All that remains is to ensure that the XML data has the proper namespace declarations. These are detailed in [Table 3-1](#) and [Table 3-2](#). The namespace declarations are attributes that must exist at the root element in order for Epic to parse 2RIIP data.

Table 3-1. Namespace Declarations For Epic 5.1	
Filename Name	Namespace Declaration
AudioVideoList.xml	xmlns="urn:us:gov:dod:don:application:RadarIETM:audio"
Function.xml	xmlns="urn:us:gov:dod:don:application:RadarIETM:function"
ImageList.xml	xmlns="urn:us:gov:dod:don:application:RadarIETM:imageList"
GeneralInformation.xml	xmlns="urn:us:gov:dod:don:application:RadarIETM:general"
IncludeTable.xml	xmlns="urn:us:gov:dod:don:application:RadarIETM:includeTable"
IncludeText.xml	xmlns="urn:us:gov:dod:don:application:RadarIETM:includeText"
Installation.xml	xmlns="urn:us:gov:dod:don:application:RadarIETM:installation"

Table 3-1. Namespace Declarations For Epic 5.1	
Filename Name	Namespace Declaration
IntroductionMaterial.xml	xmlns="urn:us:gov:dod:don:application:RadarIETM:introduction"
Maintenance.xml	xmlns="urn:us:gov:dod:don:application:RadarIETM:maintenance"
Operation.xml	xmlns="urn:us:gov:dod:don:application:RadarIETM:operation"
PartsList.xml	xmlns="urn:us:gov:dod:don:application:RadarIETM:partsList"
RadarList.xml	xmlns="urn:us:gov:dod:don:application:RadarIETM:radarList"
Troubleshooting.xml	xmlns="urn:us:gov:dod:don:application:RadarIETM:trouble"
WireList.xml	xmlns="urn:us:gov:dod:don:application:RadarIETM:wireList"

Table 3-2. Namespace Declarations For Epic 5.3	
Filename Name	Namespace Declaration
AudioVideoList.xml	AudioVideoList xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="2ri_audio.xsd"
Function.xml	FunctionList TMIN="xxx" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="2ri_function.xsd"
ImageList.xml	ImageList xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="2ri_imageList.xsd"
GeneralInformation.xml	GeneralInformation xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="2ri_general.xsd"
IncludeTable.xml	IncludeTable xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="2ri_includeTable.xsd"
IncludeText.xml	IncludeText xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="2ri_includeText.xsd"
Installation.xml	Installation xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="2ri_installation.xsd"
IntroductionMaterial.xml	IntroductionMaterial xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="2ri_introduction.xsd"
Maintenance.xml	Maintenance xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="2ri_maintenance.xsd"
Operation.xml	Operation xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="2ri_operation.xsd"
PartsList.xml	PartsList xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="2ri_partsList.xsd"

Table 3-2. Namespace Declarations For Epic 5.3	
Filename Name	Namespace Declaration
RadarList.xml	RadarList xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="2ri_radarList.xsd"
Troubleshooting.xml	Troubleshooting xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="2ri_trouble.xsd"
WireList.xml	WireList xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="2ri_wireList.xsd"

3-3 Data Locations

The IETM is built from data stored in multiple locations within the input directory (C:\2RI_IETM\input). Every input directory must have a master_data folder. This folder contains the source XML files as well as the global non-xml files. **Table 3-3** details these locations. In addition to the master_data folder, there must also be folder(s) that support the individual TMINs being built. These support folders should not contain any XML only images (in the graphics subfolder) and documents and videos (in the documents subfolder) applicable only to that specific IETM being built.

Table 3-3. IETM Configurable Options	
File/Directory	Description
*.xml	All XML files are stored at the root of master_data. The IETM is built off of the XML files in this directory.
graphics	All images files are stored here and are copied to the output/graphic folder during IETM generation. Once these images are copied, any files in the TM specific folder are then copied.
documents	All documents files are stored here and are copied to the output/documents folder during IETM generation. Once these documents are copied, any files in the TM specific folder are then copied.

3-4 Tables

3-4.1 Table Caption. When specified the table caption is displayed before the table. The text is centered with the table.

3-4.2 Table Header. Table heads are displayed with a light brown background. A table head cell is specified by using the TableHeader element. TableData elements' background color is inherited from its parent window.

3-4.3 Row Spanning. Rows may be spanned using the rowspan attribute available to the TableHeader or TableData elements. The value must be a positive interger and reflect the number of rows to be spanned. See the code below for an example.

3-4.4 Column Spanning. Columns may be spanned using the colspan attribute available to the TableHeader or TableData elements. The value must be a positive interger and reflect the number of columns to be spanned. See the code below for an example.

Tagging Example

```
<Table>
<Caption>Table Caption</Caption>
<TableRow>
<TableHeader><ContentText>Col 1</ContentText></TableHeader>
<TableHeader><ContentText>Col 2</ContentText></TableHeader>
<TableHeader><ContentText>Col 3</ContentText></TableHeader>
</TableRow>
<TableRow>
<TableData><ContentText>DATA</ContentText></TableData>
<TableData><ContentText>DATA</ContentText></TableData>
<TableData><ContentText>DATA</ContentText></TableData>
</TableRow>
<TableRow>
<TableData rowspan="2"><ContentText>DATA</ContentText></TableData>
<TableData><ContentText>DATA</ContentText></TableData>
<TableData><ContentText>DATA</ContentText></TableData>
</TableRow>
<TableRow>
<TableData colspan="2"><ContentText>DATA</ContentText></TableData>
</TableRow>
</Table>
```

Col 1	Col 2	Col 3
DATA	DATA	DATA
DATA	DATA	DATA
DATA	DATA	

Figure 3-1. Table Example

3-5 Safety Summary

A portion of the Safety Summary is auto-generated during the IETM build process. All Message elements used in the IETM are gathered during an IETM build and placed at the end of the Safety Summary. The Safety Summary is accessible via a link on the Navigation bar.

NOTE

No Danger, Warning or Caution Message elements should be placed in the SafetySummary element itself.

3-6 Certification Sheet

The signed certification sheet must be saved in PDF format, named "certSheet.pdf" and placed in the documents folder for that specific IETM. For more information on data locations see [Paragraph 3-3](#).

3-7 Operational Alerts

Operational Alerts are an optional part of the Troubleshooting section. They are used to provide a quick guide to system alerts and/or error codes. When the Troubleshooting instance contains one or more of the OperationAlerts element, a single entry will appear at the beginning of the Troubleshooting portion of the Table of Contents. When clicked on, a table will be generated in the main presentation pane listing the Alert/Error codes in the left column with a brief description of the problem in the right column. When the specific error code is clicked a more comprehensive screen is presented with possible solutions.

Tagging Sample

```
<OperationAlert>
<AlertIndication>Unit 2A1</AlertIndication>
<ProblemDescription>No Power</ProblemDescription>
<CorrectiveAction>
<ContentText>
<Paragraph>See <TableLink headingID="TR_LOTH_T_5_1" tableID="TR_LOT_T_5_1">Troubleshooting
Index</TableLink> for more detail</Paragraph>
</ContentText>
</CorrectiveAction>
</OperationAlert>
```

3-8 IETM's "What's New"

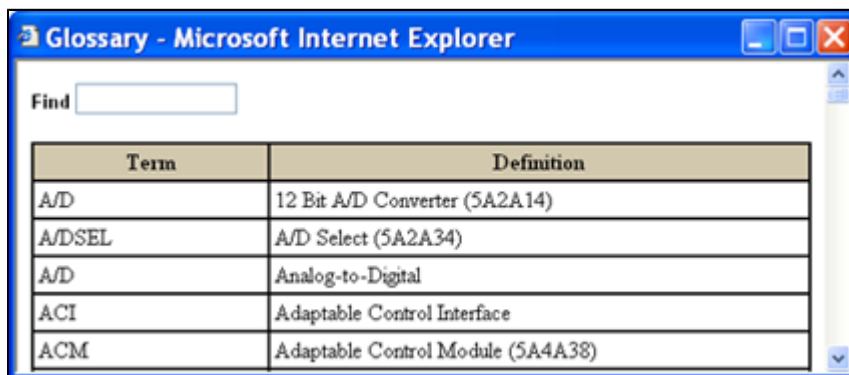
The IETM's "What's New" section is generated from the IETM's configuration in the RadarList.xml file during the IETM build.

3-9 Glossary

The Glossary element is a required child element of GeneralInformation. It defines all IETM acronyms and is available via the "Glossary" link in the navigation bar. The glossary is not auto-generated during the IETM build process.

Tagging Sample

```
<Glossary>
<Entry>
<Term>A/D</Term>
<Definition>12 Bit A/D Converter (5A2A14)</Definition>
</Entry>
</Glossary>
```



Term	Definition
A/D	12 Bit A/D Converter (5A2A14)
A/DSEL	A/D Select (5A2A34)
A/D	Analog-to-Digital
ACI	Adaptable Control Interface
ACM	Adaptable Control Module (5A4A38)

Figure 3-2. Glossary Example

Alternatively, the DocumentFileName element can be used to refer to an external glossary document. This document must reside in the documents directory. It is recommended that this file be in PDF format.

Tagging Sample

```
<DocumentFileName>glossary.pdf</DocumentFileName>
```

3-10 Parts List

When the IETM is built, if PartsList.xml is in the master_data directory a "Parts List" option is added to the navigation bar. Clicking on this option will open the parts list interface in an independent window.

Tagging Sample

```
<PartsList>
<RadarAssembly>
<Description>
<ReferenceDesignation>1</ReferenceDesignation>
<PartNumber>0000-0</PartNumber>
<PartName>ABC</PartName>
<QuantityPerAssembly>1</QuantityPerAssembly>
<MaintenanceCode>1</MaintenanceCode>
<ImageFileName>ABC.svg</ImageFileName>
<CageCode>0000</CageCode>
</Description>
<RadarPart>
<Description>
<ReferenceDesignation>1</ReferenceDesignation>
<PartNumber>0000-0</PartNumber>
<PartName>ABC</PartName>
<QuantityPerAssembly>1</QuantityPerAssembly>
<MaintenanceCode>1</MaintenanceCode>
<ImageFileName>ABC.svg</ImageFileName>
<CageCode>0000</CageCode>
</Description>
</RadarPart>
</RadarAssembly>
</PartsList>
```

3-10.1 Attaching Parts. The Attaching Parts screen supplies supplemental information to a Radar List record. It provides details about hardware directly tied to the Radar List record.

Tagging Sample

```
<Description>
<ReferenceDesignation>1</ReferenceDesignation>
<PartNumber>0000-0</PartNumber>
<PartName>ABC</PartName>
<QuantityPerAssembly>1</QuantityPerAssembly>
<MaintenanceCode>1</MaintenanceCode>
<ImageFileName>ABC.svg</ImageFileName>
<CageCode>0000</CageCode>
<AttachingPart>partID="SQ" quantity="16"</AttachingPart>
</Description>
```

Find <input type="text"/>			
Attaching Hardware (Click on headers to sort.)			
Part no.	Description	Quantity	Cage Code
5413592-6	ADAPTER, BNC TEE, 50 OHM	3	00779
8242948-001	ASSY, PANEL, FUSE	1	53711
8242928-001	CABLE CLAMP, MODIFIED	2	53711
MS21919WDG02	CLAMP, CUSHIONED, 0.125" DIA	9	96906
MS21919WDG03	CLAMP, CUSHIONED, 0.188" DIA	1	96906
MS21919WDG08	CLAMP, CUSHIONED, 0.500" DIA	3	96906
MS21919WDG09	CLAMP, CUSHIONED, 0.563" DIA	1	96906
MS21919WDG19	CLAMP, CUSHIONED, 1.188" DIA	5	96906
MS21919WDG20	CLAMP, CUSHIONED, 1.250" DIA	4	96906
MS21919WDG22	CLAMP, CUSHIONED, 1.375" DIA	1	96906
MS21919WDG30	CLAMP, CUSHIONED, 1.875" DIA	1	96906
NASM20426AD3-5	COUNTERSUNK RIVET	18	96906
HT LAB METAL	FILLER, DENT	AR	94689
8242946-001	FUSE PANEL	1	53711

Figure 3-3. Attaching Hardware Example

3-10.2 Manufacturer List. The Manufacturer List is supplemental information to the Radar List. It provides a list of manufacturers and their addresses.

Find <input type="text"/>		
Cage Code	Manufacturer	Address
00204	ELECTRONIC COILS INC	22 MAIN LINE DR WESTFIELD, MA 01086
00222	ESC ELECTRONICS CORP	534 BERGEN BLVD PALISADES PARK, NJ 07650-2322
00614	LEACH CORP	BUENA PARK, CA
00624	AEROQUIP CORP AEROSPACE GROUP	300 S EAST AVE JACKSON, MI 49203-1972
00656	AEROVOX INC	740 BELLEVILLE AVE NEW BEDFORD, MA 02745-6010
00736	AIR-MAZE CORP	115 E STEELS CORNERS RD STOW, OH 44224-0459
00779	AMP INC	2800 FULLING MILL RD MIDDLETOWN, PA 17105-3608
00809	CROVEN CRYSTALS LTD	500 BEECH ST WHITBY ONT, CANAD

Figure 3-4. Attaching Hardware Example

Tagging Example

```
<Manufacturer>
<CageCode>99934</CageCode>
<ManufacturerName>RENBRANDT INC</ManufacturerName>
<ManufacturerAddress>659 MASS AVE BOSTON, MA 02118-1821 </ManufacturerAddress>
</Manufacturer>
```

3-11 Images In The IETM

For images to display properly within the GUI, they must be listed in the ImageList.xml document. The image list is used to define the title, height, width, text and keywords associated with an image. The title also serves as a link to open the image in an external window. If an image is not listed in the ImageList.xml document, it will not display correctly within the GUI. For file naming conventions refer to [Paragraph 2-3.2.2](#).

3-11.1 Supported Formats. The 2RIIP supports the following image formats: BitMap (BMP), Joint Photographic Experts Group (JPG), Portable Network Graphic (PNG) and SVG. BMP, JPG and PNG are raster formats while SVG is a vector format.

3-11.1.1 Raster Image Formats Acceptable raster image formats include commonly used commercial standards (BMP, JPEG, and PNG). Each is best suited for different types of images and image presentation effects. Raster formats are best suited for static images with no requirement for navigation (hot-spotting, hyper-linking) within the image, and no need to attach metadata or added information to text or image elements within the image. Raster images shall be optimized to reduce file size.

- BMP is a commonly supported raster format and most suitable for monochrome images. BMPs provide high image fidelity (i.e., very accurate rendition of the original image consistent with the precision allowed by the selected scan density, or "dots per inch", of the conversion process).
- JPEG is an international standard for color image (and halftone photograph) sampling and compression. JPEG allows selectable compression ratios that achieve smaller files sizes at the expense of image fidelity (a so-called "lossy" compression of the image). JPEG is a good choice for photographic images and is suitable for applications requiring conveyance of only a visual image.
- PNG is a royalty free replacement to the royalty-required Graphic Interchange File (GIF) format. It was also designed to replace Tagged Image File Format (TIFF). Unlike BMP, it can handle both grayscale and color images. Unlike JPEG, it has a lossless compression. However, PNG should not be used for photographic images where JPEG is superior for that application.

3-11.1.2 Vector Image Formats. Vector images should use SVG in accordance with Recommendation 1.1 of the World Wide Web Consortium (W3C). SVG is a language for describing two-dimensional graphics using XML, enabling developers to create dynamically generated, high-quality graphics from real-time data with precise structural and visual control.

3-11.1.2.1 SVG Images. Scalable Vector Graphics (SVG) are XML-based files for describing two-dimensional vector graphics. SVGs may be interactive and dynamic. Animations may be defined and triggered either declaratively (i.e., by embedding SVG animation elements in SVG content) or via scripting.

Prior to 2010, the 2RI IETM used the Adobe SVG Viewer browser plug-in to view SVG images. However, as more browsers (Firefox, Chrome, Opera, Safari) began to natively handle SVGs, Adobe decided to no longer maintain the plug-in. Because of this, the plug-in was pulled from DADEMS, even though Internet Explorer did not natively handle SVGs. This necessitated the development of a 2RI SVG viewer.

The 2RI SVG viewer provides the same functionality as the Adobe plug-in as well as additional functions such as the ability to rotate the image. The 2RI SVG viewer is Java based so it does not need to be installed.

3-11.1.2.1.1 SVG Development Programs/contractors may use any editor to develop SVGs, but the 2RI IETM requires pure SVGs devoid of proprietary elements and namespaces. Most editors either save as pure SVG or allow the user to export as pure SVG.

The Adobe plug-in is still used by many to view SVGs during the development process. However, the Adobe plug-in pre-loads many namespaces that should be declared in the SVG file. The 2RI SVG viewer is more strict and requires the SVG file to have both the 'svg' and 'link' namespaces declared. Additionally, the SVG needs to have the viewBox attribute declared. Most commercial SVG editors populate these items automatically.

To use any of the following scripting make sure that the following line of code is added after the svg element.

```
<script xmlns:xlink="http://www.w3.org/1999/xlink" xlink:href="svgFunctions.js"/>
```

A sample SVG image (2ri_sample.svg) is included in the IETM build code. It is strongly recommended that all images be reviewed using the SVG viewer tool in the IETM.

NOTE

For more details on adding high-level functionality to the IETM contact the NSWC PHD VA BEACH TMMA, Cathy Beaulieu.

3-11.1.2.1.2 Internal Scripting Internal scripting is defined as any action/event in the SVG that does not interact with the IETM. Examples include tool tips, wire tracing and animations. Programs are allowed to develop their own internal functionality.

3-11.1.2.1.2.1 Tool Tip The 2RI IETM provides an internal script that creates a tool tip to appear when the cursor is placed over an object. To use this added the declaration for the "svgFunctions.js" mentioned above and added the following at the end of the SVG file.

```
<rect id="rectBox" class="noprint" stroke-width="1" stroke="black" style="visibility:hidden"
x="0" y="0" width="0" height="20" fill="lightyellow"/>
<text id="textValue" class="noprint" fill="black" style="visibility:hidden" x="0" y="0"
font-family="Arial" font-size="12" text-anchor="start">123</text>
```

Then place the 'onmouseover' and 'onmouseout' events on the element to have the tool tip.

```
. . . onmouseover="path_mouseover('Antenna Safety Switch')" onmouseout="path_mouseup()"
```

3-11.1.2.1.3 External Scripting External scripting is defined as any action/event within the SVG graphic that interacts with the IETM. Unlike internal scripting, programs may not create their own external functions since these require modifications to the IETM build process itself. The 2RI IETM provides a robust set of functions for interacting with the IETM. These are detailed below.

3-11.1.2.1.3.1 loadSVG The loadSVG function is used to navigate directly to an image. The value of its only parameter must match a fileName attribute value in the ImageList.xml file.

```
<text id="abc123" onclick="loadSVG('SPS73V12_FN_LDR_026_01.svg')". . . .
```

3-11.1.2.1.3.2 tableLink The tableLink function is used to navigate to a Content screen containing a table. This function requires two parameters. The first is the id on the Content element to load. The second is the row id of the displayed table. After loading the elements content, the IETM will scroll to the row specified by the second parameter.

NOTE

Some older IETMs used a function called getPackage which did the same thing as tableLink. Both are still supported, but it is recommended to use tableLink when creating any new graphics.

```
<text id="abc123" onclick="tableLink('GI_HDG_0002','x-0123')" . . . .
```

3-11.1.2.1.3.3 TableRowLink The TableRowLink function is used to scroll to a row in an already displayed table. In most situations, the table supports the displayed graphic. When using this function it is essential that the image is always displayed with its companion table. It takes two parameters : the table id and row id.

This function is dependent upon the target table being constructed in a particular manner where the row id is a combination of the table id and a row id separated with an underscore ("_"). In the following example, the target row should have an id value of "GI_HDG_0002_x-0123"

```
<text id="abc123" onclick="TableRowLink('GI_HDG_0002','x-0123')" . . . .
```

3-11.1.2.1.3.4 textLink The textLink function is used to navigate from an image to a new Content element. This function takes the id of its target Content element as its only parameter.

```
<text id="abc123" onclick="textLink('GI_HDG_0002')" . . . .
```

3-11.1.2.1.3.5 displayPartData The displayPartData function is used to open the parts list pop up. Its single parameter is the SVG filename. When clicked, the parts list is open and then only records matching the passed SVG filename are displayed. This function is useful when it is necessary to place a "Parts List" button on the graphic itself.

NOTE

It is recommended to use the partsList attribute on the element IImage to tie a parts list link to a specific image. This allows the image to be independent of the specific IETM and therefore easier to share between publications. For more information see .

```
<text id="abc123" onclick="displayPartData('SPS73V12_FN_LDR_026_01.svg')" . . . .
```

3-11.1.2.2 Image Collection Indicator. The Image Collection Indicator is for traversing each image in a set, such as a set of sheets for a schematic. When an image is rendered, the user will automatically know that it belongs to a set and can use the buttons to access other images in the set.

To signify that an image is part of a collection (i.e. multi-sheet image) the ImageCollection element construct should be used in the Image List. When an IImage element is placed within the ImageCollection container, the publisher will automatically produce "Next" and "Previous" image buttons as well as display its location within the collection (i.e. "1 of 7").

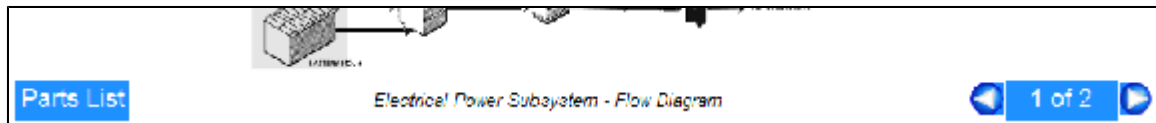


Figure 3-5. ImageCollection Example

3-11.2 IETM Start Image. The image that is displayed first when an IETM is opened is specified by the MainRadarImage element defined in the IntroductionMaterial.xml file.

Tagging Example

```
<MainRadarImage fileName="SPS73V12_FN_LDR_005_01 svg"/>
```


3-12 Multimedia

The 2RIIP allows for the embedding of multimedia files directly into the main presentation areas. The embedded objects are centered with a width of 320 pixels and a height of 240 pixels. The title is placed directly beneath and, when video media is presented, this title also serves as a link to open the video in an external player.

3-12.1 Video. Video is smoothly animating series of images. More complex than simple animated gifs, videos can add richness to content and enhance the user experience. Videos are often accompanied by sound tracks. Acceptable formats are:

- AVI (Audio Video Interleaved - Windows movie file)
- MOV (QuickTime Movie, Apple Macintosh native movie platform)
- MPEG / MPG (MPEG, a standard internet movie platform.)
- RA / RM / RAM (Real Player)
- WMV / WMA / ASF (Windows Media)

NOTE

Video files must meet Navy standards for ISNS/IT-21 and NMCI.

3-12.2 Audio. The audio environment currently supports uncompressed audio format for sound on Personal Computers. Acceptable formats are:

- WAV (Windows Wave format sound file). A Wave file is an audio file format, created by Microsoft that has become a standard PC audio file format.
- MP3 (A coding standard for compression of audio data: MPEG 1 Audio Layer 3).

3-13 Linking

The 2RIIP uses the TextLink, ImageLink, PartDataLink, HTMLPageLink, DocumentLink and TableLink elements to define linking throughout the IETM. These link elements have different behaviors and requirements. For more details refer to the specific element definition later in this document.

3-14 Data Reuse

Within the 2RIIP, there are several mechanisms allowing for the reuse of data. All reused data is stored within the following files: IncludeTable.xml, IncludeText.xml and ImageList.xml. Only objects that will be used more than once should be placed here.

3-14.1 Reusing Text. All reuseable textual objects must be stored in the IncludeTable.xml file. This file can contain the elements ParagraphIncludeText, MessageIncludeText, OrderedListIncludeText, UnorderedListIncludeText, ContentTextIncludeText and HeadingContentIncludeText.

3-14.1.1 Messages. Messages (Warnings, Cautions, Notes, Dangers and Electrostatic Discharge (ESD) Warnings) to be reused are contained in the MessageIncludeText element. Each Message object placed here MUST have an id attribute. In normal text, the id attribute is not required, but it is necessary for the IETM to reuse the object.

The element `MessageInclude` is used to reference a reusable Message. It has a single, required attribute: `messageID`. The value assigned to this attribute must exactly match the `id` attribute of the message element in the `IncludeText.xml` file.

3-14.1.2 Paragraphs. Paragraph elements to be reused are contained in the `ParagraphIncludeText` element. Each Paragraph object placed here MUST have an `id` attribute. In normal text, the `id` attribute is not required, but it is necessary for the IETM to reuse the object.

The element `ParagraphInclude` is used to reference a reusable Paragraph. It has a single, required attribute: `paragraphID`. The value assigned to this attribute must exactly match the `id` attribute of the Paragraph element in the `IncludeText.xml` file.

3-14.1.3 Lists. The 2RIIP supports both ordered and unordered lists. `OrderedList` and `UnorderedList` elements to be reused are contained in the `OrderedListIncludeText` and `UnorderedListIncludeText` elements respectively. Each list object placed here MUST have an `id` attribute. In normal text, the `id` attribute is not required, but it is necessary for the IETM to reuse the object.

```
Nested Ordered List Example
<OrderedList>
  <ListItem>
    <Paragraph>some content</Paragraph>
  <OrderedList>
    <ListItem>
      <Paragraph>some content</Paragraph>
    </ListItem>
  </OrderedList>
</ListItem>
</OrderedList>
```

The elements `OrderedListInclude` and `UnorderedListInclude` are used to reference a reusable list element. They each have a single, required attribute: `listID`. The value assigned to this attribute must exactly match the `id` attribute of the list element in the `IncludeText.xml` file.

3-14.1.4 Heading Content. HeadingContent elements to be reused are contained in the `HeadingContentIncludeText` element. Each HeadingContent object placed here MUST have an `id` attribute. In normal text, the `id` attribute is not required, but it is necessary for the IETM to reuse the object.

The element `HeadingContentInclude` is used to reference a reusable HeadingContent. It has a single, required attribute: `contentID`. The value assigned to this attribute must exactly match the `id` attribute of the HeadingContent element in the `IncludeText.xml` file.

3-14.1.5 Content Text. ContentText elements to be reused are contained in the `IncludeText` element. Each ContentText object placed here MUST have an `id` attribute. In normal text, the `id` attribute is not required, but it is necessary for the IETM to reuse the object.

The element `ContentTextlude` is used to reference a reusable ContentText. It has a single, required attribute: `contentID`. The value assigned to this attribute must exactly match the `id` attribute of the ContentText element in the `IncludeText.xml` file.

3-14.2 Reusing Tables. Tables elements to be reused are contained in the `IncludeTable` element. Each Table objects placed here MUST have an `id` attribute. In normal text, the `id` attribute is not required, but it is necessary for the IETM to reuse the object.

The element `TableInclude` is used to reference a reusable Table. It has a single, required attribute: `tableID`. The value assigned to this attribute must exactly match the `id` attribute of the Table element in the `IncludeTable.xml` file.

3-14.3 Reusing Images. Image elements to be reused are contained in the ImageList element. Each Image objects placed here MUST have an id attribute. In normal text, the id attribute is not required, but it is necessary for the IETM to reuse the object.

The element TableInclude is used to reference a reusable Table. It has a single, required attribute: fileName. The value assigned to this attribute must exactly match the fileName attribute of the IImage element in the ImageList.xml file.

3-15 Marking Filter Change Applicability

In the 2RIIP all filter change applicability such as, field changes, and variances is incorporated into the data. This is a departure from the previous tagging structure in which an external document was used to modify and create a new data instance applicable to the specified field change(s). The source data now contains all filter change mark up and is filtered during the IETM build process to create an IETM applicable to the filter change(s) specified in the RadarList configuration by the FieldChangeNumber element.

NOTE

The FieldChangeNumber element found within the RadarList.xml file is a legacy element name that was reused in the 2RIIP. In the previous 2RI IETMs, field change(s) were the only filter change applicability designations. The 2RIIP allows filter change applicability other than field change(s) such as, variances. Even though the element name is <FieldChangeNumber>, the same methodology applies to other filter change applicability using the <FieldChangeNumber> element in conjunction with the attributes listed below.

Filter changes can be applied at both the element and textual level. Textual level filter changes are handled using the Change element while elemental filter changes are signified using the attributes insfc and delfc. These attributes are also used by the Change element. **Table 3-4** lists the applicable filter change elements.

Table 3-4. Filter Change Elements		
Content	Table	TableRow
Image	FullScreenImage	Message
ContentText	TextLink	ImageLink
Video	Audio	Paragraph
OrderedList	UnorderedList	Change
ListItem	TableInclude	ParagraphInclude
OrderedListInclude	UnorderedListInclude	MessageInclude
ContentTextInclude	UnorderedListInclude	MessageInclude

3-15.1 insfc Attribute. The insfc attribute is used to add the applicability of filter change(s) to a particular element. When this attribute is encountered during the IETM build process values are compared with those specified in the radarList configuration. If a match occurs the element is included in the IETM, otherwise it is discarded. Multiple filter changes can be specified.

Insert Filter Change Example 1

```
<ListItem insfc="3,6,8">
```

In this example only IETMs whose configurations contained field change 3, 6 or 8 as tagged in the <FieldChangeNumber> element within the RadarList.xml file as <FieldChangeNumber>3</FieldChangeNumber><FieldChangeNumber>6</FieldChangeNumber><FieldChangeNumber>8</FieldChangeNumber> would get this ListItem element.

Insert Filter Change Example 2

```
<ListItem insfc="V1">
```

In this example only the IETMs configurations that contained variance 1 as tagged in the <FieldChangeNumber> element within the RadarList.xml file as <FieldChangeNumber>V1</FieldChangeNumber> would get this ListItem element.

3-15.2 delfc Attribute. The delfc attribute is used to signify the applicability of filter change(s) to the removal of a particular element. When this attribute is encountered during the IETM build process its values are compared with those specified in the configuration. If a match occurs the element is discarded. If a match does not occur and there is no insfc attribute then the element is included. Multiple filter changes can be specified.

Delete Filter Change Example.

```
<ListItem delfc="3,6,8">
```

In this example only IETMs with configurations that DID NOT contain field change 3, 6 or 8 would get this ListItem element.

NOTE

The delfc is evaluated first during an IETM build the delfc takes precedence over the insfc attribute. If an element contains both the insfc and delfc attributes and the delfc matches the element is discarded. If delfc does not match, but insfc does it is included.

3-15.3 Change Element. The Change element function is the same as the elements mention above except that it is used to mark-up words and sentences with filter change applicability.

Change Example

```
Cut the <Change delfc="3,6,8">Black</Change><Change insfc="3,6,8">Red</Change> wire.
```

In this example, IETMs that have field change 3, 6 and/or 8 would read "Cut the Red wire" while all others would read "Cut the Black wire".

3-16 Radar List Configuration

Every 2RI IETM TMIN needs to be defined in the RadarList.xml file. In order to make sure that the right Radar Configuration is being built a <Configuration> element must be added to the top-level <Radar> element in the RadarList.xml document. This can be accomplished either by creating a new RadarList.xml document or adding to an existing RadarList.xml document. There should be one <Configuration> element for each possible Radar configuration. A <Radar> element will either have a configuration with no Field Changes or a configuration with Field Changes.

The information found in the RadarList.xml file is displayed on the title page which is the index.htm page and also in the What's New page of the IETM. Each configuration represents an IETM that will be fielded with its own TMIN. Below is an example of the RadarList.xml file broken down to show tagging samples and output examples for each major element in the RadarList.xml file.

RadarList.xml Configuration Example

```
<Radar>
<RadarName>AN/SPS-49A(V)1</RadarName>
<RadarCollection>ANSPS49AV1</RadarCollection>
<RadarDescription>AIR SURVEILLANCE RADAR</RadarDescription>
<ManualDescription>Description, Operation and Maintenance</ManualDescription>
<SecurityLevel>UNCLASSIFIED</SecurityLevel>
<Contractor>NORTHROP GRUMMAN, AMSEC LLC.</Contractor>
<ContractorNumber>N63394-02-D-3105</ContractorNumber>
<Configuration configurationName="Field Change 5">
<TMIN>SE212-AE-IEM-010</TMIN>
<TMINStockNo>0910-LP-106-9126</TMINStockNo>
<VolumeID>N6907100049</VolumeID>
<VolumeStockNo>0910-LP-106-9123</VolumeStockNo>
<Date>15 MARCH 2009</Date>
<FieldChangeNumber>5</FieldChangeNumber>
</Configuration>
</Radar>
```

UNCLASSIFIED

Interactive Electronic Technical Manual (IETM)

**AN/SPS-49A(V)1
AIR SURVEILLANCE RADAR
Field Change 5**

**TMIN: SE212-AE-IEM-010
VOLUME ID/NSN: N6907100049 / 0910-LP-106-9123
DATE: 15 MARCH 2009**

**NORTHROP GRUMMAN, AMSEC LLC.
N63394-02-D-3105**



Figure 3-6. Radar List Config Example

The following example shows how to properly tag the notices found on the index.htm page such as: SupercedureNotice, DistributionStatement, ExportNotice (Warning) and the DestructionNotice. These elements are inserted within the top level <Radar></Radar> element.

```
<SupercedureNotice>THIS IETM SUPERSEDES SE212-V9-IEM-010, VOLUME ID N6907100010 DATED 15  
APRIL 2006. </SupercedureNotice>  
<DistributionStatement statementID="C">DISTRIBUTION AUTHORIZED TO U.S. GOVERNMENT AGENCIES  
AND THEIR CONTRACTORS; CRITICAL TECHNOLOGY; 15 MARCH 2009. OTHER REQUESTS FOR THIS DOCUMENT  
SHALL BE REFERRED TO NAVAL SEA SYSTEMS COMMAND, PEO IWS 2RI15, WASHINGTON NAVY YARD, DC  
20376.</DistributionStatement>  
<ExportNotice>THIS DOCUMENT CONTAINS TECHNICAL DATA WHOSE EXPORT IS RESTRICTED BY THE ARMS  
EXPORT CONTROL ACT (TITLE 22, U.S.C. SEC 2751, ET SEQ.) OR THE EXPORT ADMINISTRATION ACT  
OF 1979, AS AMENDED, TITLE 50, U.S.C., APP 2401, ET SEQ. VIOLATION OF THESE EXPORT LAWS  
ARE SUBJECT TO SEVERE CRIMINAL PENALTIES. DISSEMINATE IN ACCORDANCE WITH PROVISIONS OF DOD  
DIRECTIVE 5230.25. </ExportNotice>
```

<DestructionNotice>COMPLY WITH DISTRIBUTION STATEMENT AND DESTROY BY ANY METHOD THAT WILL PREVENT DISCLOSURE OF CONTENTS OR RECONSTRUCTION OF THE DOCUMENT. </DestructionNotice>

SUPERCEDURE NOTICE : THIS IETM SUPERSEDES SE212-V9-IEM-010, VOLUME ID N6907100010 DATED 15 APRIL 2006.

DISTRIBUTION STATEMENT C : DISTRIBUTION AUTHORIZED TO U.S. GOVERNMENT AGENCIES AND THEIR CONTRACTORS; CRITICAL TECHNOLOGY; 15 MARCH 2009. OTHER REQUESTS FOR THIS DOCUMENT SHALL BE REFERRED TO NAVAL SEA SYSTEMS COMMAND, PEO IWS 2R115, WASHINGTON NAVY YARD, DC 20376.

WARNING : THIS DOCUMENT CONTAINS TECHNICAL DATA WHOSE EXPORT IS RESTRICTED BY THE ARMS EXPORT CONTROL ACT (TITLE 22, U.S.C. SEC 2751, ET SEQ.) OR THE EXPORT ADMINISTRATION ACT OF 1979, AS AMENDED, TITLE 50, U.S.C., APP 2401, ET SEQ. VIOLATION OF THESE EXPORT LAWS ARE SUBJECT TO SEVERE CRIMINAL PENALTIES. DISSEMINATE IN ACCORDANCE WITH PROVISIONS OF DOD DIRECTIVE 5230.25.

DESTRUCTION NOTICE : COMPLY WITH DISTRIBUTION STATEMENT AND DESTROY BY ANY METHOD THAT WILL PREVENT DISCLOSURE OF CONTENTS OR RECONSTRUCTION OF THE DOCUMENT.

This IETM is published by direction of Commander, Naval Sea Systems Command.

Figure 3-7. Radar List Config Example

The RadarList.xml file is also responsible for the information found in the What's New page of the IETM. The top section with the Radar Configuration information is taken from the <Configuration> element mentioned in the first Radar List Config Example above. Below is an example of the <PointOfContact> and <SummaryOfChanges> elements used by the What's New page.

```
<PointOfContact>
<Name>C. Beaulieu, Code S41</Name>
<Division>NAVSURFWARCENDIV</Division>
<Address>488 Sparrow St. Bldg 522</Address>
<CityState>Virginia Beach, VA 23461-1998</CityState>
<Phone>(757) 492-8512</Phone>
<Email>cathy.beaulieu@navy.mil</Email>
</PointOfContact>
<SummaryOfChanges>
<Paragraph>The 15 March 2009 Revision 1 IETM release includes:</Paragraph>
<UnorderedList>
<ListItem>
<Paragraph>General updates and sustaining error corrections.</Paragraph>
</ListItem>
</UnorderedList>
</SummaryOfChanges>
```

What's New

Radar Configuration: AN/SPS-49A(V)1

TMIN: SE212-AE-IEM-010
Volume ID/NSN: N6907100049/0910-LP-106-9123
Date: 15 MARCH 2009

Field Change(s): 5
ORDALT(s): N/A
SHIPALT(s): N/A
TMDER(s): N/A

POC:
C. Beaulieu, Code S41
NAVSURFWARCENDIV
488 Sparrow St. Bldg 522
Virginia Beach, VA 23461-1998

Summary of Changes:

The 15 March 2009 IETM release includes:

- Field Change 5 (AN/SPS-49A(V)1 Solid State Modulator) - Upgrades the transmit function and replaces the transmitter modulator; enhances built in test functions to reduce down time. Sustaining error corrections.

Figure 3-8. Radar List Config Example

The RadarList.xml file also handles the "note" that is displayed in the What's New Page of the ITEM. The note is tagged inside of the the <Messages> element with the attribute type ="note", which belongs in the section under <SummaryOfChanges></SummaryOfChanges>. See below for a code sample and a sample of the output.

```

<Message type="Note">
  <Paragraph>Adobe SVG Viewer is required to view the graphics
  contained in this IETM. SVG Viewer Plug-In can be downloaded at
  "http://www.adobe.com/svg/viewer/install">www.adobe.com/svg/viewer/install and must be
  installed by an administrator. </Paragraph>
  <Paragraph>For ship board commands, SVG Viewer is listed on the PPL-SSIL-CPL (PSC) Certified
  Product List, number PPL-04-0053, sponsor organization SPAWAR PMW-150, approved date 3 August
  2004.</Paragraph>
  <Paragraph>For shore commands, SVG Viewer is included on the NMCI Core Build Contents List
  Version 4.1 dated January 29, 2009 (document #NMCI.10011.01.UC1.E).</Paragraph>
</Message>

```

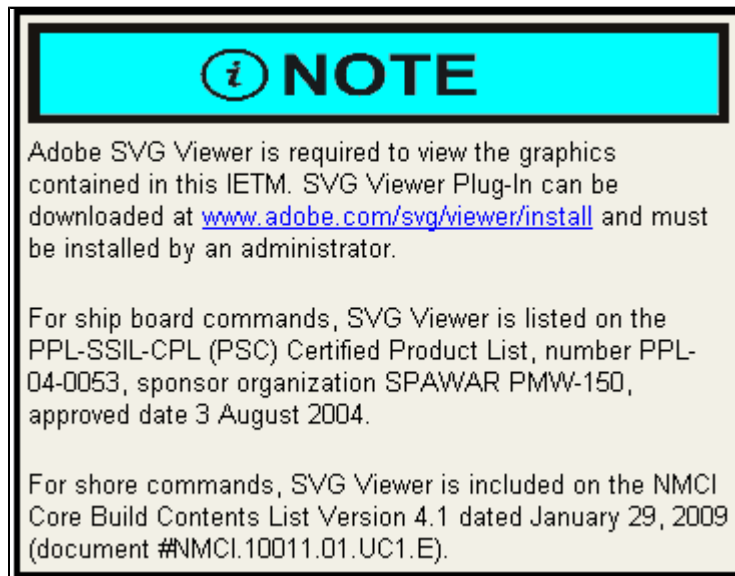



Figure 3-9. Radar List Config Example

3-17 Schemas

The schema defines the organization and hierarchical structure of tagged data within the database thereby acting as the database map. The Schema also provides support for data typing where applicable. The IETM schemas were defined using the W3C XML schema definition language. The schema is an essential part of the project and encompasses all types of data including text, tables, images, multimedia, etc. The schema files shall be furnished to the contractor as GFI.

Schemas and the ETMOP developed for the 2RIIP shall be the responsibility of the Government. Suggestions for modifications may be submitted to the TMMA for consideration. Suggestions should include the benefits of performing such modifications; however, implementation shall be at the discretion of the Government. Modifications resulting in a version change to any schema shall apply to the schema tagging guidelines as well and shall be distributed to the contractor upon completion.

Table 3-5. Schema Elements		
Element Name	Description	Defined In
Troubleshooting (3-17.1)	Top level wrapper element for the troubleshooting material module.	2ri_trouble.xsd
IntroductionMaterial (3-17.2)	Top level wrapper element for the introduction material module.	2ri_introduction.xsd
GeneralInformation (3-17.3)	Top level wrapper element for the general information module.	2ri_general.xsd
PartsList (3-17.4)	Top level wrapper element for the parts list module.	2ri_partsList.xsd
Operation (3-17.5)	Top level wrapper element for the operation module.	2ri_operation.xsd
Maintenance (3-17.6)	Top level wrapper element for the maintenance module.	2ri_maintenance.xsd

Table 3-5. Schema Elements		
Element Name	Description	Defined In
Installation (3-17.7)	Top level wrapper element for the installation module.	2ri_installation.xsd
FunctionList (3-17.8)	Top level wrapper element for the function module.	2ri_function.xsd
AudioVideoList (3-17.9)	Top level wrapper element for the audio support module.	2ri_audio.xsd
ImageList (3-17.10)	Top level wrapper element for the image list support module.	2ri_imageList.xsd
IncludeTable (3-17.11)	Top level wrapper element for the include table support module.	2ri_includeTable.xsd
IncludeText (3-17.12)	Top level wrapper element for the include text support module.	2ri_includeText.xsd
TableIncludeText (3-17.13)	Wrapper element in the include table support module used to hold reusable tables.	2ri_includeTable.xsd
AudioVideo (3-17.14)	Points to a single audio or video file used in the IETM.	2ri_audio.xsd
ILImage (3-17.15)	Defines an image in the ImageList module. It is named ILImage to make it distinct from Image defined in the Content schema.	2ri_imageList.xsd
ImageCollection (3-17.16)	Used to group a collection of ILImage elements in the ImageList. This grouping generates the sheet labeling and the next and previous navigation buttons.	2ri_imageList.xsd
CollectionTitle (3-17.17)	Used to assign a single image title to a collection of ILImage elements in the ImageList.	2ri_imageList.xsd
Glossary (3-17.18)	Wrapper element containing glossary term and definition data. For detailed information see Paragraph 3-9 .	2ri_general.xsd
Entry (3-17.19)	Defines a single glossary record. For detailed information see Paragraph 3-9 .	2ri_general.xsd
Term (3-17.20)	Defines a single glossary term. For detailed information see Paragraph 3-9 .	2ri_general.xsd
Definition (3-17.21)	Defines a single glossary definition. For detailed information see Paragraph 3-9 .	2ri_general.xsd
DocumentFileName (3-17.22)	Alternate means of defining a glossary. Refers to an external file. For detailed information see Paragraph 3-9 .	2ri_general.xsd
MainRadarImage (3-17.23)	Specifies the image file loaded when the IETM opens.	2ri_introduction.xsd

Table 3-5. Schema Elements		
Element Name	Description	Defined In
SafetySummary (3-17.25)	Contents are displayed when the "Safety Summary" link is clicked in the IETM. All dangers, warnings and cautions used in the IETM are listed here. This listing is generated during the IETM build. For more information see Paragraph 3-5 .	2ri_introduction.xsd
ParagraphIncludeText (3-17.26)	Contains paragraph elements to reuse. Refer to Paragraph 3-14 for detailed information on data reuse.	2ri_includeText.xsd
MessageIncludeText (3-17.27)	Contains message elements to reuse. Refer to Paragraph 3-14 for detailed information on data reuse.	2ri_includeText.xsd
OrderedListIncludeText (3-17.28)	Contains ordered list elements to reuse. Refer to Paragraph 3-14 for detailed information on data reuse.	2ri_includeText.xsd
UnorderedListIncludeText (3-17.29)	Contains unordered list elements to reuse. Refer to Paragraph 3-14 for detailed information on data reuse.	2ri_includeText.xsd
HeadingContentIncludeText (3-17.30)	Contains heading content elements to reuse. Refer to Paragraph 3-14 for detailed information on data reuse.	2ri_includeText.xsd
ContentTextIncludeText (3-17.31)	Contains ContentText content elements to reuse. Refer to Paragraph 3-14 for detailed information on data reuse.	2ri_includeText.xsd
RadarAssembly (3-17.32)	Assembly or sub-assembly record in the parts list data. For detailed information on the Parts List refer to Paragraph 3-10 .	2ri_partsList.xsd
RadarPart (3-17.33)	Assembly or sub-assembly record in the parts list data. For detailed information on the Parts List refer to Paragraph 3-10 .	2ri_partsList.xsd
Description (3-17.34)	Holds the descriptive data of the RadarPart/RadarAssembly record. For detailed information on the Parts List refer to Paragraph 3-10 .	2ri_partsList.xsd
ManufacturerList (3-17.35)	Holds the manufactures data. For detailed information on the Parts List refer to Paragraph 3-10 .	2ri_partsList.xsd
Manufacturer (3-17.36)	Single record containing information about an individual manufacturer. For detailed information on the Parts List refer to Paragraph 3-10 .	2ri_partsList.xsd

Table 3-5. Schema Elements		
Element Name	Description	Defined In
PartName (3-17.37)	Provides descriptive data in a Parts List record. For detailed information on the Parts List refer to Paragraph 3-10.	2ri_partsList.xsd
PartNumber (3-17.38)	Defines the Parts List record's part number. For detailed information on the Parts List refer to Paragraph 3-10.	2ri_partsList.xsd
ReferenceDesignation (3-17.39)	Defines the Parts List record's reference designation. For detailed information on the Parts List refer to Paragraph 3-10.	2ri_partsList.xsd
CageCode (3-17.39)	Defines the Parts List record's cage code. For detailed information on the Parts List refer to Paragraph 3-10.	2ri_partsList.xsd
MaintenanceCode (3-17.41)	Defines the Parts List record's maintenance code. For detailed information on the Parts List refer to Paragraph 3-10.	2ri_partsList.xsd
AttachingPart (3-17.42)	Defines the Parts List record's attaching part data. For detailed information on the Parts List refer to Paragraph 3-10.	2ri_partsList.xsd
QuantityPerAssembly (3-17.43)	Defines the Parts List record's quantity per assembly. For detailed information on the Parts List refer to Paragraph 3-10.	2ri_partsList.xsd
Index (3-17.44)	Contains the figure and Index number of the part on a drawing. For detailed information on the Parts List refer to Paragraph 3-10.	2ri_partsList.xsd
ManufacturerName (3-17.45)	Specifies the manufacturer's name in the Parts List. For detailed information on the Parts List refer to Paragraph 3-10.	2ri_partsList.xsd
ManufacturerAddress (3-17.46)	Specifies the manufacturer's address. For detailed information on the Parts List refer to Paragraph 3-10.	2ri_partsList.xsd
HasIndexColumn (3-17.47)	Flag element used to trigger the inclusion of the index column in the Parts List. For detailed information on the Parts List refer to Paragraph 3-10.	2ri_partsList.xsd
PartsInfoFileName (3-17.48)	Alternate means of displaying parts list information. Links to an external file. For detailed information on the Parts List refer to Paragraph 3-10.	2ri_partsList.xsd
OperationAlert (3-17.49)	Module designed to provide operational alerts in the Troubleshooting section of the IETM. For more information and a tagging sample see Paragraph 3-7.	2ri_trouble.xsd

Table 3-5. Schema Elements		
Element Name	Description	Defined In
AlertIndication (3-17.50)	Part of OperationAlert. It specifies the alert indication or error code. For more information and a tagging sample see Paragraph 3-7 .	2ri_trouble.xsd
ProblemDescription (3-17.51)	Part of OperationAlert. Used to describe the problem. For more information and a tagging sample see Paragraph 3-7 .	2ri_trouble.xsd
CorrectiveAction (3-17.52)	Part of OperationAlert. Used to provide the corrective action necessary to correct the problem. For more information and a tagging sample see Paragraph 3-7 .	2ri_trouble.xsd
WireList (3-17.53)	Top level wrapper element for the wire list material module. For more information and a tagging sample see Paragraph 2-1.2 .	2ri_wireList.xsd
WireTable (3-17.54)	Child of WireList. Defines a wire table. For more information and a tagging sample see Paragraph 2-1.2 .	2ri_wireList.xsd
WireDiagram (3-17.55)	Points to a graphical representation of wire data. For more information and a tagging sample see Paragraph 2-1.2 .	2ri_wireList.xsd
WireTableImage (3-17.56)	Image displayed when wire list is activated. For more information and a tagging sample see Paragraph 2-1.2 .	2ri_wireList.xsd
Content (3-17.57)	Main presentation element.	ContentSchema.xsd
HeadingContent (3-17.58)	Primary presentation element.	ContentSchema.xsd
Table (3-17.59)	Main element for the creation of tabular data. This element is equivalent to <Table> tag in HTML. For greater detail see Paragraph 3-4 .	ContentSchema.xsd
TableRow (3-17.60)	Defines a row of tabular data. This element is equivalent to a <TR> tag in HTML. For greater detail see Paragraph 3-4 .	ContentSchema.xsd
TableHeader (3-17.61)	This element defines single table head cell. For greater detail see Paragraph 3-4 .	ContentSchema.xsd
TableData (3-17.62)	This element defines single table body cell. For greater detail see Paragraph 3-4 .	ContentSchema.xsd
Image (3-17.63)	Used to display an image within the HeadingContent.	ContentSchema.xsd
FullScreenImage (3-17.64)	Used to display an image displayed in the main presentation frame.	ContentSchema.xsd
Message (3-17.65)	Content element used to present Warning, Caution, Note, Danger and ESDCaution information.	ContentSchema.xsd

Table 3-5. Schema Elements		
Element Name	Description	Defined In
ContentText (3-17.66)	Used to present textual data.	ContentSchema.xsd
TableLink (3-17.67)	Used to link to a table.	ContentSchema.xsd
TextLink (3-17.68)	Used for linking to another section of the IETM.	ContentSchema.xsd
ImageLink (3-17.69)	Used for linking to an image in the IETM.	ContentSchema.xsd
PartDataLink (3-17.70)	Used for linking to a single record in the Parts List.	ContentSchema.xsd
HTMLPageLink (3-17.71)	Used for linking to an external resource.	ContentSchema.xsd
DocumentLink (3-17.72)	Used for linking to a supporting document.	ContentSchema.xsd
Video (3-17.73)	Used to insert a video file in the main presentation area.	ContentSchema.xsd
Audio (3-17.74)	Used to insert a Audio file in the main presentation area.	ContentSchema.xsd
Paragraph (3-17.75)	Used to present text in the main presentation area.	ContentSchema.xsd
Break (3-17.76)	Used to insert a line break in text.	ContentSchema.xsd
OrderedList	Presents data in a sequential list.	ContentSchema.xsd
UnorderedList	Presents data in a non-sequential list.	ContentSchema.xsd
Change (3-17.79)	Used to mark text with change applicability.	ContentSchema.xsd
Bold (3-17.80)	Content is formatted with bold text.	ContentSchema.xsd
Italic (3-17.81)	Content is formatted with italic text.	ContentSchema.xsd
ListItem (3-17.82)	Container for list item data. Can be part of either an OrderedList or UnorderedList.	ContentSchema.xsd
KeyWords (3-17.84)	Defines Keywords for an object.	ContentSchema.xsd
GlossaryLink (3-17.84)	Creates a mouseover popup for the targeted glossary object.	ContentSchema.xsd
Caption (3-17.85)	Defines the table title.	ContentSchema.xsd
Heading (3-17.86)	Defines the screens primary heading.	ContentSchema.xsd
Overscore (3-17.87)	Formats the content with an overscore character.	ContentSchema.xsd
Underline (3-17.88)	Underline formatting applied to content.	ContentSchema.xsd
Box (3-17.89)	Surrounds content with a box.	ContentSchema.xsd
Sup (3-17.90)	Creates a superscript.	ContentSchema.xsd
Sub (3-17.91)	Creates a subscript.	ContentSchema.xsd

Table 3-5. Schema Elements		
Element Name	Description	Defined In
TableInclude (3-17.92)	Imports the targeted table from the IncludeTable.xml file. Refer to Paragraph 3-14 for detailed information on data reuse.	ContentSchema.xsd
ParagraphInclude (3-17.93)	Pointer element. Used to include a reusable Paragraph element located in the IncludeText.xml file. Refer to Paragraph 3-14 for detailed information on data reuse.	ContentSchema.xsd
OrderedListInclude (3-17.94)	Pointer element. Used to include a reusable OrderedList element located in the IncludeText.xml file. Refer to Paragraph 3-14 for detailed information on data reuse.	ContentSchema.xsd
UnorderedListInclude (3-17.95)	Pointer element. Used to include a reusable UnorderedList element located in the IncludeText.xml file. Refer to Paragraph 3-14 for detailed information on data reuse.	ContentSchema.xsd
MessageInclude (3-17.96)	Pointer element. Used to include a reusable Message element located in the IncludeText.xml file. Refer to Paragraph 3-14 for detailed information on data reuse.	ContentSchema.xsd
HeadingContentInclude (3-17.97)	Pointer element. Used to include a reusable HeadingContent element located in the IncludeText.xml file. Refer to Paragraph 3-14 for detailed information on data reuse.	ContentSchema.xsd
ContentTextInclude (3-17.98)	Pointer element. Used to include a reusable ContentText element located in the IncludeText.xml file. Refer to Paragraph 3-14 for detailed information on data reuse.	ContentSchema.xsd

3-17.1 Troubleshooting. Top level wrapper element for the troubleshooting material module. The Troubleshooting element is the root element of the Troubleshooting.xml file. It contains only Content children which can be nested. The nest of these Content elements determines the structure of the Troubleshooting part of the TOC.

3-17.2 IntroductionMaterial. Top level wrapper element for the introduction material module. The IntroductionMaterial element is the root element of the IntroductionMaterial.xml file. It contains only Content children which can be nested. The nest of these Content elements determines the structure of the IntroductionMaterial part of the TOC.

3-17.3 GeneralInformation. Top level wrapper element for the general information module. The GeneralInformation element is the root element of the GeneralInformation.xml file. It contains only Content children which can be nested. The nest of these Content elements determines the structure of the GeneralInformation part of the TOC.

3-17.4 PartsList. The PartsList element is the root element of the PartsList.xml file. This file is used by the IETM to support the Parts List function. Its contents also support the supportToc functionality of Function.xml.

3-17.5 Operation. Top level wrapper element for the operation module. The Operation element is the root element of the Operation.xml file. It contains only Content children which can be nested. The nest of these Content elements determines the structure of the Operation part of the TOC.

3-17.6 Maintenance. Top level wrapper element for the maintenance module. The Maintenance element is the root element of the Maintenance.xml file. It contains only Content children which can be nested. The nest of these Content elements determines the structure of the Maintenance part of the TOC.

3-17.7 Installation. Top level wrapper element for the installation module. The Installation element is the root element of the Installation.xml file. It contains only Content children which can be nested. The nest of these Content elements determines the structure of the Installation part of the TOC.

3-17.8 FunctionList. Top level wrapper element for the function module. The FunctionList element is the root element of the FunctionList.xml file. It contains only Content children which can be nested. The nest of these Content elements determines the structure of the Function List part of the TOC. Content elements in FunctionList may also contain the supportToc element. For more information on this functionality refer to [Paragraph 2-1.1.1](#).

3-17.9 AudioVideoList. Top level wrapper element for the audio support module.

3-17.10 ImageList. Top level wrapper element for the image list support module.

3-17.11 IncludeTable. Top level wrapper element for the include table support module.

3-17.12 IncludeText. This element is a document level element. This document should only contain text objects which are referred to from other documents(i.e. Maintenance.xml, Troubleshooting.xml, etc.).

3-17.13 TableIncludeText. Wrapper element in the include table support module used to hold reusable tables. Refer to [Paragraph 3-14](#) for detailed information on data reuse.

3-17.14 AudioVideo. The pointer element AudioVideo refers to a single media file. The target file specified in the fileName attribute must exist in the documents directory. The Audio and Video elements refer to this document to retrieve the target file. For more information on the use of audio and video in the IETM see [Paragraph 3-12](#).

Table 3-6. AudioVideo Attributes		
Attribute Name	Required	Description
fileName	YES	The fileName attribute is required. It is essential for using the audio/video files throughout the IETM.
title	YES	The contents of the title attribute are displayed below the image.
id	NO	The id attribute is optional.
insfc	NO	Used to signify an added element applicable to specific field changes. For more information see Paragraph 3-15 .
delfc	NO	Used to signify a deleted element applicable to specific field changes. For more information see Paragraph 3-15 .

Tagging Example

```
<AudioVideo fileName="il234.mpg" title="Video Title">
<Keywords>Keyword Text</Keywords>
</AudioVideo>
```

3-17.15 IImage. Defines an image in the ImageList module. It is named IImage to make it distinct from Image defined in the Content schema.

Table 3-7. IImage Attributes		
Attribute Name	Required	Description
fileName	YES	The fileName attribute is required. It is essential for using the image throughout the IETM.
title	YES	The contents of the title attribute are displayed below the image.
id	NO	The id attribute is optional. It is not currently used in the IETM.
width	NO	Defines the width of an image.
height	NO	Defines the height of an image.
associatedText	NO	This attribute is used to tie an image to text elsewhere in the IETM. It is mostly used to tie multiple sheets to the same text used by the first sheet specified in an ImageCollection. Its value must point to a Content ID.
insfc	NO	Used to signify an added element applicable to specific field changes. For more information see Paragraph 3-15 .
delfc	NO	Used to signify a deleted element applicable to specific field changes. For more information see Paragraph 3-15 .

Tagging Example

```
<IImage fileName="il234.svg" title="Image Title">
<Keywords>Keyword Text</Keywords>
</IImage>
```

3-17.16 ImageCollection. Wrapper element containing IImage elements. Used to group images. When used, the "x of x" label is generated and the next and previous navigation buttons are placed under the image.

3-17.17 CollectionTitle. The CollectionTitle element allows the author to specify a single image title to all IImage elements within an ImageCollection.

3-17.18 Glossary. Wrapper element containing glossary term and definition data. For detailed information see [Paragraph 3-9](#).

3-17.19 Entry. Defines a single glossary record. During the IETM build data contained in the Entry element becomes a single row in the Glossary table. For detailed information see [Paragraph 3-9](#).

3-17.20 Term. Defines a single glossary term. Data in the Term element is placed in the left column of the Glossary table. For detailed information see [Paragraph 3-9](#).

3-17.21 Definition. Defines a single glossary definition. Data in the Definition element is placed in the Glossary tables right column. For detailed information see [Paragraph 3-9](#).

3-17.22 DocumentFileName. The DocumentFileName is used as an alternate way for conveying glossary information. The value specified in its contents must match a file in the IETM's documents directory. When DocumentFileName is used a link is placed in the navigation bar to open the targeted file. It is recommended that the target document be in PDF format. For detailed information see [Paragraph 3-9](#).

Tagging Sample

```
<DocumentFileName>glossary.pdf</DocumentFileName>
```

3-17.23 MainRadarImage. The MainRadarImage element specifies the image displayed when the IETM first opens. The image targeted by the fileName attribute must be in the graphics directory.

Table 3-8. MainRadarImage Attribute		
Attribute Name	Required	Description
fileName	YES	The value must match a file in the graphics directory.

Tagging Example

```
<MainRadarImage fileName="SPS73V12_FN_LDR_005_01 svg"/>
```

3-17.24 CertificationSheet. Data points to the external certification sheet. The certification sheet must be in PDF format and named "certSheet.pdf. For more information about the certification sheet see [Paragraph 3-6](#).

Tagging Example

```
<CertificationSheet/>
```

3-17.25 SafetySummary. Contents are displayed when the "Safety Summary" link is clicked in the IETM. Part of the Safety Summary are auto-generated during the IETM build. All Dangers, Warnings and Cautions used in the IETM are placed following the last HeadingContent element. For more information see [Paragraph 3-5](#).

NOTE

No Danger, Warning or Caution Message elements should be placed in the SafetySummary element itself.

3-17.26 ParagraphIncludeText. This is a container element located in the IncludeText.xml file. It contains Paragraph elements to be reused in the IETM. Refer to [Paragraph 3-14](#) for detailed information on data reuse.

3-17.27 MessageIncludeText. This is a container element located in the IncludeText.xml file. It contains Message elements to be reused in the IETM. Refer to [Paragraph 3-14](#) for detailed information on data reuse.

3-17.28 OrderedListIncludeText. This is a container element located in the IncludeText.xml file. It contains OrderedList elements to be reused in the IETM. Refer to [Paragraph 3-14](#) for detailed information on data reuse.

3-17.29 UnorderedListIncludeText. This is a container element located in the IncludeText.xml file. It contains UnorderedList elements to be reused in the IETM. Refer to [Paragraph 3-14](#) for detailed information on data reuse.

3-17.30 HeadingContentIncludeText. This is a container element located in the IncludeText.xml file. It contains HeadingContent elements to be reused in the IETM. Refer to [Paragraph 3-14](#) for detailed information on data reuse.

3-17.31 ContentTextIncludeText. This is a container element located in the IncludeText.xml file. It contains ContentText elements to be reused in the IETM. Refer to [Paragraph 3-14](#) for detailed information on data reuse.

3-17.32 RadarAssembly. RadarAssembly is a unit of the radar that contains other smaller assemblies or parts. This element may recursively contain other RadarAssembly and RadarPart elements. For detailed information on the Parts List refer to [Paragraph 3-10](#).

3-17.33 RadarPart. RadarAssembly is a unit of the radar that contains other smaller assemblies or parts. This element may recursively contain other RadarAssembly and RadarPart elements. For detailed information on the Parts List refer to [Paragraph 3-10](#).

3-17.34 Description. The Description element holds all the information for a single Parts List record. For detailed information on the Parts List refer to [Paragraph 3-10](#).

Table 3-9. Description Attributes		
Attribute Name	Required	Description
id	No	The id attribute is optional.

3-17.35 ManufacturerList. Container element for manufacturers data. This information is accessible via the "Manufacturers" button in the Parts List interface. For more information and a tagging example see [Paragraph 3-10.2](#).

3-17.36 Manufacturer. Single record containing information about an individual manufacturer. This information is accessible via the "Manufacturers" button in the Parts List interface. For more information and a tagging example see [Paragraph 3-10.2](#).

3-17.37 PartName. The PartName element provides the descriptive information of a part record. For detailed information on the Parts List refer to [Paragraph 3-10](#).

Table 3-10. PartName Attributes		
Attribute Name	Required	Description
id	No	The id attribute is optional.

Tagging Example

```
<PartName>Text Data</PartName>
```

3-17.38 PartNumber. Designates the part number for a radar part. In some cases the MIL TYPE may be used as the value of PartNumber. For detailed information on the Parts List refer to [Paragraph 3-10](#).

Table 3-11. PartNumber Attributes		
Attribute Name	Required	Description
id	No	The id attribute is optional.

Tagging Example

<PartNumber>Text Data</PartNumber>

3-17.39 ReferenceDesignation. A reference description of a radar part or a radar assembly. For detailed information on the Parts List refer to [Paragraph 3-10](#).

Table 3-12. ReferenceDesignation Attributes		
Attribute Name	Required	Description
id	No	The id attribute is optional.

Tagging Example

<ReferenceDesignation>Text Data</ReferenceDesignation>

3-17.40 CageCode. Defines the CAGE (Commercial And Government Entity) Code of a radar part, a radar assembly, a radar subassembly or a radar unit. If the part does not have a corresponding CAGE Code, leave empty. For detailed information on the Parts List refer to [Paragraph 3-10](#).

Table 3-13. CageCode Attributes		
Attribute Name	Required	Description
id	No	The id attribute is optional.

Tagging Example

<CageCode>Text Data</CageCode>

3-17.41 MaintenanceCode. SM&R (Source, Maintenance and Recoverability) code used in the Parts List description. For detailed information on the Parts List refer to [Paragraph 3-10](#).

NOTE

While this element is required, it is not displayed within the current graphical user interface. Therefore, the data developer should either use the SM&R code, leave this element empty or use "NA" for not applicable based on guidance from the government.

Table 3-14. MaintenanceCode Attributes		
Attribute Name	Required	Description
id	No	The id attribute is optional.

Tagging Example

<MaintenanceCode>Text Data</MaintenanceCode>

3-17.42 AttachingPart. Defines the record's attaching part data. AttachingPart has 3 attributes. The first is an optional id that may be used to uniquely identify a specific instance of the AttachingPart element. The second is an required partID attribute. The value of the partID attribute should be equal to the value of the ReferenceDesignation element for the RadarPart information used to describe the attaching part. This allows a single attaching part to be listed once as a Radar Part and associated with many RadarPart or RadarAssembly elements. The third attribute is quantity (required). The value of this quantity attribute should be quantity of the attaching part used as it specifically applies to the parent part. For detailed information on the Parts List refer to [Paragraph 3-10](#).

It is recommended to facilitate appropriate display of attaching parts data that data developers do the following:

- Tag the Parts in RefDes order, the order you tag the parts in is the order it will display in.
- Establish a top-level RadarAssembly whose ReferenceDesignation and Description value is "Attaching_Parts". All other elements should have a value of a dash or N/A.
- Nested within this RadarAssembly element tag all attaching parts using the RadarPart element. Use the RadarPart ReferenceDesignation to create a unique identifier label. The Attaching_Parts child RadarAssembly entries use a single or double letter in the RefDes to identify the attaching part. This is what is searched when matching the partID attribute in the AttachingPart element. Also, this is the same cross reference code used in the many paper Technical Manuals.
- Within the GUI the Attaching H/W column is blank or displays the number of unique parts. For example a (5 parts) hyperlink is not the total number of attaching parts, it is the number of unique parts. When this hyperlink is clicked, the Attaching Hardware table is displayed. The quantity entries in the AttachingPart element will get inserted into the Quantity column of the Attaching Hardware table.

Table 3-15. AttachingPart Attributes		
Attribute Name	Required	Description
id	No	The id attribute is optional.
partID	No	Refers to the RadarPart id. This is used to pull the part number, description and CAGE code information.
quantity	No	Number of items.

Tagging Example

```
<AttachingPart partID="AW" quantity="8"/>
```

3-17.43 QuantityPerAssembly. Defines the Parts List record's quantity per assembly. For detailed information on the Parts List refer to [Paragraph 3-10](#).

3-17.44 Index. This element contains the figure and Index number of the part on a drawing and displays in the Index column of the parts table. Set the HasIndexColumn element to true for this column to display. Index is only used for parts lists that have a Figure/Index column and are organized around a set of Figures. For detailed information on the Parts List refer to [Paragraph 3-10](#).

3-17.45 ManufacturerName. Specifies the manufacturer's name. This information is accessible via the "Manufacturers" button in the Parts List interface. For more information and a tagging example see [Paragraph 3-10.2](#).

3-17.46 ManufacturerAddress. Specifies the manufacturer's address. This information is accessible via the "Manufacturers" button in the Parts List interface. For more information and a tagging example see [Paragraph 3-10.2](#).

3-17.47 HasIndexColumn. When specified this element triggers the inclusion of the Index column in the parts list. For detailed information on the Parts List refer to [Paragraph 3-10](#).

3-17.48 PartsInfoFileName. When used, the PartsInfoFileName element triggers the display of an external parts list file. This file must reside in the documents folder. For detailed information on the Parts List refer to [Paragraph 3-10](#).

3-17.49 OperationAlert. OperationAlert elements are used to convey quick solutions for alert or error codes. They only exist in Troubleshooting instances. For more information and a tagging sample see [Paragraph 3-7](#).

Table 3-16. OperationAlert Attributes		
Attribute Name	Required	Description
id	NO	The id attribute is optional.
insfc	NO	Used to signify an added element applicable to specific field changes. For more information see Paragraph 3-15 .
delfc	NO	Used to signify a deleted element applicable to specific field changes. For more information see Paragraph 3-15 .

3-17.50 AlertIndication. The AlertIndication element is used to provide the alert or error code for an operational alert. It may only contain character data. For more information and a tagging sample see [Paragraph 3-7](#).

3-17.51 ProblemDescription. The ProblemDescription element is used to provide a brief description of the alert or error code. It may only contain character data. For more information and a tagging sample see [Paragraph 3-7](#).

3-17.52 CorrectiveAction. The CorrectiveAction element is part of an OperationAlert. The CorrectiveAction usually contains ContentText elements providing a brief description of the action needed to correct the indicated problem and a link to the complete procedure in the Troubleshooting section. For more information and a tagging sample see [Paragraph 3-7](#).

3-17.53 WireList. Top level wrapper element for the wire list material module. For more information and a tagging sample see [Paragraph 2-1.2](#).

3-17.54 WireTable. The WireTable element is used to present wire list data in a tabular format. For more information and a tagging sample see [Paragraph 2-1.2](#).

Table 3-17. WireTable Attributes		
Attribute Name	Required	Description
id	NO	The id attribute is optional.

3-17.55 WireDiagram. Points to a graphical representation of wire data. The value of required attribute fileName must match a file in the graphics directory. For more information and a tagging sample see [Paragraph 2-1.2.](#)

Table 3-18. WireDiagram Attributes		
Attribute Name	Required	Description
id	NO	The id attribute is optional.
fileName	YES	The value must match a file in the graphics directory.
title	YES	The value is displayed below the image.

3-17.56 WireTableImage. This element is used when the wire list table data is in graphical form. The value of required attribute fileName must match a file in the graphics directory. For more information and a tagging sample see [Paragraph 2-1.2.](#)

Table 3-19. WireTableImage Attributes		
Attribute Name	Required	Description
id	NO	The id attribute is optional.
fileName	YES	The value must match a file in the graphics directory.

3-17.57 Content. This is the IETMs main presentation element. There are three presentation modes determined by the element's content. When it contains both a FullScreenImage element and a HeadingContentInclude or HeadingContent element, the image will be displayed in the upper display pane while the heading content is displayed in the lower pane. In the other two modes, the image or the heading content is displayed in the upper pane while the lower pane remains empty.

The Content element may recursively contain other Content elements that represent subsections in the technical manual.

Table 3-20. Content Attributes		
Attribute Name	Required	Description
id	YES	Every Content element must have an id. It is essential for linking and overall IETM functionality.

Table 3-20. Content Attributes		
Attribute Name	Required	Description
insfc	NO	Used to signify an added element applicable to specific field changes. For more information see Paragraph 3-15 .
delfc	NO	Used to signify a deleted element applicable to specific field changes. For more information see Paragraph 3-15 .

3-17.58 HeadingContent. The HeadingContent element is one of two primary presentation elements. It may contain ContentText, ContentTextInclude, Image, Table, TableInclude, Message, MessageInclude, Video and Audio elements. When it is included with a FullScreenImage element its contents are displayed in the lower pane, otherwise it occupies the upper pane.

Table 3-21. HeadingContent Attributes		
Attribute Name	Required	Description
id	NO	Only specify the id attribute when the element exist in the IncludeText.xml file. It is required for reuse.

3-17.59 Table. The Table element contains data to be presented in a tabular format. Refer to [Paragraph 3-4](#) for more information on working with tables.

Table 3-22. Table Attributes		
Attribute Name	Required	Description
id	NO	Only specify the id attribute when the element exist in the IncludeText.xml file. It is required for reuse.
insfc	NO	Used to signify an added element applicable to specific field changes. For more information see Paragraph 3-15 .
delfc	NO	Used to signify a deleted element applicable to specific field changes. For more information see Paragraph 3-15 .
border	NO	Specifies whether a table is framed or not. If not specided then frame is turned on. Possible values are 1 or 0.
cellPadding	NO	Specifies the amount of padding to apply within the table's cells. The default is 3. Values are any positive integer.

Table 3-22. Table Attributes		
Attribute Name	Required	Description
cellSpacing	NO	Specifies the amount of spacing to apply within the table's cells. The default is 0. Values are any positive integer.
cellAlign	NO	Specifies the overall table cell alignment. Cells are aligned left if not specified. Default values are 'left', 'right' or 'center'.
headerAlign	NO	Specifies the overall table header cell alignment. Cells are aligned centered if not specified. Default values are 'left', 'right' or 'center'.

3-17.60 TableRow. Used to designate a single row in a table. The table row element is used to specify both header and table body rows. For greater detail and examples see [Paragraph 3-4](#).

Table 3-23. TableRow Attributes		
Attribute Name	Required	Description
id	NO	Only specify the id attribute when the element exist in the IncludeText.xml file. It is required for reuse.
insfc	NO	Used to signify an added element applicable to specific field changes. For more information see Paragraph 3-15 .
delfc	NO	Used to signify a deleted element applicable to specific field changes. For more information see Paragraph 3-15 .
cellAlign	NO	Specifies the overall table cell alignment. Cells are aligned left if not specified. Default values are 'left', 'right' or 'center'.
headerAlign	NO	Specifies the overall table header cell alignment. Cells are aligned centered if not specified. Default values are 'left', 'right' or 'center'.

3-17.61 TableHeader. The TableHeader element defines a single cell in a table. Cells tagged using the TableHeader element are formatted with a light brown background. For greater detail and examples see [Paragraph 3-4](#).

Table 3-24. TableHeader Attributes		
Attribute Name	Required	Description
id	NO	Only specify the id attribute when the element exist in the IncludeText.xml file. It is required for reuse.
colspan	NO	This attribute is used to span the cell across columns. Value must be a positive integer. Refer to Paragraph 3-4.4 for more information on spanning.
rowspan	NO	This attribute is used to span the cell across rows. Value must be a positive integer. Refer to Paragraph 3-4.3 for more information on spanning.
align	NO	Specifies the cell alignment. Cells are aligned left if not specified. Default values are 'left', 'right' or 'center'.

3-17.62 TableData. The TableData element defines a single cell in a table. Cells tagged using the TableData element inherit the background color from their parent. For greater detail and examples see [Paragraph 3-4](#).

Table 3-25. TableData Attributes		
Attribute Name	Required	Description
id	NO	Only specify the id attribute when the element exist in the IncludeText.xml file. It is required for reuse.
colspan	NO	This attribute is used to span the cell across columns. Value must be a positive integer. Refer to Paragraph 3-4.4 for more information on spanning.
rowspan	NO	This attribute is used to span the cell across rows. Value must be a positive integer. Refer to Paragraph 3-4.3 for more information on spanning.
align	NO	Specifies the cell alignment. Cells are aligned left if not specified. Default values are 'left', 'right' or 'center'.

3-17.63 Image. The Image element is used to display small images in the HeadingContext are of the IETM. These images are displayed in context with other textual elements.

Table 3-26. Image Attributes		
Attribute Name	Required	Description
fileName	YES	The fileName attribute is required. It is essential for using the image throughout the IETM. It must match a value in the ImageList.xml file.
id	No	The id attribute is not required, but must be used if the Message is part of the IncludeText.xml file. For more information on data reuse see Paragraph 3-14 .
insfc	NO	Used to signify an added element applicable to specific field changes. For more information see Paragraph 3-15 .
delfc	NO	Used to signify a deleted element applicable to specific field changes. For more information see Paragraph 3-15 .

3-17.64 FullScreenImage. When the FullScreenImage is used in the Content element the image targeted by the fileName attribute is displayed in the main presentation pane. The value specified by the fileName attribute must match an object in the ImageList.xml file.

Table 3-27. FullScreenImage Attributes		
Attribute Name	Required	Description
fileName	YES	The fileName attribute is required. It is essential for using the image throughout the IETM. It must match a value in the ImageList.xml file.
id	No	The id attribute is not required, but must be used if the Message is part of the IncludeText.xml file. For more information on data reuse see Paragraph 3-14 .
insfc	NO	Used to signify an added element applicable to specific field changes. For more information see Paragraph 3-15 .
delfc	NO	Used to signify a deleted element applicable to specific field changes. For more information see Paragraph 3-15 .

Tagging Example

```
<Message type="Caution">
<Paragraph>Caution text. Data data data data data data.</Paragraph>
</Message>
```

3-17.65 Message. The message element is used to convey alerts and supplemental information. There are five types of messages available in the 2ri process: Warning, Caution, Note, Danger and ESDCaution.

Table 3-28. Message Attributes		
Attribute Name	Required	Description
type	YES	The required type attribute signifies which type of message to display.
id	No	The id attribute is not required, but must be used if the Message is part of the IncludeText.xml file. For more information on data reuse see Paragraph 3-14 .
insfc	NO	Used to signify an added element applicable to specific field changes. For more information see Paragraph 3-15 .
delfc	NO	Used to signify a deleted element applicable to specific field changes. For more information see Paragraph 3-15 .

Tagging Example

```
<Message type="Caution">
<Paragraph>Caution text. Data data data data data data.</Paragraph>
</Message>
```



Figure 3-10. Caution Example

Tagging Example

```
<Message type="Warning">
<Paragraph>Warning text. Data data data data data data.</Paragraph>
</Message>
```



Figure 3-11. Warning Example

Tagging Example

```
<Message type="Note">
<Paragraph>Note text. Data data data data data data.</Paragraph>
</Message>
```



Figure 3-12. Note Example

Tagging Example

```
<Message type="Danger">
<Paragraph>Danger text. Data data data data data data.</Paragraph>
</Message>
```



Figure 3-13. Danger Example

Tagging Example

```
<Message type="ESDCaution">
<Paragraph>ESDCaution text. Data data data data data data.</Paragraph>
</Message>
```



Figure 3-14. ESDCaution Example

3-17.66 ContentText. ContentText is a container element used for presentaion paragraph and list data.

Table 3-29. ContentText Attributes		
Attribute Name	Required	Description
id	NO	The id attribute is optional.
insfc	NO	Used to signify an added element applicable to specific field changes. For more information see Paragraph 3-15 .
delfc	NO	Used to signify a deleted element applicable to specific field changes. For more information see Paragraph 3-15 .

3-17.67 TableLink. The TableLink is used to provide a link to a specific table. When clicked on the link will open the target table in Context and if applicable highlight the specified row/cell. For more information see [Paragraph 3-13](#).

Table 3-30. TableLink Attributes		
Attribute Name	Required	Description
headingID	YES	The headingID is required. It must point to the id attribute of a Content element.
tableID	YES	The tableID is required. It must point to the id attribute of a Table within a Content element.
dataID	NO	It must point to the id attribute of a TableData element of the targeted table.
rowID	NO	It must point to the id attribute of a TableRow element of the targeted table.
insfc	NO	Used to signify an added element applicable to specific field changes. For more information see Paragraph 3-15 .
delfc	NO	Used to signify a deleted element applicable to specific field changes. For more information see Paragraph 3-15 .

Tagging Example

```
<TableLink headingID="x1234" tableID="t1234">TableLink</TableLink>
```

3-17.68 TextLink. The TextLink element is used to link to another Content element. Clicking on a TextLink will cause the IETM to display the targeted link in the viewing pane(s). TextLink elements are formatted with blue text. The required attribute headingID must refer to the id attribute of a Content element in Function.xml, Maintenance.xml, GeneralInformation.xml, Troubleshooting.xml, Installation.xml or Operation.xml.

Table 3-31. TextLink Attributes		
Attribute Name	Required	Description
headingID	YES	The id headingID is required. It must point to the id attribute of a Content element.
insfc	NO	Used to signify an added element applicable to specific field changes. For more information see Paragraph 3-15 .
delfc	NO	Used to signify a deleted element applicable to specific field changes. For more information see Paragraph 3-15 .

Tagging Example.

```
<TextLink headingID="x1234">TextLink</TextLink>
```

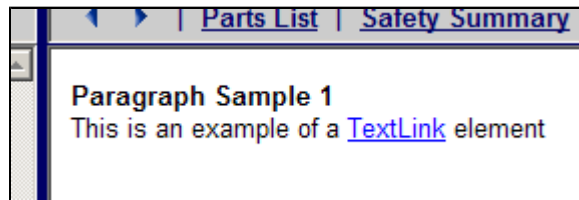


Figure 3-15. TextLink Example

3-17.69 ImageLink. The ImageLink element is used to link to an image. Clicking on a ImageLink will cause the IETM to display the targeted image in the upper viewing pane. ImageLinks are formatted with blue text. The required attribute fileName must refer to the fileName attribute of a IImage element in ImageList.xml.

Table 3-32. ImageLink Attributes		
Attribute Name	Required	Description
fileName	YES	The attribute fileName is required. It must point to the fileName attribute of an IImage element.
insfc	NO	Used to signify an added element applicable to specific field changes. For more information see Paragraph 3-15 .
delfc	NO	Used to signify a deleted element applicable to specific field changes. For more information see Paragraph 3-15 .

Tagging Example

```
<ImageLink fileName="i1234.svg">ImageLink</ImageLink>
```

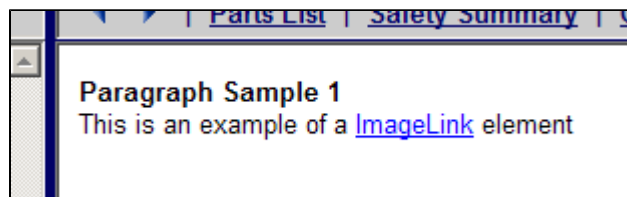


Figure 3-16. ImageLink Example

3-17.70 PartDataLink. The PartDataLink element is used to link to a single record in the Parts List. Clicking on a PartDataLink will cause the IETM to open the Parts List in an independent window and to display the targeted record. PartDataLinks are formatted with blue text. The required attribute partReferenceDesignation must match the contents of the ReferenceDesignation element in PartsList.xml.

Table 3-33. PartDataLink Attributes		
Attribute Name	Required	Description
partReferenceDesignation	YES	The attribute partReferenceDesignation is required. It must match the contents of the ReferenceDesignation.

Table 3-33. PartDataLink Attributes		
Attribute Name	Required	Description
insfc	NO	Used to signify an added element applicable to specific field changes. For more information see Paragraph 3-15 .
delfc	NO	Used to signify a deleted element applicable to specific field changes. For more information see Paragraph 3-15 .

Tagging Example

```
<PartDataLink partReferenceDesignation="1M1P">PartDataLink</PartDataLink>
```

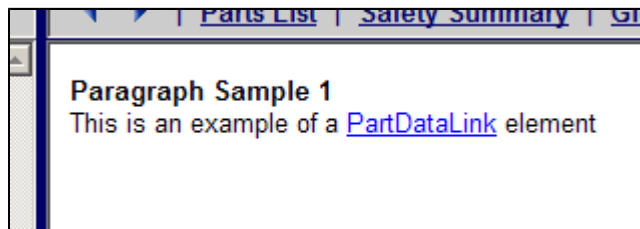


Figure 3-17. PartDataLink Example

3-17.71 HTMLPageLink. The HTMLPageLink element is used to link to an external network resource. Clicking on a HTMLPageLink will cause the IETM to open the targeted resource in an independent window. HTMLPageLinks are formatted with blue text.

NOTE

The resource targeted by the url attribute must be available from the computer running the IETM. If a connection does not exist an error will occur.

Table 3-34. HTMLPageLink Attributes		
Attribute Name	Required	Description
url	YES	The attribute url is required. The targeted resource must be available from the computer running the IETM.
insfc	NO	Used to signify an added element applicable to specific field changes. For more information see Paragraph 3-15 .
delfc	NO	Used to signify a deleted element applicable to specific field changes. For more information see Paragraph 3-15 .

Tagging Example

```
<HTMLPageLink url="http://www.navy.mil">HTMLPageLink</HTMLPageLink>
```

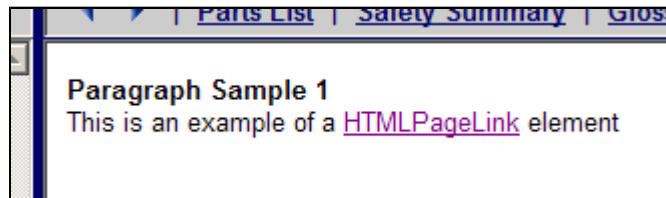



Figure 3-18. HTMLPageLink Example

3-17.72 DocumentLink. The DocumentLink element is used to link to a supporting document. Clicking on a DocumentLink will cause the IETM to open the targeted resource in an independent window. DocumentLinks are formatted with blue text. The resource targeted by the fileName attribute must reside in the IETMs document folder.

NOTE

The IETM relies on the computer's capability to open the targeted file. If the computer running the IETM does not recognize the file type it will not display. It is recommended to primarily use PDF, Microsoft Word or Excel files.

Table 3-35. DocumentLink Attributes		
Attribute Name	Required	Description
fileName	YES	The attribute fileName is required. No system pathway is required; just the name of the file. This file must be in the documents directory.
insfc	NO	Used to signify an added element applicable to specific field changes. For more information see Paragraph 3-15.
delfc	NO	Used to signify a deleted element applicable to specific field changes. For more information see Paragraph 3-15.

Tagging Example

```
<DocumentLink fileName="oil.pdf">DocumentLink</DocumentLink>
```

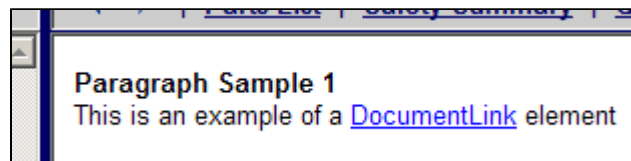


Figure 3-19. DocumentLink Example

3-17.73 Video. The Video element is used to embed a video file in the main presentation screen(s). The value of the fileName attribute must match an object in the AudioVideoList.xml file.

Table 3-36. Video Attributes		
Attribute Name	Required	Description
fileName	YES	The fileName attribute is required. It must match an AudioVideo object in the AudioVideoList.xml file.
id	NO	The id attribute is optional.
insfc	NO	Used to signify an added element applicable to specific field changes. For more information see Paragraph 3-15 .
delfc	NO	Used to signify a deleted element applicable to specific field changes. For more information see Paragraph 3-15 .

Tagging Example

```
<Video fileName="i1234.mpg" />
```

3-17.74 Audio. The Audio element is used to embed a sound file in the main presentation screen(s). The value of the fileName attribute must match an object in the AudioVideoList.xml file.

Table 3-37. Audio Attributes		
Attribute Name	Required	Description
fileName	YES	The fileName attribute is required. It must match an AudioVideo object in the AudioVideoList.xml file.
id	NO	The id attribute is optional.
insfc	NO	Used to signify an added element applicable to specific field changes. For more information see Paragraph 3-15 .
delfc	NO	Used to signify a deleted element applicable to specific field changes. For more information see Paragraph 3-15 .

Tagging Example

```
<Audio fileName="i1234.mp3" title="Audio Title"/>
```

3-17.75 Paragraph. The Paragraph element is the primary container of textual data. In addition to character data it may also contain the Change element as well as all formatting and linking elements.

Table 3-38. Paragraph Attributes		
Attribute Name	Required	Description
id	NO	Optional. Should only be used when Paragraph occurs in IncludeText.xml.

Table 3-38. Paragraph Attributes		
Attribute Name	Required	Description
insfc	NO	Used to signify an added element applicable to specific field changes. For more information see Paragraph 3-15 .
delfc	NO	Used to signify a deleted element applicable to specific field changes. For more information see Paragraph 3-15 .

Tagging Example

<Paragraph>Remove cover to gain access.</Paragraph>

3-17.76 Break. The Break is an in-line element used to break a line of text. Text following the Break element is moved to the next line.

3-17.77 OrderedList. The OrderList element is used to present data in a labeled, sequential list. Labels for ordered lists are generated during the IETM build process and are formatted as follows:

1. First level procedural items shall be numbered consecutively with Arabic numerals and block indented under first word of the item.
2. Second level procedural items shall be numbered consecutively with lower case letters and block indented under first word of the item.
3. Third level procedural items shall be numbered consecutively with Arabic enclosed in parenthesis and block indented under first word of the item.
4. Fourth level procedural items shall be numbered consecutively with lower case letters enclosed in parenthesis and block indented under first word of the item.
5. Fifth level procedural items shall be numbered consecutively with lower case Roman numerals and block indented under first word of the item.
6. Sixth level procedural items shall be numbered consecutively with lower case Roman numerals enclosed in parenthesis and block indented under first word of the item.

3-17.78 UnorderedList. The UnorderedList element is used to present data in an a unordered bulleted list.

3-17.79 Change. Textual level field changes are handled using the Change element. It has the same change marking attributes used by high level elements. For more information on change marking see [Paragraph 3-15](#).

3-17.80 Bold. This element is equivalent to a tag in HTML.

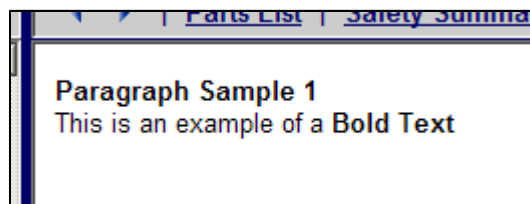


Figure 3-20. Bold Text

This is an example of a <Bold>Bold Text</Bold>

3-17.81 Italic. This element is equivalent to a <I> tag in HTML.

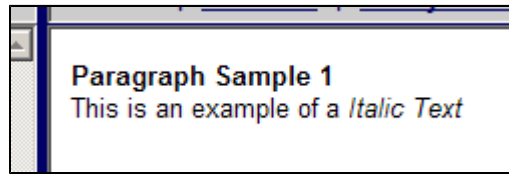


Figure 3-21. Italic Text

This is an example of a <Italic>Italic Text</Italic>

3-17.82 ListItem. This element holds the information for a single list item and is a child element of either `OrderedList` or `UnorderedList`.

3-17.83 KeyWords. The `KeyWords` element allows for the addition of non-presented data to an object. This data is not important to the presentation on the screen, but may be used to provide additional functionality to the search tool. For example applicable part numbers, specifications, etc. may be included in the `KeyWords` for an object so that the user can search on a part number and receive the parent object as a search hit.

```
<KeyWords>Parts : 2345-X 3458-CJR <KeyWords/>
```

3-17.84 GlossaryLink. This creates a pop-up when the cursor is placed on the enclosed text. The contents of this pop-up are defined in the optional attribute definition. The `GlossaryLink` also contains the attribute `glossaryID` that matches the attribute `id` defined in the `Entry` element of the glossary table. The matching of these two attribute IDs will pull the term and definition defined in the `Glossary` table.

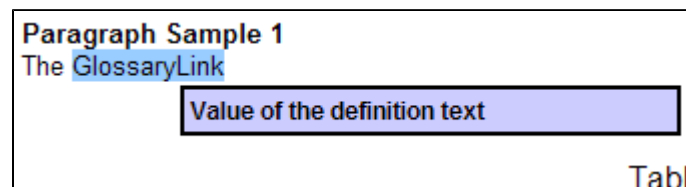


Figure 3-22. Glossary Link

```
<GlossaryLink definition="Some supplemental text about the highlighted text"/>
```

```
<GlossaryLink glossaryID="1"/>
```

3-17.85 Caption. The `Caption` element contains the title information for a table. It is optional.

3-17.86 Heading. The `Heading` element contains the primary heading of a screen. This information is the first thing that appears in the upper panel.

3-17.87 Overscore. `Overscore` is an inline format element used to overscore text.

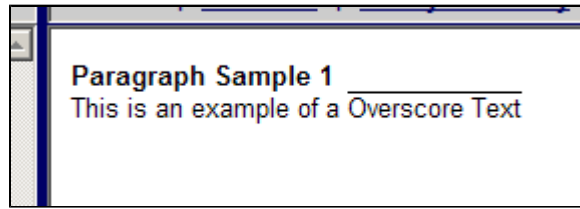


Figure 3-23. Overscore Example

Tagging Example

`<Overscore>Cow</Overscore>`

3-17.88 Underline. Underline is an inline format element used to underlined text.

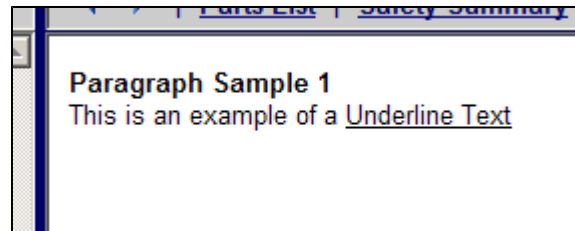


Figure 3-24. Underline Example

Tagging Example

`<Underline>Cow</Underline>`

3-17.89 Box. Box is an inline format element used to surround text with a box.

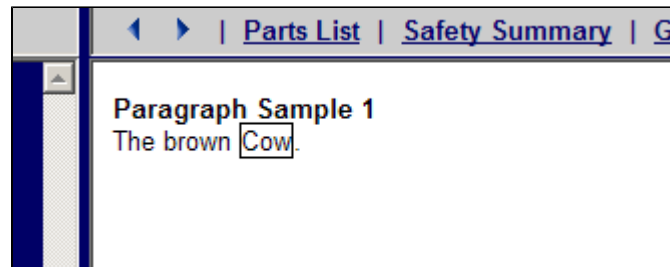


Figure 3-25. Box Example

Tagging Example

`<Box>Cow</Box>`

3-17.90 Superscript. Sup is an inline format element used to produce a superscript.

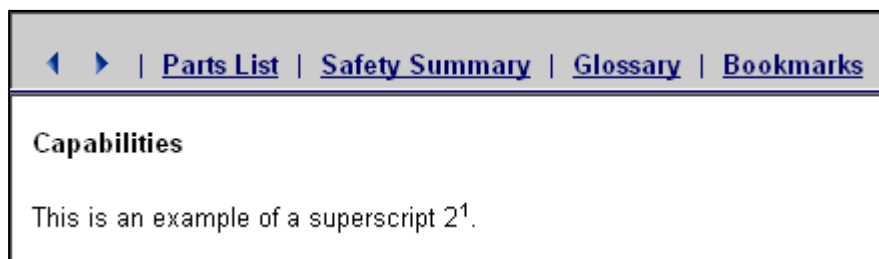


Figure 3-26. Sup Example

Tagging Example

```
2<Sup>1</Sup>
```

3-17.91 Subscript. Sup is an inline format element used to produce a subscript.

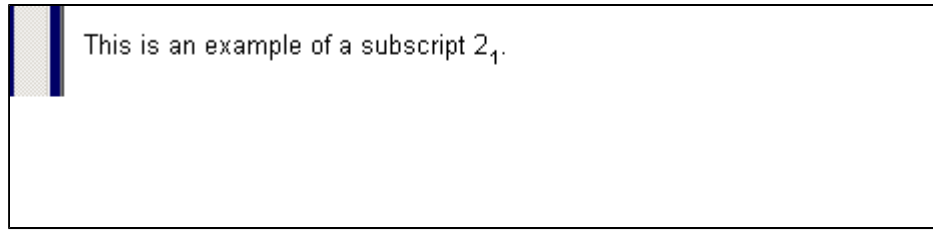


Figure 3-27. Sub Example

Tagging Example

```
2<Sub>1</Sub>
```

3-17.92 TableInclude. Imports the targeted Paragraph from the IncludeText.xml file. It has a single, required attribute, paragraphID, that must match the id value and case of the targeted Paragraph. Refer to [Paragraph 3-14](#) for detailed information on data reuse.

Tagging Example

```
<TableInclude tableID="x12345"/>
```

3-17.93 ParagraphInclude. Imports the targeted Paragraph from the IncludeText.xml file. It has a single, required attribute, paragraphID, that must match the id value and case of the targeted Paragraph. Refer to [Paragraph 3-14](#) for detailed information on data reuse.

Tagging Example

```
<ParagraphInclude paragraphID="x12345"/>
```

3-17.94 OrderedListInclude. Imports the targeted OrderedList from the IncludeText.xml file. It has a single, required attribute, listID, that must match the id value and case of the targeted Paragraph. Refer to [Paragraph 3-14](#) for detailed information on data reuse.

Tagging Example

```
<OrderedListInclude listID="x12345"/>
```

3-17.95 UnorderedListInclude. Imports the targeted UnorderedList from the IncludeText.xml file. It has a single, required attribute, listID, that must match the id value and case of the targeted Paragraph. Refer to [Paragraph 3-14](#) for detailed information on data reuse.

Tagging Example

```
<UnorderedListInclude listID="x12345"/>
```

3-17.96 MessageInclude. Imports the targeted Message from the IncludeText.xml file. It has a single, required attribute, messageID, that must match the id value and case of the targeted Paragraph. Refer to [Paragraph 3-14](#) for detailed information on data reuse.

Tagging Example

```
<MessageInclude messageID="x12345"/>
```

3-17.97 HeadingContentInclude. Imports the targeted HeadingContent from the IncludeText.xml file. It has a single, required attribute, contentID, that must match the id value and case of the targeted Paragraph. Refer to [Paragraph 3-14](#) for detailed information on data reuse.

Tagging Example

```
<HeadingContentInclude contentID="x12345"/>
```

3-17.98 ContentTextInclude. The ContentTextInclude element is used to import a shared ContentText element into the current object. It must point to a ContentText object located in the IncludeText document. Refer to [Paragraph 3-14](#) for detailed information on data reuse.

Tagging Example

```
<ContentTextInclude listID="x12345" />
```


Appendix C

2RI IETM SCHEMAS

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SECTION 1

List of Schemas

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