SunGuide™:

Reporting Subsystem Interface Control Document

SunGuide-RS-ICD-6.2

Prepared for:

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List of Acronyms

ATMS	Advanced Traffic Management System
DOT	Department of Transportation
FDOT	Florida Department of Transportation
ITS	Intelligent Transportation Systems
ITN	Invitation to Negotiate
RS	Reporting Subsystem
SwRI	Southwest Research Institute
TMC	Traffic Management Center
XML	Extensible Markup Language

REVISION HISTORY

Revision	Date	Changes
3.0.0	April 25, 2007	Initial Release
3.0.1	December 19, 2007	Added “how to use this document” section
6.2	March 15, 2016	Updated for Release 6.2

1. Scope

1.1 Document Identification

This Interface Control Document (ICD) describes the interface between individual SunGuide™ clients and the Reporting Subsytem (RS) subsystem and between the RS subsystem and other subsytems. The general base architecture of the XML communications including connection information, byte order and base transaction classes is delineated in this document. This ICD defines Extensible Markup Language (XML) schemas upon which XML requests shall be based in communicating amongst the various processes. Refer to the SunGuide-General-ICD document for details regarding data transfer.

1.2 Project Overview

The Florida Department of Transportation (FDOT) is conducting a program that is developing SunGuide software. The SunGuide software is a set of Intelligent Transportation System (ITS) software that allows the control of roadway devices as well as information exchange across a variety of transportation agencies. The goal of the SunGuide software is to have a common software base that can be deployed throughout the state of Florida. The SunGuide software development effort is based on ITS software available from the state of Texas; significant customization of the software is being performed as well as the development of new software modules. The following figure provides a graphical view of the software to be developed:

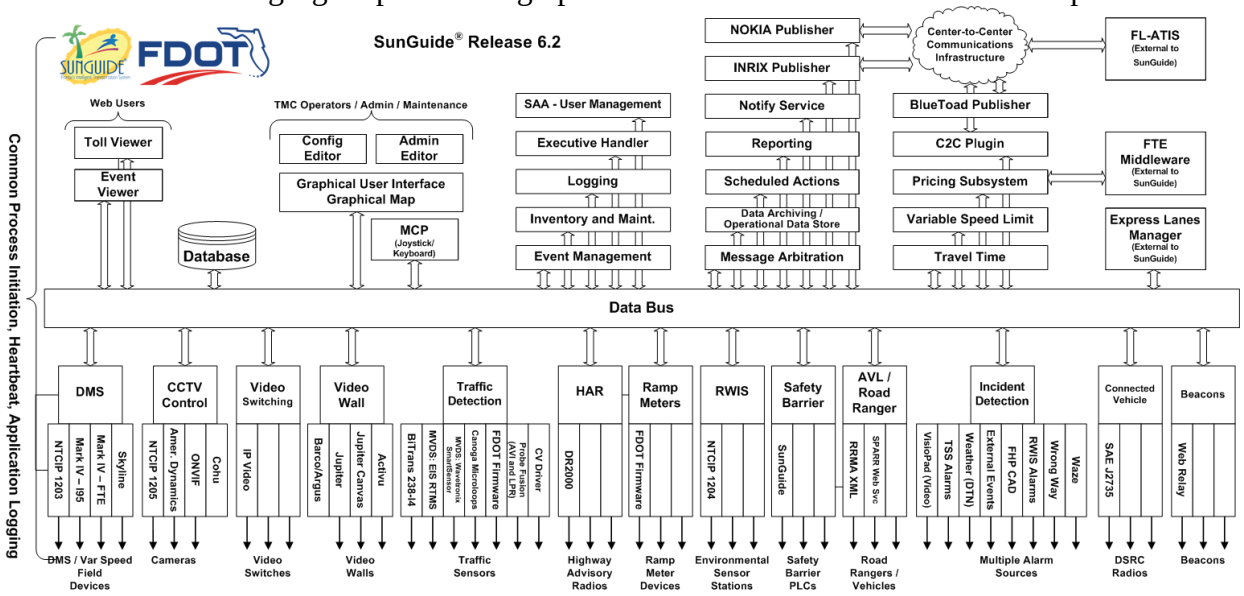

Figure 1-1 - High-Level Architectural Concept

1.3 How to Use This Document

The ICDs describe the specific interface between two SunGuide subsystems or between a SunGuide subsystem and a SunGuide driver. The relationship of appropriate documents is shown in the Figure 1-2.

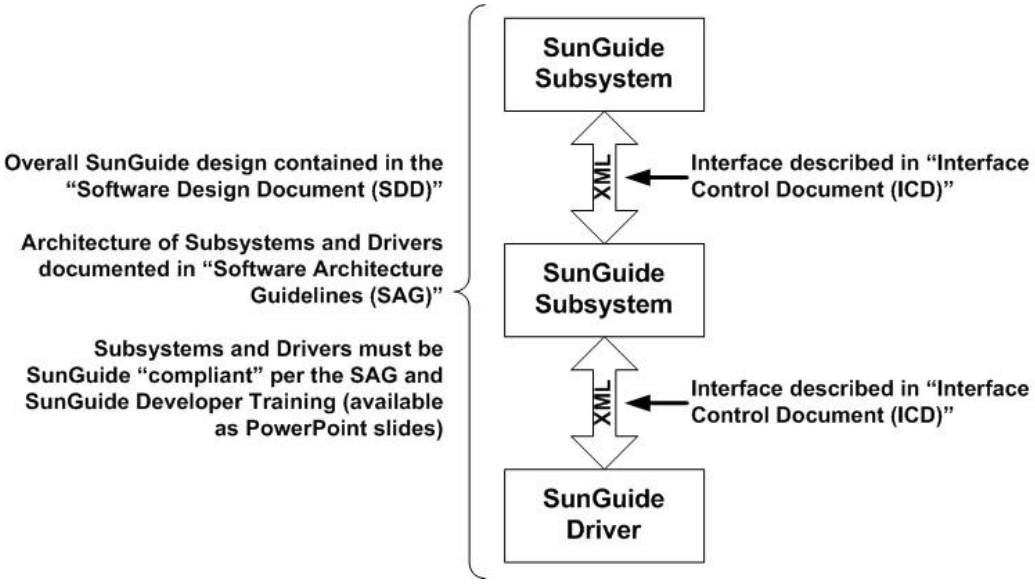

Figure 1-2 - SunGuide Developer Documentation

This document describes an *internal* SunGuide interface. The interface described is between two SunGuide compliant processes. The reader should review the following document to gain an understanding of how SunGuide compliant application is created (this will vary if the application is a driver or subsystem):

SunGuide Software Architecture Guidelines (SAG)

The SAG describes what needs to be included in a SunGuide application to assure that it will work cooperatively in the SunGuide environment. Once the SAG is reviewed, the following document should be reviewed:

SunGuide Software Design Document (SDD)

The SDD will provide an understanding of how individual components of SunGuide were designed. Finally the ICD, along with the associated schema should be reviewed to determine what data needs to be exchanged on the interface being defined in this document.

Additionally, a SunGuide "Developer Training" class is available that provides the students with an introduction into developing SunGuide processes. The SunGuide source code repository has a generic subsystem and a generic driver available that can be used as the basis for developing a new application.

1.4 Related Documents

The following documents were used to develop this document:

- FDOT Scope of Services: *BDQ69, Standard Written Agreement for SunGuide Software Support, Maintenance, and Development, Exhibit A: Scope of Services.* July 1, 2010.
- Notice to Proceed: Letter to Southwest Research Institute® (SwRI®) for BDQ69, July 1, 2010.
- SunGuide Project website: http://sunguidesoftware.com.

1.5 Contacts

The following are contact persons for the SunGuide software project:

- Fred Heery, ITS Section, Traffic Engineering and Operations Office Central Office, fred.heery@dot.state.fl.us, 850-410-5606
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- Tucker Brown, SwRI Project Manager, tbrown@swri.com, 210-522-3035
- Roger Strain, SwRI Software Project Manager, rstrain@swri.org, 210-522-6295

2. Data

The following sections detail the XML transactions that can be exchanged between client and server applications.

2.1 Schema

The schemas for these transactions may be located in the Schemas directory. The objects directory contains common data schemas that are used by the various request, messages, and responses. Schemas are organized in the following tree structure:

- Messages
    - generateReportMsg.xsd
    - queueUpdateMsg.xsd
- Objects
    - QueuedReport.xsd
    - Report.xsd
    - ReportGroup.xsd
    - ReportParameter.xsd
- Requests
    - addReportGroupReq.xsd
    - addReportReq.xsd
    - cancelReportReq.xsd
    - deleteReportGroupReq.xsd
    - deleteReportReq.xsd
    - emailReportReq.xsd
    - generateChronologyReportReq.xsd
    - generateReportReq.xsd
    - modifyReportGroupReq.xsd
    - modifyReportReq.xsd
    - queueChronologyReportReq.xsd
    - queueReportReq.xsd
    - retrieveDataReq.xsd
    - subscribeReq.xsd
- Response
    - addReportGroupResp.xsd
    - addReportResp.xsd
    - cancelReportResp.xsd
    - deleteReportGroupResp.xsd
    - deleteReportResp.xsd
    - emailReportResp.xsd
    - generateChronologyReportResp.xsd
    - generateReportResp.xsd
    - modifyReportGroupResp.xsd
    - modifyReportResp.xsd
    - queueChronologyReportResp.xsd

- queueReportResp.xsd
- retrieveDataRes.xsd
- subscribeResp.xsd

2.2 Subsystem communication

The following table shows the various subscriptions a client may request.

Subscription	Description	Updates Received
ReportGroupList	Receive updates to reports and report groups	AddReportGroupResp, ModifyReportGroupResp, DeleteReportGroupResp, AddReportResp, ModifyReportResp, DeleteReportResp
userData	Receive notification of changes to user permissions.	updateSystemDataMsg
StatusList	Not used	Not used

2.3 Subsystem Schemas

FC (From Client), TC (To Client), TD (To Driver), FD (From Driver)

Usage Description	Requests	FC	TD	Responses	FD	TC	Messages	TD	FD	TC
Used to add a report group to the system (configuration)	addReportGroupReq.xsd	X		addReportGroupResp.xsd		X				
Used to add a report to the system (configuration)	addReportReq.xsd	X		addReportResp.xsd		X				
Request that to cancel a QueuedReport.	cancelReportReq.xsd	X		cancelReportResp.xsd		X				
Used to delete a report group from the system (configuration)	deleteReportGroupReq.xsd	X		deleteReportGroupResp.xsd		X				
Used to delete a report from the system (configuration)	deleteReportReq.xsd	X		deleteReportResp.xsd		X				
A request to email a completed report to a user.	emailReportReq.xsd			emailReportResp.xsd						
Used to generate the chronology report for an event	generateChronologyReportReq.xsd	X		generateChronologyReportResp .xsd		X				
Used to generate a report	generateReportReq.xsd	X		generateReportResp.xsd		X				

Notifies the user of the result of processing the Report.							generateReportMsg			X
Used to modify a report group in the system (configuration)	modifyReportGroupReq.xsd	X		modifyReportGroupResp.xsd		X				
Used to modify a report in the system (configuration)	modifyReportReq.xsd	X		modifyReportResp.xsd		X				
Request to add a Chronology Report to the Queue.	queueChronologyReportReq.xsd	X		queueChronologyReportResp.xsd		X				
Request to add a Report to the queue.	queueReportReq.xsd	X		queueReportResp.xsd		X				
Notifies clients that the report queue (or any of the elements in the queue) has been changed.							queueUpdateMsg			X
Used to retrieve data from the system	retrieveDataReq.xsd	X		retrieveDataResp.xsd		X				
Used to subscribe to data in the sytem	subscribeReq.xsd	X		subscribeResp.xsd		X				

3. Notes

Information about XML and schemas can be found at the World Wide Web Consortium (W3) website at http://www.w3.org.