SunGuide®:

Version Description Document

SunGuide-VDD-7.0

Prepared for:

Florida Department of Transportation
Traffic Engineering and Operations Office
605 Suwannee Street, M.S. 90
Tallahassee, Florida32399-0450
(850) 410-5600

March 8, 2017

Document Control Panel			
File Name:	SunGuide-VDD-6.2.docx		
File Location:	SunGuide CM Repository		
CDRL:	NA		
	Name	**Initial**	**Date**
Created By:	Steve Dellenback, SwRI	SWD	10/20/04
Reviewed By:	Stephen E. Novosad	SEN	10/21/04
	Stephen E. Novosad	SEN	05/17/05
	Stephen E. Novosad	SEN	10/24/05
	Michael A. Brown	MAB	04/10/06
	Stephen E. Novosad	SEN	04/10/06
	Steve Dellenback, SwRI	SWD	11/15/06
	Steve Dellenback, SwRI	SWD	03/05/07
	Steve Dellenback, SwRI	SWD	09/27/07
	Steve Dellenback, SwRI	SWD	11/21/07
	Steve Dellenback, SwRI	SWD	12/17/07
	Steve Dellenback, SwRI	SWD	01/08/08
	Steve Dellenback, SwRI	SWD	01/28/08
	Steve Dellenback, SwRI	SWD	02/14/08
	Steve Dellenback, SwRI	SWD	02/21/08
	Steve Dellenback, SwRI	SWD	05/08/08
	Steve Dellenback, SwRI	SWD	05/30/08
	Steve Dellenback, SwRI	SWD	07/17/08
	Steve Dellenback, SwRI	SWD	08/15/08
	Ron Meyer, PBSJ (TERL)	RM	08/26/08
	Steve Dellenback, SwRI	SWD	09/10/08
	Steve Dellenback, SwRI	SWD	09/26/08
	Steve Dellenback, SwRI	SWD	10/03/08
	Steve Dellenback, SwRI	SWD	10/24/08
	Steve Dellenback, SwRI	SWD	11/19/08
	Steve Dellenback, SwRI	SWD	01/08/09
	Steve Dellenback, SwRI	SWD	03/06/09
	Steve Dellenback, SwRI	SWD	05/15/09
	Robert Heller, SwRI	RWH	05/15/09
	Robert Heller, SwRI	RWH	06/25/09
	Robert Heller, SwRI	RWH	06/17/10
	Tucker Brown, SwRI	TJB	11/09/10
	Tucker Brown, SwRI	TJB	02/02/11
	Tucker Brown, SwRI	TJB	02/11/11
	Roger Strain, SwRI	RLS	08/31/12
	Robert Heller, SwRI	RWH	04/12/13
Modified By:	John Brisco, SwRI	JSB	05/16/05

	Robert Heller, SwRI	RWH	05/16/05
	Steve Dellenback, SwRI	SWD	05/16/05
	John Brisco, SwRI	JSB	10/21/05
	Steve Dellenback, SwRI	SWD	10/21/05
	John Brisco, SwRI	JSB	04/07/06
	Steve Dellenback, SwRI	SWD	04/07/06
	John Brisco, SwRI	JSB	04/25/06
	Steve Dellenback, SwRI	SWD	05/23/06
	John Brisco, SwRI	JSB	11/15/06
	Patrick Lanigan, SwRI	JPL	02/23/07
	John Brisco, SwRI	JSB	03/01/07
	Adam Clauss, SwRI	ASC	03/08/07
	Bruce Farmer, SwRI	SBF	06/28/07
	John Brisco, SwRI	JSB	08/27/07
	John Brisco, SwRI	JSB	11/20/07
	John Brisco, SwRI	JSB	12/17/07
	John Brisco, SwRI	JSB	01/08/08
	John Brisco, SwRI	JSB	01/28/08
	John Brisco, SwRI	JSB	02/13/08
	Hector Iruegas, SwRI	HI	02/21/08
	John Brisco, SwRI	JSB	05/08/08
	Amit Misra, SwRI	AM	05/30/08
	John Brisco	JSB	05/30/08
	John Brisco	JSB	07/16/08
	Adam Clauss, SwRI	ASC	06/02/08
	John Brisco	JSB	08/15/08
	John Brisco	JSB	09/04/08
	John Brisco	JSB	09/26/08
	John Brisco	JSB	10/03/08
	John Brisco	JSB	10/10/08
	Meredith Wright, SwRI	MRW	10/12/08
	Meredith Wright, SwRI	MRW	10/17/08
	John Brisco, SwRI	JSB	11/18/08
	John Brisco, SwRI	JSB	01/08/09
	John Brisco, SwRI	JSB	03/06/09
	John Brisco, SwRI	JSB	05/15/09
	John Brisco, SwRI	JSB	02/08/10
	John Brisco, SwRI	JSB	03/25/10
	John Brisco, SwRI	JSB	05/06/10
	John Brisco, SwRI	JSB	05/07/10
	John Brisco, SwRI	JSB	05/25/10
	John Brisco, SwRI	JSB	06/16/10
	Robert Heller, SwRI	RWH	06/21/10
	John Brisco, SwRI	JSB	11/04/10
	John Brisco, SwRI	JSB	02/02/11

	John Brisco, SwRI	JSB	02/11/11
	Roger Strain, SwRI	RLS	02/11/11
	Tucker Brown, SwRI	TJB	07/11/11
	Roger Strain, SwRI	RLS	07/11/11
	Tucker Brown, SwRI	TJB	08/07/11
	Tucker Brown, SwRI	TJB	09/19/11
	Tucker Brown, SwRI	TJB	06/22/12
	Tucker Brown, SwRI	TJB	07/28/12
	Tucker Brown, SwRI	TJB	08/30/12
	Tucker Brown, SwRI	TJB	04/09/13
	Tucker Brown, SwRI	TJB	06/23/13
	Tucker Brown, SwRI	TJB	10/11/13
	Tucker Brown, SwRI	TJB	09/12/14
	Tucker Brown, SwRI	TJB	02/23/15
	Tucker Brown, SwRI	TJB	07/30/15
	Tucker Brown, SwRI	TJB	01/04/16
	Tucker Brown, SwRI	TJB	03/08/17
Completed By:			

Table of Contents

List of Tables

List of Figures

List of Acronyms

AD...American Dynamics
API...Application Program Interface
AVL .... Automated Vehicle Location
C2C .... Center-To-Center
CAD ....Computer Aided Dispatch
CCTV .... Closed Circuit Television
CD...Compact Disk
CE ....Configuration File Editor
COTS ....Commercial-Off-The-Shelf
CVS..Connected Vehicle Subsystem
DLL...Dynamics Link Library
DMS...Dynamic Message Sign
DNS... Domain Name Service
DOM ....Document Object Model
DOT ....Department of Transportation
DST...Daylight Savings Time
EH ....Executive Handler
EM... Event Management
ESRI... Environmental System Research Institute
EV .... Event Viewer
FDOT .... Florida Department of Transportation
FHP ....Florida Highway Patrol
FTP.. File Transfer Protocol
GAC ....Global Assembly Cache
GUI ....Graphical User Interface
HAR .... Highway Advisory Radio
IDE...Integrated Development Environment
IDS ....Incident Detection Subsystem
IIS.. Internet Information Services
IM...Incident Management
IMS ....Inventory Maintenance Subsystem
ITN... Invitation to Negotiate
ITS.. Intelligent Transportation Systems
MAS .... Message Arbitration Subsystem
MCP .... Manual Control Panel
NTCIP..National Transportation Communications for ITS Protocol
RMS ....Ramp Meter Subsystem
RPG...Response Plan Generator
RWIS..Road Weather Information Subsystem
SAS .... Scheduled Actions Subsystem
SB...Safety Barrier
SPARR...Smart Phone Application for Road Rangers
SSL...Secure Sockets Layer
SwRI .... Southwest Research Institute®
TSS..Transportation Sensor Subsystem

Revision History

Revision	Date	Changes
1.0.0-Draft	October 20, 2004	Initial Release.
1.0.0	January 16, 2005	Completed for Release 1.
1.1.0	May 16, 2005	Updated with Release 1.1 functionality.
2.0.0	October 24, 2005	Updated with Release 1.1 patches and Release 2.0 functionality.
2.1.0	April 10, 2006	Updated with Release 2.0 patches, the IM C2C enhancement, and the DMS font enhancement.
2.1.1	April 25, 2006	Modified Data Archive and the CCTV NTCIP driver to provide additional functionality.
2.2.0	October 18, 2006	Updated for Release 2.2 functionality.
2.2.1	November 15, 2006	EM/PM fixes and additions.
2.2.2	March 5, 2007	Updated for Scheduled Actions Subsystem (SAS), GUI Performance Enhancement
3.0.0	September 27, 2007	Added: • CCTV American Dynamics Driver • FL511 Web Server • Incident Detection Subsystem (IDS) • IDS VisioPaD Driver • IDS TSS Alarms Driver • AVL/RoadRanger Subsystem • Road Ranger XML Interface Driver • Event Viewer • Operational Data Store • Logic Tree 511 Subsystem • Variable Speed Limit Subsystem • Configuration File Editor Updated: • Executive Handler • Status Logger • Admin Editor • GUI/Operator Map • TSS • TVT • DMS • MAS • Event Manager/Response Plan Generator • Reporting Subsystem • C2C Plug-in • Data Archive
3.0.1	November 21, 2007	Updated for Release 3.0 FAT (part 3)

| Revision	Date	Changes
3.0.1a	December 17, 2007	Updated with several Release 3.0.0 updates and installer fixes
3.0.2	January 8, 2008	Updated with several patches and fixes after Release 3.0.1.
3.0.3	January 28, 2008	Updated with several patches and fixes after Release 3.0.2.
3.0.3a	February 14, 2008	Added Footprints references where applicable.
3.0.3b	February 21, 2008	Added additional Footprints references where applicable.
3.1.0	May 8, 2008	Updated for several patches and fixes after Release 3.0.3. Updated for Release 3.1.
3.1.1	May 30, 2008	Updated for Release 3.1.1. Added virtual video wall.
3.1.1a	June 2, 2008	Added a Footprint issue to the "software changes"
3.1.2	July 17, 2008	Updated for Release 3.1.2.
4.0.0-Draft	August 15, 2008	Updated for Release 4.0.0.
4.0.0	September 10, 2008	Updated for FAT enhancements/fixes
4.0.1	September 26, 2008	Updated based on IV&V results
4.0.2	October 3, 2008	Udpated with CMB revised Event Lists, SAE codes and change of "Accident to Crash" terminology
4.1.0	October 24, 2008	Updated for Release 4.1.0
4.1.1	November 19, 2008	Updated for Release 4.1.1
4.1.2	January 8, 2009	Updated for Release 4.1.2
4.1.3	March 6, 2009	Updated for Release 4.1.3
4.2.0	May 15,2009	Updated for Release 4.2.0
4.2.2	June 19, 2009	Updated for Release 4.2.2
4.3.0	February 12, 2010	Updated for Releases 4.3.0 and 4.3.1
4.3.2	March 25, 2010	Updated for Release 4.3.2
4.3.3	May 7, 2010	Updated for Release 4.3.3
5.0.0	May 7, 2010	Updated for Release 5.0.0.
5.0.1	May 25, 2010	Updated for Release 5.0.1.
5.0.2	June 16, 2010	Updated for Release 5.0.2.
5.0.3	June 21, 2010	Updated for Release 5.0.3
5.0.4	November 19, 2010	Updated for Release 5.0.4
5.0.4	February 2, 2011	Updated for post-IV&V changes to Release 5.0.4
5.0.5	February 11, 2011	Updated for addition of SPARR (Release 5.0.5)
5.1.0	July 11, 2011	Updated for Release 5.1.0
5.1.1	June 22, 2012	Updated for Release 5.1.1
6.0.0	April 15. 2013	Updated for Release 6.0.0
6.0.0p2	October 8, 2013	Updated for Release 6.0.0p2
6.1.0	June 6, 2015	Updated for Release 6.1.0
6.1.0	July 30, 2015	Updated for Release 6.1.0p1
6.2.0	January 4, 2016	Updated for Release 6.2
7.0.0	March 8, 2017	Updated for Release 7.0

1. Scope

1.1 Document Identification

This document serves as the Version Description Document (VDD) for the SunGuide®software.

1.2 Project Overview

The Florida Department of Transportation (FDOT) SunGuide Support, Maintenance and Development Contract, contract number BDQ69, addresses the necessity of supporting, maintaining and performing enhancement development efforts to the 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 and is deployed throughout the state of Florida. The SunGuide software is based on ITS software available from the state of Texas; with significant customization and development of new software modules to meet the needs of the FDOT. The following figure provides a graphical view of the software to be developed:
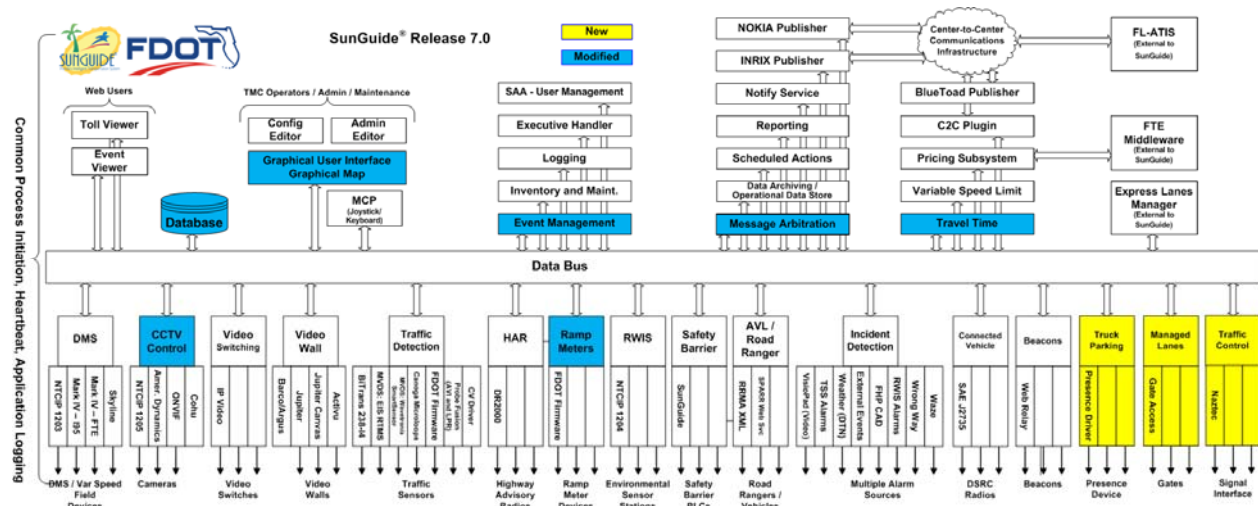
Figure 1-1 - High-Level Architectural Concept

The SunGuide development effort began in October 2003, seven major releases have been developed and this document is addressing an incremental update of the fifth release of the software. After the development, the software will be deployed to a number of Districts and Expressway Authorities throughout Florida and support activities will be performed.

1.3 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 SwRI for BDQ69, July 1, 2010
- Letter of Authorization 001: Letter to SwRI for BDQ69, July 1, 2010.

- Letter of Authorization 002: Letter to SwRI for BDQ69, August 3, 2010.
- Letter of Authorization 003: Letter to SwRI for BDQ69, August 19, 2010.
- Letter of Authorization 004: Letter to SwRI for BDQ69, October 20, 2010.
- Letter of Authorization 005: Letter to SwRI for BDQ69, November 9, 2010.
- Letter of Authorization 006: Letter to SwRI for BDQ69, June 28, 2011.
- Letter of Authorization 007: Letter to SwRI for BDQ69, December 22, 2011.
- Letter of Authorization 009: Letter to SwRI for BDQ69, May 30, 2013.
- Letter of Authorization 009 Supplement #1: Letter to SwRI for BDQ69, June 23, 2014.
- Letter of Authorization 009 Supplement #2: Letter to SwRI for BDQ69, August 12, 2014.
- Letter of Authorization 011: Letter to SwRI for BDQ69, January 3, 2014.
- Letter of Authorization 014, Letter to SwRI for BDQ69, January 22, 2015
- Letter of Authorization 015: Letter to SwRI for BDQ69, June 18, 2015.
- Letter of Authorization 015: Supplement #1: Letter to SwRI for BDQ69, June 7, 2016.
- Letter of Authorization 015: Supplement #2: Letter to SwRI for BDQ69, Dec 23, 2016.
- SunGuide Project website: http://sunguidesoftware.com

1.4 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
- Derek Vollmer, FDOT SunGuide Project Manager, derek.vollmer@dot.state.fl.us, 850-410-5615
- Mark Dunthorn, AECOM Project Manager, mark.dunthorn@dot.state.fl.us, 850-410-5623.
- Tucker Brown, SwRI Project Manager, tbrown@swri.com, 210-522-3035
- Roger Strain, SwRI Software Project Manager, rstrain@swri.com, 210-522-6295

2. Version Description

2.1 Inventory of Materials

This version of SunGuide includes the following items:

- SunGuideInstallation Package Version 7.0.0 on DVD-ROM
- SunGuide Source Code Version 7.0.0 on CD-ROM
- SunGuide Documentation Version 7.0.0 on DVD-ROM

The Documentation item is provided in a folder named "Documentation" on the Installation DVD, and it includes the following documents:

- Installation Notes, Version 7.0.0

2.2 Inventory of Software Contents

The SunGuide system is composed of a number of custom Dynamic Link Libraries (DLLs), Windows services, web applications, and executable applications developed exclusively for the SunGuide system. A custom installation package was also developed to install the custom software. Additionally, a number of Commercial-Off-The-Shelf (COTS) packages were used to develop the custom software and installation packages.

2.2.1 COTS Packages

The custom SunGuide software was developed using the following commercially available software packages:

- Microsoft® Windows XP Professional Version 2002 with Service Pack 3, Copyright © Microsoft Corporation 1985-2002
- Microsoft® Windows 7 Professional Version , Copyright © Microsoft Corporation 1985-2010
- Microsoft® Visual Studio 2015, Copyright © Microsoft Corporation 2010
- Microsoft® Platform SDK, Windows Server 2003 SP1 Release, Copyright © Microsoft Corporation 2005
- Microsoft® Platform SDK, Windows Server 2008 Release, Copyright © Microsoft Corporation
- NetToolWorks SNMP for .NET Version 1.4.2, Copyright © 2002 - 2004 NetToolWorks, Incorporated
- Pegasus Imaging CapturePRO Version 3, Copyright © 1997 – 2004 Pegasus Imaging Corporation
- FlexaraCorporation InstallShield® Version 2013, Copyright © 2013
- SharpMap V2 (Open Source mapping library)
- Navteq Map Data, May 2013
- Business Objects Crystal Reports Version 13.0, Business Objects SA
- Microsoft SQL Server Native Client 11.0
- Editors 2011.1 for WPF, Copyright ©2011 Actipro Software LLC

- DevExpress WPF Controls v13, Copyright ©2013 Developer Express Inc.

- Video LAN Client Libraries and related Plugins for VLC Release 2.0.2

- VideoLan DotNet for WinForm, WPF, SL5 – 3022.11.29

2.2.2 SunGuide Custom Software

The custom software developed for the SunGuide system includes dynamic link libraries, Windows services, web applications, and executable applications.

2.2.2.1 SunGuide Subsystem and Driver Applications

The subsystem applications developed for the SunGuide system include:

Application	Description
Activu SunGuide Service.exe	The Activu Video Wall Driver service
ASN_200911_WIN32.dll, ASN_200911_WIN32_MGDLIB. dll, ASN_VIIPOC_WIN32.dll, ASN_VIIPOC_WIN32_MGDLIB .dll	Libraries to decode messages between the Roadside Equipment (RSE) and the CVS Driver.
AmerDynDriverSvc.exe, AmerDynDriverLib.dll	American Dynamics camera driver service for the CCTV subsystem and supporting assembly.
AvlService.exe, AvlLib.dll	The Automated Vehicle Location (AVL) Subsystem servive and supporting assembly.
BarcoDriverSvc.exe, BarcoDriverLib.dll	The Barco Video Wall Driver service and supporting assembly.
BiTran238Driver.exe	The BiTrans B238 I4 protocol driver service.
BlueToadLib.dll BlueToadService.exe BlueToadDataLib.dll	The BlueTOAD Publiser service.
BmsService.exe, BmsLib.dll	The Beacon Management Subsystem service.
C2cClientService.exe, C2cClientLib.dll, C2cSharedLib.dll, C2cEmLib.dll	The Subscriber service component of the Center-to-Center (C2C) Subsystem and supporting assemblies.

Application	Description
C2cServerService.exe, C2cServerLib.dll, C2cSharedLib.dll, C2cEmLib.dll	The Publisher service component of the C2C Subsystem and supporting assemblies.
CctvService.exe, CctvLib.dll	The Closed Circuit Television (CCTV) Subsystem service and supporting assembly.
CvsLibrary.exe, CvsLibrary.dll	The Connected Vehicle Subsystem (CVS) service and support assembly
CvTssDriverSvc.exe, CvTssDriverLib.dll	The Connected Vehicle TSS interface driver service
DarService.exe, DarLib.dll	The Data Archive RITIS (DAR) service and support assembly
DataArchiveService.exe, DataArchiveLib.dll	The Data Archiving Subsystem service and supporting assembly.
DataBusService.exe, DataBusLib.dll	The Databus Subsystem service and supporting assembly.
DmsStatewideDriver.exe	The Dynamic Message Sign (DMS) Texas Department of Transportation (TxDOT) statewide driver, implements a number of different protocols for DMS.
DmsXmlInterface.exe	The DMS subsystem main process.
EmService.exe, EmLib.dll	The Event Management service is the new SunGuide event creation and management subsystem and supporting assembly.
ExecHandlerEditor.exe	The Executive Handler Process Editor application.
ExecHandlerSvc.exe	The Executive Handler management service.
ExecHandlerViewer.exe	The Executive Handler Viewer user interface application.
ExternalEventDriverSvc.exe, ExternalEventDriverLib.dll, IdsDataLib.dll	The External Event Driver for the IDS subsystem receives events from external sources and supporting assemblies.
FhpIncidentService.exe, FhpIncidentLib.dll, IdsDataLib.dll	The FHP Incident Driver service for the IDS subsystem that receives incidents from FHP CAD and supporting assemblies.
FhpInterfaceService.exe	The FHP Interface Service which provides FHP CAD data to the FHP Incident Driver. This typically should be installed in one location statewide.

Application	Description
HarDR2000Svc.exe, DR2000Lib.dll	The DR2000 Driver for the HAR Subsystem and supporting assembly.
HarService.exe, HarLibrary.dll	The Highway Advisory Radio Subsystem and supporting assembly.
IdsService.exe, IdsDataLib.dll IdsLib.dll	The Incident Detection Subsystem (IDS) service and supporting assemblies.
ImsService.exe, ImsLib.dll	The Inventory Maintenance Subsystem service and supporting assembly.
InrixService.exe, InrixLib.dll, InrixDataLib.dll, C2cSharedLib	The INRIX Publisher service and supporting assemblies.
IpVideoSwitchSvc.exe, IpVideoSwitchLib.dll	The IP Video Switching Driver service and supporting assembly.
J2735DriverLib.dll, J2735DriverSvc.exe	The CVS driver and support assembly
JupiterVwdService.exe, JupiterVwdLibrary.dll	The Jupiter Video wall service and support assembly.
JupiterCanvasDriverService.exe, JupiterCanvasDriverLibrary.dll	The Jupiter Canvas Video wall service and support assembly.
MasService.exe, MasLib.dll	The Message Arbitration Subsystem and supporting assembly.
McpManagerSvc.exe, McpManagerLib.dll, McpControlLib.dll	The Manual Control Panel Subsystem and supporting assemblies.
MlsService.exe MlsLib.dll	The Managed Lanes Subsystem service and supporting assembly.
NaztecDriver.exe NaztecDriverLib.dll	Naztec Driver supports traffic signal communication with the ATMS.now software.
NokiaService.exe, C2cSharedLib.dll, NokiaLib.dll	The Nokia C2C data provider service.
NotifyManagerSvc.exe, NotifyMgrLib.dll	The Notify Manager service.

Application	Description
NtcipCctvDriver.exe	The NTCIP 1205 camera driver.
NtcipDriverServer.exe **NtcipDriver.dll** **MlsDriverBase.dll**	The Managed Lanes Gate control driver.
OnvifDriverService.exe, **OnvifDriverLib.dll**	The ONVIF camera driver.
OperatorMap.exe	The executable driving the WPF and XAML behind the Operator Map.
ProbeFusionDriverSvc.exe, **ProbeFusionDriverLib.dll**	The Probe Fusion Driver for the TSS Subsystem and supporting assembly.
PsService.exe, **PsLib.dll,** **TollInterfaceLib.dll**	The I-95 Express Lanes Pricing Subsystem and supporting assemblies.
RampMeterService.exe	The Ramp Metering Subsystem service.
Rms170DriverSvc.exe, **Rms170DriverLib.dll**	The BiTran170 RMS Driver service and supporting assembly.
RRXMLDriverService.exe, **RRXMLLib.dll**	The Road Ranger Driver service synchronizes information with mobile data collection and display devices.
RsService.exe, **RsLib.dll**	The Performance Measures Reporting subsystem service and supporting assembly.
RwisAlarmDriverService.exe, **RwisAlarmDriverLib.dll**	The RWIS alarm monitoring IDS driver service.
RtmsDriverSvc.exe, **RtmsDriverLib.dll**	The Remote Traffic Monitor Sensor Driver service and supporting assembly.
RwisDriverSvc.exe, **RwisDriverLib.dll**	The Roadside Weather Information Driver service and supporting assembly.
RwisService.exe, **RwisLib.dll**	The Roadside Weather Information subsystem service and supporting assembly.
Saa.exe	The System Administration Application (SAA) service.
SasService.exe, **SasLib.dll**	The Scheduled Actions Subsystem service and supporting assembly.
SbAlarmDriverSvc.exe **SafetyBarrierLib.dll**	The Safety Barrier Alert Driver service and supporting assembly.

Application	Description
SbDriverSvc.exe, **SbDriverLib.dll**	The Safety Barrier Driver service and supporting assembly.
SbService.exe, **SafetyBarrierLib.dll**	The Safety Barrier Subsystem service and supporting assembly.
SPARRDriverService.exe, **SPARRLib.dll,** **SPARRWebServiceLib.dll,** **GZipEncoder.dll**	The AVL Smart Phone Application for Road Rangers (SPARR) Driver service allows smart phone to interface with the AVL subsystem.
TcsService.exe, **TcsLib.dll**	The Traffic Control Subsystem service and supporting assembly.
TpsService.exe, **TpsLib.dll**	The Truck Parking Subsystem service and supporting assembly.
TssAlarmDriverSvc.exe, **TssAlarmDriverLib.dll,** **IdsDataLib.dll**	The TSS Alarm Driver for the IDS subsystem receives traffic sensor alarms from TSS and supporting assemblies.
TssService.exe, **TssLib.dll**	The Transportation Sensor System Subsystem service and supporting assembly.
TvtService.exe, **TvtLib.dll**	The Travel Time Subsystem service and supporting assembly.
VisioPadDriverSvc.exe, **VisioPadDriverLib.dll,** **IdsDataLib.dll**	The VisioPaD driver service for the IDS subsystem communicates with the third-party CitiLog VisioPaD video incident detection software and supporting assemblies.
VslService.exe, **VslLib.dll**	The Variable Speed Limit (VSL) subsystem service and supporting assembly.
VsService.exe, **VsLib.dll**	The Video Switching Subsystem service and supporting assembly.
VwsService.exe, **VwsLibrary.dll**	The Video Wall Subsystem service and supporting assembly.
WazeEventService.exe, **WazeEventLib.dll,** **IdsDataLib.dll**	The Waze Eventdriver service for the IDS subsystem communicates with the third-party Waze feed provided by FDOT Central Office.

Application	Description
WeatherAlertDriverSvc.exe, WeatherAlertLib.dll, IdsDataLib.dll	The Weather Alert Driver for the IDS subsystem receives weather alerts from external sources and supporting assemblies.
WebRelayService.exe, WebRelayLib.dll	The Web Relay BMS driver service.
WsDOTDriverSvc.exe, WsDOT170TssDriverLib.dll	The Washington DOT driver for the Transportation Sensor System Subsystem service and supporting assembly.

2.2.2.2 SunGuide Managed Assembly Dynamic Link Libraries

The .NET managed assemblies developed for the SunGuide system and shared by more than one component include:

Managed Assembly	Description
ActiveIts.DataLibrary.dll	Contains data objects which are shared between ActiveITS ATMS products.
ActiveIts.ItsGenericLibrary.dll	This assembly contains the classes that define the generic subsystem components used by most of the ActiveITS applications.
DataLibrary.dll	Contains data objects which are used by SunGuide applications.
EmLib.dll	The Event Management business logic assembly; used by EM and AVL.
ExecClientLib.dll	This assembly contains a class used by managed code clients to interact with the Executive Handlerserver.
FDOT.StatusLogClientLib.dll	This assembly contains a class that implements a Status Logger client object using only managed code.
IdsDataLib.dll	IDS common data assembly; used by IDS and its drivers.
ItsGenericLibrary.dll	This assembly contains the classes that define the generic subsystem components used by most of the SunGuide applications.
MvvmLib.dll	Contains base object definitions used by data objects and user interface controls.
OMInterface.dll	This assembly is loaded into Internet Explorer by the Operator Map and serves as the map's data source and link with the Data Bus; also used by the Event Viewer.

Managed Assembly	Description
SharpMap.dll	This assembly is based on the public domain SharpMap V2 GIS library used under the LGPL. Used by INRIX Publisher, SG C2C Publisher, and SG C2C Subscriber.

2.2.2.3 Status Logging

The components of the Status Logging facility for the SunGuide system include:

Application	Description
StatusLogger.cpl	The Status Logger configuration control panel applet.
FDOT.StatusLoggerDll.dll	The Status Logger dynamic link library containing Status Log server access support and Status Log file access support.
StatusLogService.exe	The Status Logging server application, implemented as a Windows Service. It accepts Status Log messages from multiple clients for storage to a disk file.
StatusLogViewer.exe	The Status Log files viewing application.

2.2.2.4 Executive Handler

The components of the E7xecutive Handler facility for the SunGuide system include:

Application	Description
FDOT.ExecHandlerDll.dll	The Executive Handler dynamic link library containing Executive Handler server access support.
ExecHandlerEditor.exe	This application edits the list of processes managed by the Executive Handler server.
ExecHandlerSvc.exe	The Executive Handler server application.
ExecHandlerViewer.exe	The Executive Handler viewer application.

2.2.2.5 Config File Editor

The components of the Configuration File Editor for the SunGuide system include:

Application	Description
ConfigEditor.exe	The Configuration File Editor application.

2.2.2.6 Notify Manager

The components of the Notify Manager facility for the SunGuide system include:

Application	Description
NotifyMgrLib.dll	The Notify Manager dynamic link library containing Notify Manager server support.
NotifyManagerSvc.exe	The Notify Manager server application.

2.2.2.7 Event Viewer

The components of the Event Viewer web application for the SunGuide system include:

Application	Description
EventViewer.dll	The Event Viewer web application assembly.
OMInterface.dll	This assembly is loaded into Internet Explorer by the Event Viewer and serves as the app's data source and link with the Data Bus.
Preprocessor.exe	Processes configuration information.

2.2.2.8 Toll Viewer

The components of the Toll Viewer application for the I-95 Express Lanes system include:

Application	Description
TollViewer.dll, SortControl.dll	The Toll Viewer web application assemblies; provides GUI functionality.
TollViewerSvc.dll	The Toll Viewer web service assemblies; handles database access for web application.
TollViewerLib.dll	Database access assembly shared by Toll Viewer web app and web service.

2.2.2.9 Jar Files

The following Jar files make up the subsystems as indicated.

JarFile	Subsystem	Description
activation.jar	common	Java class for activation of a subsystem.
Comm.jar	common	Java low level communications and modem package.
Jaxen-full.jar	common	Java API for XML messaging.
Jdom.jar	common	Java class for performing XML DOM parsing.

JarFile	Subsystem	Description
Joesnmp-0.2.6.jar	common	Java SNMP interface for IM notification.
Log4j.jar	common	Java class for interface to Status Logger Event logging.
Mail.jar	common	Java mail class for IM notifications.
Ojdbc14.jar	common	Oracle JDBC interface class.
Resolver.jar	common	Java Apache Resolver class.
Saxpath.jar	common	Java XML SAX parser.
Statuslogger.jar	common	Java class that implements Status Logger client.
Util.jar	common	Java class for collected utilities.
Velocity-dep-1.3.1.jar	common	Java Apache Velocity engine for producing mail message output for IM.
xercesImpl.jar	common	Java Xerces parser.
Xml-apis.jar	common	Java communications API for RS-232C and IEEE 1284 (unused) communications.
NtcipCctvDD.jar	CCTV	Java NTCIP 1205 (CCTV) camera driver.
Converter.jar	DMS	Java class that converts XML documents to java transactions.
DbComm.jar	DMS	Java classes that communicate with the data bus communications package.
DmsMain.jar	DMS	Java classes that implements DMS main process.
Jmgmt.jar	DMS	Java class for general process management.
Libraries.jar	DMS	Java class for interface to various data files.
Net.jar	DMS	Java class the abstracts the low level TCP/IP socket communications package.
StatewideDriver.jar	DMS	Java class that implements the multiple protocols of the TxDOT Statewide TxDOT Driver.
Transactions.jar	DMS	Java class that implements transactions for communications between processes.
UserInterface.jar	DMS	Java user interface developed for TxDOT not used in SunGuide.
XmlInterface.jar	DMS	Java DMS XML interface.
xmlParserAPIs.jar	DMS	Java Xerces parser APIs.
Rms.jar	RMS	Java classes that implement the Ramp Metering subsystem.
BiTran238DD.jar	TSS	Java BiTrans B238 I4 driver.

2.2.2.10 XML Schema Files

The messaging between the SunGuide components uses the Extensible Markup Language (XML). The form and content of these messages is defined by XML schemas. The schemas are also installed on a target system to allow message validation, when enabled.

2.2.2.11 Android Application Packages

The Smartphone Application for Road Rangers is a SunGuide application for use on Android smartphones. Its components include:

Application	Description
SPARR.apk	The SPARR application for installation on Android devices.

2.2.2.12 Database Models and Creation Scripts

File	Description
SunGuide_Model-LOGICAL.erwin	Logical database model for SunGuide including tables and the relationships between them.
SunGuide_Model-ORACLE-PHYSICAL.erwin	Oracle physical database model for SunGuide containing database specific information such as tablespaces, base dataset, and indexes.
SunGuide_Model-SQL Server-PHYSICAL.erwin	SqL Server physical database model for SunGuide containing database specific information such as tablespaces, base dataset, and indexes.
Oracle_Sunguide.fet	File used to format views used during the database script creation process.
Oracle_sg_scripts.ddl	Script used to create a blank SunGuide database in Oracle including the base dataset required to operate SunGuide.
Create_sunguide_sqlserver.ddl	Script used to create a blank SunGuide database in SQL Server including the base dataset required to operate SunGuide.
createSqlServerDb.bat	Batch file used to call the "create_sunguide_sqlserver.ddl" during the blank database creation process.

For additional discussion on generating scripts, please see the Notes section of the document.

2.2.3 SunGuide Installation Package

An installation package was developed to install the custom software components (executable applications, DLLs and support files) of the SunGuide system. The installation package was developed with the InstallShield 2011 compiler, builder and the Integrated Development

---

Environment (IDE). The IDE uses the concept of a project, and a project defines the files necessary to build an installation package.

The SunGuideInstallation Package provides for installation of the required software components for the SunGuide system.

2.3 Software Changes

The following patches (enhancements) are included in this release:

- Release 1.0, Patch 4:
  - o Any IM messages that exactly fit the width of a DMS sign will now display appropriately, without adding undesired newlines and without over-abbreviating.
  - o DMS parsing has been corrected for messages with extended lengths using 2 bytes. SNMP over UDP support for the DMS driver has been added.
  - o The TSS subsystem now sends map detector requests after the pertinent add detector responses have been processed by the subsystem.
  - o The Barco driver now allows for more than 20 sources.
  - o The RTMS driver has been corrected for issues regarding large detector loads.
  - o The IP Video Switch driver has a new config file processing group, "finishGroup". Commands in this group will be performed even if "command Group" command fails. This was implemented so that the Vbrick edit mode can be cleared if some other command fails.
  - o Fixed issue with the MCP manager next/previous keyboard command where the camera video was being switched, but camera control was not.
  - o The Data Bus now returns connection information in a retrieve data types response, and delete messages are now properly broadcasted to subscribed Data Bus clients.
  - o Blank abbreviations work once the "ABBR" field of the "ABBREVIATIONS" table is updated to accept nulls. A database script has been provided in this patch.
- Release 2.0, Patch 1:
  - o Provide the capability to implement "reverse pan" logic for cameras that have an old (not approved) version of NTCIP 1205.
- Release 2.0, Patch 2:
  - o CCTV: Adds ability to use speed multipliers on camera pan/tilt speeds.
  - o Travel Time: Fixes issue with calculation of travel time. Updated Admin editor for issue where links were not always displayed.
- Release 2.1 —Enhancements:
  - o Incident Management (IM) C2C feature that allows a SunGuidedeployment to access other center's DMS and HAR assets in incident management response plans.
  - o DMS/IM feature that uses stored font information to determine whether a message should be displayed upon a DMS.
- Release 2.1.1 — updates:
  - o Data Archive:
    - Modified formatting of CSV files
    - Added option to update archive as data is received.
  - o CCTV NTCIP Driver:

- ▪ Added option to enable sending commands without waiting for responses.
- Release 2.1.2 — updates:
  - o MCP Manager:
    - ▪ Modified to use connection retry parameters read from the config file.
    - ▪ Removed usage of class instance of StringBuilder with local instance.
  - o Incident Management:
    - ▪ Lane block status is now initialized to "all lanes".
    - ▪ Fixed class casting exception in DMS response plans with local signs are processed.
    - ▪ Fixed "onRouteRamp/offRouteRamp" mismatch problem.
    - ▪ Added check for null node when generating a device listing.
  - o DMS: Modified driver to fix character truncation problem in Polling.
  - o CCTV: Changed database open cursor limit from 300 to 500 to prevent failures when adding cameras.
  - o CCTV NTCIP Driver: Made changes to improve responsiveness of PTZ commands.
  - o TSS: Modified data collection to only cap smoothed data.
  - o TVT:
    - ▪ Modified to use link speed limit in calculations when 0 is received for speed.
    - ▪ Fixed a problem where changes made to Frequency from Admin Editor causes TVT to generates even if stopped.
  - o MAS: Updated to handle exceptions noted in Footprints Issue #53.
  - o VWS/VS: Updated system to stop video tours when a connection request is made.
  - o IP Video Switch Driver: Added support for Cornet video codec devices.
  - o C2C Publisher: Re-ordered generation of C2C CCTV XML data to match "c2cCctv" template.
  - o Admin Editor: Added support for Cornet video codec devices.
  - o Operator Map:
    - ▪ Fixed problem where suggested response plan dialog is not displayed if incident matches multiple predefined response plans.
    - ▪ Fixed a problem with incomplete loading of the DMS Sequence edit dialog.
    - ▪ Fixed problem with Video Tours being shown incorrectly on the GUI.
  - o ITS Generic Library: Added code to handle otherwise unhandled exceptions and log an event to the Windows Event Handler.
- Release 2.2.0
  - o Event Management / Performance Measures (EM/PM) Module added consisting of:
    - ▪ EM/PM GUI ASP.NET web application
    - ▪ EM/PM Subsystem Windows service
    - ▪ Road Ranger Subsystem Windows service
    - ▪ VisioPaD Subsystem Windows service
  - o Status Logger: Fixed a problem with the Status Log Viewer that prevented saving multiple log files as text.
  - o MAS: Restructured the use of shared resource locks and fixed several bug.

- o Operator Map GUI: Added handling for intermittent "Permission Denied" errors.
- o Admin Editor: Added Device Driver Editor page and corrected link for TSS Alarm Thresholds.
- o Incident Management:
  - Added two new permissions to IM, Assign/reassign event ownership and Manage events without obtaining ownership.
  - Updated schemas and IM XML handling for new permissions.
  - Changed logic for users to allow event modification without obtaining ownership.
- Release 2.2.1
  - o EM/PM GUI fixes:
    - Added user admin form.
    - Fixed database reader and report generation casting issues.
    - Added buttons for "Generate Chronology Report" and "Printable List".
    - The "smartNavaigation" feature was changed to the"maintainScrollPositionOnPostBack" feature of .NET 2.0.
    - Fixed a problem that produced the wrong data when applying time range to each day.
    - Road Ranger/SIRV page changed to fill in status time.
    - Added CCTV Preset information to Chronology report.
    - Fixed a problem with the link to the VisioPaD alert handling window.
    - Fixed some typos in the Crystal Reports PM reports.
    - Fixed a problem that caused location proximity of cameras in the "Block CCTV" list to be reversed.
  - o EM/PM Subsystem fixes:
    - Added <autolaunch> tag to config file to disable EM/PM GUI automatic launch.
    - Database command objects have added closeConnection calls to manage active Oracle connections.
    - Made changes to DMS association logic.
    - Event location selection problems were corrected.
    - Fixed error conditions in audit function.
    - Changed to send the proximity value "At" to IM to facilitate the generation of ramp messages in response plans.
    - Location comparison checking was fixed to prevent redundant chronology records.
    - The login was changed to include a check against SunGuide for direct login.
  - o VisioPad Subsystem fixes:
    - Fixed database reconnection problems upon database disconnect or failure events.
- Release 2.2.2
  - o Fixes:
    - Update the reconnect procedure in the EMPM subsystem
    - Fixed problem with the detector editor screen properly recognizing the address field.

- ▪ Fixed a problem where the roadway editor would return errors on a successful operation. (Issues #105 and #106)
- ▪ Fixed issue existed where a message library could be copied into a sub-library. This caused the DMS subsystem to stop responding to requests. Changes have been made to both the subsystem and the GUI to prevent operators from doing this. (Issue #103)
- ▪ Updated the name of "Miami" to "Miami-Dade" in the navigation selection box of the control panel, and added a new entry named "Monroe" which centers the view on the Florida keys. This update improves consistency between IM and the Device Linking Editor when roadway names are modified. (Issues #103, #112 & #99 — long term solution for #88)
- ▪ Fixed issue of angle calculation in the link map algorithm used by IM. Improves consistency between IM and the Device Linking Editor when roadway names are modified. (Issues #98 & #99 — long term solution for #88)
- ▪ TSS/BiTrans Driver/RTMS Driver/Data Archive: Added timestamp field to detector polls, and changed Data Archive to log this timestamp rather than the time the poll was received from TSS. Furthermore, code was added to protect against multiple polls possibly occurring within a single poll cycle period.(Issues #82 & #95)
- ▪ RTMS Driver: Fixed a problem which could prevent a user from modifying a detector (Issue #135)
- o Added Scheduled Actions Subsystem (SAS)
  - ▪ Created SAS service and added SAS installation option to installer
  - ▪ Updated Admin Editor to facilitate adding, modifying and deleting SAS sequences
  - ▪ Updated Admin Editor to facilitate adding, modifying and deleting SAS schedules
  - ▪ Add screens to Operator GUI to support SAS functionality
- o Implement performance improvements for the GUI:
  - ▪ Moved XML parsing code from JavaScript to C# running in an ActiveX control (Issue #62)
  - ▪ Allow user to change password
  - ▪ Log out/relogin without reloading map
  - ▪ Indication of bad username/password, retry login without reloading
  - ▪ Select subsystems to log into before logging in
  - ▪ Change subsystems logged into while running (dynamically add/remove subsystem connections)
  - ▪ Handle disconnection from Data Bus without reloading
  - ▪ Operator map logs to Status Logger
  - ▪ Connection Manager link no longer needed for Operator Map (still used for editors); map connects directly to Data Bus
  - ▪ District views in Navigation Panel now customizable by District

- Javascript errors no longer popup to the user. They are caught and details sent to status logger. User will receive a notification in System Messages that an error occurred.
    - o Incident Management: Added ability to choose between a predefined response plan and a generated response plan (Issue #49)
    - o Video Switching: Added compatibility of iMPath (4200) encoders and Vbrick decoders (Issue #115)
- Release 3.0.0
    - o Added CCTVdriver for American Dynamics Speed Dome cameras.
    - o Added Logic Tree 511 subsystem.
    - o Added Incident Detection subsystem:
        - IDS subsystem application.
        - VisioPaD Driver application.
        - TSS Alarm Driver application.
    - o Added AVL/RR subsystem:
        - AVL subsystem application.
        - Road Ranger XML Interface Driver application.
    - o Added Variable Speed Limit subsystem.
    - o Added Event Viewer web application.
    - o Added configuration file editor.
    - o Added Operational Data Store and reporting.
    - o Added FL511 web site and server.
    - o Revised GUI/Operator Map.
    - o Revised Event Management subsystem.
    - o Revised Response Plan Generation subsystem.
    - o Revised Performance Reporting subsystem.
    - o Revised Data Archive subsystem to support Operational Data Store.
    - o Revised Administrative Editor web application.
    - o Revised C2C Plug-in.
    - o Revised DMS subsystem.
    - o Revised MAS subsystem.
    - o Revised TSS subsystem.
    - o Revised TVT subsystem.
    - o Revised Status Logging system.
    - o Revised Executive Handler system.
- Release 3.0.1
    - o Added documentation for installation Crystal Reports.   (No Foot Print Issue)
- Release 3.0.1a
    - o TSS alarm thresholds will now save correctly   (FP Issue # 348
    - o ODS suspect data processing optimized   (No Foot Print Issue)
    - o VisioPad driver now sending proper acknowledgement packets to VisioPad Supervisor   (Was noted during FAT 3)
    - o Barco driver now has new option to replace spaces in source names with a configurable value   (Noticed during D7 install)
    - o Stability fixes to Admin Editor Reference Point Editor   (No Foot Print Issue)

- o Added CCTVdriver for American Dynamics Speed Dome cameras.   (New Feature added)
- o Installer now allows empty fields for Executive Handler group membership, which causes writing of the values to the registry to be skipped.   (No Foot Print Issue)
- o Web site is now created on target server when just the web server is installed. (No Foot Print Issue)
- o The location of the folder for the web server's web service was corrected. (No Foot Print Issue)
- o The web server web site files were added to the installer's file set. (No Foot Print Issue)
- Release 3.0.2
  - o Admin Editor:
    - Fixed transposition of minutes and seconds on SAS Summary dialog.(No FP Issue)
    - Fixed Event location GPS coordinates don't change with Admin Editor modification. (Issue #419)
    - Increased length of SortOrder field on all EM dialogs.   (No FP Issue)
    - Added validation of of Email field on EM Agency Contact dialog. (No FP Issue)
    - Addded validation of Mile Marker field, corrected Reference Point List sort order, and changed Exit Suffix field validation to be alphanumeric on Location dialog.   (FP Issue #380)
  - o AVL/RR subsystem:
    - Alerts are stopped on "Patrolling" only. (E-mail rcvd regarding SG Release 3 TERL issues list #14)
    - Distance and destination issues were addressed.   (E-mail rcvd regarding SG Release 3 TERL issues list #15)
  - o Modified regular expression used by MCP manager to allow underscore or space as delimiter in camera name. (No Foot Print Issue)
  - o Event Management:
    - Audit GUI now has completel functionality for: (These were fixed when IBI completed GUI Functionality)
      - Event Status Audit
      - Responder List Audit
      - Dispatch Vehicle Audit
      - Lane Blockage Audit
      - Location/Congestion Audit
      - Notifying Agency/Contact Audit
      - Involved Vehicle Audit
    - Event Details:
      - Location/Congestion reference point sorting and filtering update (No Foot Print Issue)
      - Permissions updated throughout all GUIs (No Foot Print Issue)
      - Generate Chronology button no longer available if Reporting subsystem not available (No Foot Print Issue)

- Generate Response Plan button no longer available if RPG subsystem not available (No Foot Print Issue)
- Activation Message has a more meaningful message (No Foot Print Issue)
- Terministaion Message has a more meaningful message (No Foot Print Issue)
- AVL Status List added to the Dispatch section, with checkbox used to enable or disable it (No Foot Print Issue)
- Events can no longer be closed if the is an active congestion queue (No Foot Print Issue)
- HOT and HOV lane classification in the event list is corrected (No Foot Print Issue)
  - o Reporting:
    - Single set of buttons for Excel, PDF, and Word. (No Foot Print Issue)
    - Updated reports for devices, traffic flows, and month incident management (No Foot Print Issue)
  - o Fixed Depart Vehicle bug in Tablet application. (Should not be included in this document
  - o Windows Installer Crystal Reports 11.5 run-time installer execution added to install procedures. (No Foot Print Issue)
- Release 3.0.3
  - o Admin Editor:
    - Text boxes were made wider in order to view all of the text. (Issue #364)
    - EM Roadway editor now allows removal of unused counties and directions (Issue #420).
    - RM Fuzzy Lanes editor modified the widths of the link/lane ID boxes to I long length fuzzy lane ID's (Issue #2 from RM Integration testing12/16/2007).
    - RM Fuzzy Parameters editor updated to resolve issue when modifying a Metering Rate centroid/base value that prodiced errors. Added Local Occ and Local Speed to the centroid/base option list. Added Metering Rate High/Low values as read only text boxes. Included note that these values are only editable through the operator map (Issues #1, #3, and #4 from RM Integration testing 12/16/2007).
  - o AVL/RR subsystem:Fixed bug which caused an error when attempting to save information about vehicle status (Issue #383).
  - o VSL:Fixed database code for modifying VSL groups (Issue #375).
  - o Data Archive: Improved performance of TSS archiving by altering to use periodic bulk inserts rather than extremely frequent individual inserts (Issue #389).
  - o GUI: Fixed sorting Reference Point on GUI (Issue #421)
  - o MAS: Fixed issue where messages could not be added to the queue when a message of the same priority was added and removed (Issue #375).
  - o DMS: updated with a fix to sequence libraries (Issue #356).
  - o DMS: Fixed numbers' pad on the keyboard to work when wanting to edit the mileage (Issue #429)

- o CCTV American Dynamics driver:Updated to properly fill in response string for building an XML message in an error response (Issue #390).
- o RPG: E-mail location description updated to include reference point name (Issue #379).
- o Event Management:
  - No Lane Blocked changed to No Lanes Blocked (Issue #400)
  - Keypad enabled for RPG Radius Change (Issue #399)
  - Involved Vehicle Summary now includes vehicle model (Issue #401)
  - Contact Summary fix — includes agency and phone number (Issue #407)
  - Congestion Description fix — congestion description includes the correct offset types (at, before, beyond, rampTo, rampFrom) (Issue #413)
  - AVL RR status list (in EM) now contains all entries (Issue #415)
  - Event icon placement changed to always be on top (Issue #414).
  - Chronology now includes Road Ranger Procedural Errors (Issue #397)
  - Weather Conditions Database View fixed (Issue #408)
  - Relationship to exit bug — all locations now appear in the list (Issue #374)
  - RPG Email footer updated (Issue #395)
  - RPG Email Subject — Cleared not default (Issue #394)
  - Event XML error (rampto, rampfrom) fixed (Issue #388)
  - Clone Event Timestamps fix — timestamps synchronized for both the original and cloned events (Issue #406)
  - All agencies show up in expanded Responder List (Issue #392)
  - Email message, recipient group names, and individual recipients show up chronology (Issue #396)
  - Fixed Pop-up "An undefined JavaScript Funcation was called: EventUpdated" (Issue #403)
  - User with full permissions to the EM subsystem can access EM Audit (Issue #405)
- Release 3.1.0
  - o Fixes, updates, and enhancements:
    - Admin Editor:
      - VSL— Made thresholds editable for first zone setting (no FP issue)
      - DMS sign latitude/longitude will now appear in standard notation rather than scientific notation (Issue #285)
      - Special characters (such as &) in object names are now handled correctly in delete operations (Issue #558)
      - Minor update to 511 Link Summary Report editor to correct overlapping layout (no FP issue)
      - Restructured Ramp Meter dialog interface and modified saving of HI/LO values (Issue #573)
      - Resolved an error occurring when attempting to edit a CCTV camera through Admin Editor (Issues #614 and #619)
    - AVL:

- Fixed errors preventing vehicle status from setting correctly (Issue #383)
- Modified AVLRR to monitor EM event updates for updating which vehicles are assigned to an event (Issue #527)
  - C2C Publisher:
    - Updated to correctly report incident types, road conditions, weather conditions (Issue #561)
  - CCTV:
    - Fix to properly release camera connections when not in use (Issue #233)
    - Resolved an error occurring when attempting to edit a CCTV camera through Admin Editor (Issues #614 and #619)
  - CCTV NTCIP Driver:
    - Fix to correct spinning cameras issue by sending multiple stop commands (Issue #274)
    - Fix to properly release camera connections when not in use (Issue #233)
  - Data Archive:
    - TVT tables not purging (Issue #436)
  - Database:
    - DMS message and sequence library deletions (Issue #356)
    - Fix to properly allow priority column to be updated for messages in predefined response plans (Issue #577)
  - Databus:
    - Data Bus no longer sends responses for received messages (no FP issue)
  - DMS:
    - Fixed problems with DMS Pixel Status (Issue #373)
  - EM:
    - Fixed sorting Reference Points backwards (Issue #446)
    - Fixed duplicating reference points in list (Issue #451)
    - Fixed Event History not updating (Issue #465)
    - Fixed Email not displayed correctly in Event History / Chronology Report (Issue #466)
    - Fixed Event History timestamps different than chronology report (Issue #467)
    - Fixed Exit Ramp Lane Blocked text (Issue #468)
    - Fixed Response Plan Items not being sorted (Issue #477)
    - Fixed lane blockage description for "3 right lanes" vs "3 Lanes" (Issue #484)
    - Fixed Email Group failure (Issue #505)
    - Fixed Response Plan logic problems (Issue #509)
    - Fixed Response Plans not terminating (Issue #510)
    - Response Plan item adding/removal process improved to ensure duplicate items are not added (Issues #523 and #538)

- Fix made to Audit GUIs to allow users to blank the timestamp Issue #529)
- Improvements made to the data parsing and updating algorithms to improve performance (Issues #536 and #553)
- Added "Ignore" to dropdownlist for "Using DMS" (Issue #508)
- CCTV/Preset are now copied in cloned events (Issue #516)
- Closed events can now be viewed from vehicle match list (Issue #568)
- Corrected issue causing incorrect locations to appear for an event (Issue #576)
- Updated EM GUI for Express Lanes from "Ht" to "EL" (no FP issue)

- Event Viewer:
  - Resolved an error retrieving agency information on event details page (Issue #587)
- IDS:
  - Fixed database exception attempting to resolve an already resolved alarm (Issue #521)
- IP Video Switch Driver:
  - Resolved errors preventing snapshots working correctly from external files (Issue #424)
  - Added removal of "stale" snapshots (Issue #476)
  - Fix for Vbrick6000 series MPEG 4 decoders (Issue #179)
  - Fix to prevent the driver from waiting on broken camera connections (Issue #316)
- ITS Generic Library:
  - Fixed problem preventing multidrop addresses on the same IP/port from working simultaneously (Issue #440)
- OperatorMap/OMInterface:
  - Fixed reference point ordering (Issue #428)
  - Fixed incorrect VSL duplicate sign recommendation display (Issue #443)
  - Fixed bug in adding text to response plan emails (Issue #444)
  - Fixed error retrieving active events in incident alarm dialog (Issue #481)
  - Fixed Javascript error on RPG subsystem stop/restart (Issues #473 and #522)
  - Modifications made to response plan dialogs as directed by FDOT CO (Issue #482)
  - Fixed large icons appear after subsystem disconnect/reconnect events (Issue #255)
  - Gracefully handle invalid stored window positions for multi-monitor setups (Issue #544)
  - Moved link report popups to alert box (Issue #425)

- Enabled processing of decimal values in RMC control dialog for metering rate and metering rate range (no FP issue)
  - RM:
    - Updates issues from the Ramp Metering Issues List (no FP issue)
  - RMS 170 Driver:
    - Resolved driver connectivity issue on a software reset (no FP issue)
  - RPG:
    - Corrected the RPG email congestion format (Issue #393)
    - Fixes to correct several issues dealing with email location descriptions, message display, and added support for gore lane (Issues #453, #459, #463, and #472)
    - Fix to correct RPG email format so that "Exit" text does not appear if there is no exit number (Issue #515)
    - Fix to correct RPG email format for event type to use long name (Issue #499)
    - Fixed problem with entry ramp blockages (Issue #613)
    - Updated RPG to ensure "Express Lanes" will be plural even if only one express lanes is blocked (no FP issue)
  - RS:
    - Fixed Chronology Report missing Notifying Agency/Contact and Nearest CCTV/Preset (Issue #496)
    - Corrected header of Weekly_Report (Issue #502)
    - Resolved selection issues in Performance Measures report selection (Issue #460)
    - Correction made to Event_Stat_DMS report to retrieve correct event ID (Issue #501)
    - Corrected filters for weekly, monthly, and annual reports (Issues #530 and #586)
    - Fixed issue causing involved vehicles to be missing from chronology report (Issue #543)
    - Corrected location filters in various reports (Issue #548)
  - RTMS Driver:
    - Improved detailed logging of poll responses by adding device ID (no FP issue)
  - SAS:
    - Fixed invalid timer periods (Issue #225)
  - TSS:
    - Will now publish freeflow travel times for TSS links when speeds of 0 are measured (Issue #503)
  - TVT:
    - Corrected problem periodically causing device templates to not update without a restart of TVT (Issue #295)
  - VSS:

- Fixed a problem that prevented status retrieval of existing switched connections (Issue #326)
        - VSL:
            - Fixed loss of communication with MAS (Issue #375)
            - Fixed rejected recommendation (Issue #439)
            - Fix to make VSL recommendations accurate (Issues #438 and #589)
        - Web Server:
            - Updated to exclude travel time links beginning with "XX" from displaying on the website (Issue #435)
            - Fix for cameras appearing without sorting/grouping by roadway and direction (Issue #557)
            - Updated to correctly display incident types, road conditions, weather conditions (Issue #561)
            - Changed to not show closed events on the website (Issue #563)
        - Installer:
            - Added SG version string to dialogs and removed version string from individual components in the features dialog (Issue #456)
            - Changed service credential dialog to disguise password entry (Issue #457)
    - Added I-95 Express Lanes:
        - Pricing subsystem
        - Toll Viewer web application
            - Added a configurable parameter in web.config for displaying/hiding effective end time column from 'Overrides' table (no FP issue)
        - Admin Editor: Express Lanes support
        - Operator Map: Express Lanes tab
            - Update Express Lanes Override dialog to display initial selection as "Please Select One" when an event is required for an override (no FP issue)
            - Updated Express Lanes Override dialog to sort event lists with most recent events first (no FP issue)
            - Modified Toll Gantry Icon on Express Lanes Tab to be distinct from the Toll Rate Sign icon (no FP issue)
- Release 3.1.1
    - Toll Viewer:
        - Updated "DMS Communication" table to display manual DMS messages posted on DMS (no FP issue)
    - RPG:
        - Renamed "HOT Lane" to "Express Lanes" in generated DMS messages. "Express Lanes" will be plural even if only one express lane is blocked (no FP issue)
    - EM:
        - Updated EM GUI icon for Express Lanes from "Ht' to "EL"

- Replaced all instances of "HOT" with "Express Lanes" in EM (no FP issue)
- Update to prevent modifying an event's involved vehicles from forcing a refresh of other open event dialogs (Issue #595)
- Changes to improved EM subsystem login speed (Issue #618)
- Added code to allow changed event status from Closed without reopening the browser (Issue #639)
- Updates to allow RR to "Arrive" (Issue #642)

o Operator Map:
  - Express Lanes:
    o Updated Express Lanes Override Dialog to read "Please Select One" when event is required. If no event is required, default is "None"(no FP issue)
    o Updated Express Lanes Override Dialog to sort event list with most recent events first (no FP issue)
    o Added current server clock time to the green bar at the top of the tabbed GUI (no FP issue)
    o Added display of scheduled rates for the current day – both past rates and scheduled future rates (no FP issue)
    o Added pop-up dialog for operator to acknowledge whether a rate change occurred successfully and was placed on DMSs (no FP issue)
    o Modified Toll Gantry sign icon on tabbed GUI to be disctinct from Toll Rate sign icon (no FP issue)
  - Video Switching:
    o Shared displays are no longer displayed as an ordered list of destinations, but are instead displayed as a Virtual Video Wall (no FP issue)

o Admin Editor (Express Lanes):
  - Updated "Segment/Rate Schedules" entry screen to allow for starting a segment rate schedule during anytime of the day rather than only midnight (no FP issue)
  - Added "Lane ID" to Express Segment entry screen to require entry of unique lane ID as specified by FTE (no FP issue)

o Pricing Subsystem:
  - Updated to allow for starting segment schedule at any time of day rather than only midnight (no FP issue)
  - Updated store and use segment "Lane ID" when communicating rate to FTE Middleware (no FP issue)
  - Added additional alert for confirmation from user that DMSs changed per new rate (no FP issue)
  - Updated to report historical rates charged and future rates to be charged for current day (no FP issue)

o Video Switching:
  - Updated to allow a user with appropriate privileges to define, store and edit the graphical layout of shared displays (no FP issue)

- o 511:
  - Updated to improve FTP uploads to LogicTree (Issue #474)
- o AVL/RR:
  - Updates to allow GUI to view AVL changes (Issue #645)
  - Updates to allow RR to "Arrive" (Issue #642)
  - Updates to prevent incorrect "on-scene" status (Issue #630)
- o Reporting:
  - Fixed Travel Time report (Issue #640)
- o Web Server:
  - Changes to eliminate scripting errors (Issue #590)
  - Changes to fix problems with symbols on web banner (Issue #638)
- o C2C Plug-in:
  - Updates to Subscriber for improved handling of C2C status updates (no FP issue)
- o CCTV/NTCIP Driver:
  - Changes to allow changing of operational status (Issue #649)
- o Databus:
  - Changes to work around unexpected disconnection problem (Issue #490)
- Release 3.1.2
  - o Operator Map:
    - Removed "Load Old Map" button from Link/Shield Editor (Issue #720)
    - Fixed Road Ranger arrival date in event details and chronology (Issue #719)
    - Fixed problem in Traffic Volume By Detector Per Lane Per Direction report (Issue #676)
    - Fixed EM Event modification problem (Issue #675)
    - Fixed problem with updating AVL/RR form (Issue #643)
  - o Reporting:
    - Fixed problem with direction filter (Issue #694)
    - Fixed Traffic Flow Monthly report (Issue #689)
    - Fixed D5 iFlorida report (Issue #688)
    - Fixed Miscellaneous Notifier Contact report (Issues #686, #670)
    - Fixed problem in Traffic Volume By Detector Per Lane Per Direction report (Issue #676)
    - Fixed issues with iFlorida detector reports (Issue #674)
    - Fixed a problem with miscellaneous contacts report (Issue #670)
    - Fixed problems with weekly performance report (Issue #668)
    - Fixed DMS/VSL info population in Travel Time Per DMS report (Issues #637, #681)
    - Addressed issues with annual, quarterly, monthly, and weekly performance measures reporting (Issues #635, #634, #633, #632)
    - Fixed problem with Event Stat DMS report (Issue #601)
    - Miscellaneous iFlorida reports fixed (Issue #554)
  - o 511
    - Fixed a problem caused by a previous change to MAS (Issue #682)

- ▪ Fixed 511 Link Summary pop-ups when Link Reporting is disabled (Issue #663)
        - ▪
    - o RPG
        - ▪ Fixed problem with suggested DMS message when pattern mixes travel and ramp lanes (Issue #695)
        - ▪ Fixed blockage description problem for travel and off-ramp mix (Issue #656)
    - o C2C Plug-in:
        - ▪ Fixed an unhandled exception problem during Extractor reconnect (No FP issue)
    - o Video Wall:
        - ▪ Fixed problem with Virtual Video Wall changing default behavior (Issue #716)
        - ▪ Fixed problem with retrieving updated tour info from Video Switching (Issue #661)
    - o TSS/TVT:
        - ▪ Fixed problem where remapping of TSS Links caused loss of alarm threshold data (Issue #541)
    - o IDS
        - ▪ Fixed error message issued when no VisioPad agency could be found during VisioPad alert generation (Issue #692)
    - o IMS
        - ▪ Fixed problem with data retrieval (Issue #706)
    - o EM
        - ▪ Fixed problem adding event contacts (Issue #703)
    - o Databus
        - ▪ Fixed subsystem reconnection problem on Databus restart (Issues #732, #700)
    - o DMS
        - ▪ Fixed pixel error test timeout in NTCIP driver (Issue #699)
        - ▪ Fixed disappearance of message library on rename (Issue #610)
        - ▪ Fixed data retrieval problem reconfiguring sign from DMS to VSL(Issue #360)
    - o Data Archive
        - ▪ Implemented performance improvement to reduce size of virtual memory usage (Issue #370)
    - o Admin Editor
        - ▪ Fixed Location Sort Order length entry (Issue #731)
- • Release 4.0.0-Draft
    - o Added support for Data Fusion
        - ▪ Added External Events driver to IDS
        - ▪ Added Weather Alerts driver to IDS
    - o Added Floodgate editor and status dialogs
    - o Removed Logic Tree 511 subsystem and FL511 Web Server
    - o Fixes and Updates

- ▪ Reporting:
  - Fixed time error in report (Issue #779).
  - Fixed DMS in VSL list (Issue #775).
  - Fixed subsystem lockup (Issue #762).
  - ▪ Admin Editor:
    - Fixed unapproved work problem (Issue #745).
    - Fixed problem configuring locations (Issue #738).
  - ▪ Operator Map:
    - Fixed sorting of DMS items in response plan (Issue #477)
- Release 4.0.0
  - o Modified the Response Plan dialog to alter how publishing 511 information is handled
  - o Fixed the processing of SAE codes in the Event details screen
  - o Added Metro Area to EM Location data.
  - o Fixes and Updates
    - ▪ Reporting:
      - Fixed report opening problem (Issue #783).
      - Fixed formatting of lane blockage in event details report (Issue #776).
      - Fixed VSL/DMS messages in reports (Issue #772).
      - Fixed Event Chronology report (Issue #756).
    - ▪ Admin Editor:
      - Fixed configuring locations under lane configuration (Issue #742).
    - ▪ GUI:
      - Fixed distorted alert sound problem (Issue #524).
    - ▪ ITS Generic Library:
      - Fixed periodic message loss problem (Issues #768, #763, #732, #555, #521).
    - ▪ TSS:
      - Fixed WsDOT Driver speed limit cap problem (Issue #793).
- Release 4.0.1
  - o Placed tenth mile event distance proximity changes into release stream.
  - o Placed missing Floodgate dialog elements into release stream.
  - o Changed text of weather alert dialog.
  - o Updated SAE code text generation to include congestion tail information.
  - o Placed reporting subsystem changes made to address FP Issues #762 and #783 into release stream.
- Release 4.0.2
  - o Updated SAE code handling to include changes from the FDOT Modified SAE Code Sequencing, Version 14.
  - o Replaced the event type "Accident" with "Crash" and removed/ceased "Amber Alert" event type.
  - o Fixes
    - ▪ Fixed problem in C2C plug-in that prevented reading of SAE code list from config file (no FP issue).

- ▪ Fixed ODS TSS rollup failure (Issue #826).
- ▪ Fixed misfiring Data Archive timer (Issue #822)
- ▪ Fixed video switching failure (Issue #798).
- ▪ Fixed display of westbound speeds in Line Graph report (Issue #796).
- ▪ Fixed right lanes SAE codes incorrectly indicating center lanes (Issue #846)
- Release 4.1.0
  - o Updated TSS subsystem to support new requirements
    - ▪ Added support for probe detection readers
    - ▪ Added new Probe Fusion Driver
  - o Updated TVT subsystem to support new requirements
  - o Updated Data Archive subsystem
    - ▪ Added support to archive new probe reader data
  - o Updated Operator Map and Administrative Editor
    - ▪ Supports new configuration for probe devices, alternate and matching routes, new TSS and TvT subsystem configuration, etc.
  - o Fixes and Updates
    - ▪ Admin Editor
      - Updated Map Detector dialog for probe detector configuration (Issue #874)
      - Fixed storage of character font in DB (Issue #838)
      - Implemented improvements to database code to close unused DB connections (Issues #704 and #648)
    - ▪ EM
      - Fixed ability to audit closed event (Issue #837)
      - Fixed off ramp lanes influencing shoulders (Issue #815)
      - Added Event Type updates to event chronology (Issue #777)
      - Fixed center lane blockage description (Issue #749)
      - Added original/current concept to e-mail titles (Issue #735)
      - Fixed EM/MAS error handling a missing message queue item (Issue #659)
      - Fixed Event DMS assignment list problem (Issue #537)
    - ▪ DMS/MAS
      - Fixed blank line formatting problem in MAS (Issue #849)
      - Fixed DMS/MAS failure on DMS failover (Issue #750)
    - ▪ IDS/VisioPaD
      - Fixed subsystem crashing problem (Issue #854)
      - Fixed VisioPaD processing of RoadRange on-scene data (Issue #759)
    - ▪ Reporting
      - Fixed reporting issues – continuation of 554 (Issue #836)
      - Fixed report errors; note that reports not fully addressed have been placed into separate issues (Issue #825)
      - Fixed listing of newly added filters (Issue #817)
      - Fixed Notifier Contact report (Issue #807)

- Fixed date range filtering (Issue #803)
- Fixed DMS filtering (Issue #755)
- Fixed TSS detector reports (Issue #741)
- Fixed iFlorida reports in D6 (Issue #688)
- Fixed from/to location filtering for event list (Issue #678)
- Updated all Long Names from the RS GUI by removing all dashes and underscores and renaming as agreed upon during the 4.1 FAT (no FP issue).
- TVT
  - Fixed negative travel time display (Issue #852)
- VSL
  - Added VSL Message Beacon enhancement (Issue #845)
  - Fixed VSL not respecting operational status of detectors (Issue #816)
  - Fixed VSL crash (Issue #802)
  - Fixed blanking of VSL sign (Issue #773)
  - Fixed VSL sign failure inVSL/DMS/GUI (Issue #607)
- C2C
  - Fixed a problem that caused contradictory conditions to be published in events (Issue #855)
  - Fixed a problem that prevented sending event commands to FLATIS (no FP issue).
- TSS
  - Fixed an error in TSS which prevented newly mapped links in a detector from being placed on the map without restarting TSS (no FP issue).
- SAS
  - Fixed a camera motion problem caused by an incorrectly handled exception (Issue #876)
- Database
  - Added code to dynamically reconnect to database, resulting in fixes for a number of reported problems (Issues #930, #781, #758, #751, #715, #705, #636, #631, #570, #566, #523, #513)
- Release 4.1.1
  - Admin Editor
    - Fixed cloning of rate table in Express Lanes editor (Issue #924)
    - Fixed error shown when trying to same duplicate word in Approved Word list (Issue #892)
    - Fixed DMS configuration issues with full matrix toll rate signs (Issue #886)
  - EM
    - Fixed problem with events not being removed from event list when closed or voided (Issues #909, #821, #820)
    - Added phone number to responder contact records in event history (Issue #863)

- Fixed incorrect weather conditions information supplied to Chronology report (Issue #848)
    - o GUI
        - Fixed performance issue when sending message to multiple signs (Issue #922)
        - Fixed problem selecting all signs to send a message (Issue #921)
    - o MAS
        - Fixed problem handling 2-phase silver alerts with unapproved words (Issue #873)
    - o Reporting
        - Fixed sorting of signs in DMS Messages report (Issue #938)
    - o AVL/RR
        - Fixed RR Driver problems (Issue #800)
    - o Safety Barrier
        - Updated SB driver to use a single socket for connection with all PLCs (Issue #915)
- Release 4.1.2
    - o Admin Editor
        - Updated Admin to make location alternate routes optional (Issue #976)
        - Fixed population of community name in previously saved dial-up signs (Issue #964)
        - Fixed null reference error when saving a dial-up sign (Issue #963)
        - Added cloning of Express Lane rate tables (Issue #924)
    - o AVL/RR
        -
    - o C2C Plug-in
        - Fixed missing cross street data in Location data (Issue #1000)
        - Fixed missing alternate route data in Event command data (Issue #993)
        - Fixed problem handling remote device control requests (Issue #987)
    - o CCTV
        - Fixed problem with changing camera status without driver being connected (Issue #1010)
        - Fixed missing PTZ on some AD cameras (Issue #965)
    - o Data Archive
        - Fixed Data Archive network failure recovery (Issue #971)
    - o DMS
        - Fixed detailed status reporting to include lamp error in Mark IV driver (Issue #833)
    - o Express Lanes
        - Fixed Toll Viewer display of Traffic Events (Issue #974)
    - o GUI
        - Fixed updating of AVL/RR status list (Issue #1009)
        - Fixed updating of status for remote cameras (Issue #1008)
        - Improved performance of TvT pane in tabbed GUI (Issue #1007)
        - Fixed remote DMS control problem (Issue #1006)
        - Fixed VSL "Not connected" configuration error (Issue #1005)

- Need for .NET 2.0 SDK to allow Operator map login (Issues #981 and #954)
- Removed "Radius" from RPG GUI (Issue #972)
- Update to keep TvT table header at top of screen (Issue #940)
  - RPG
    - Fixed multiple adds of titles to e-mails (Issue #916)
    - Fixed display of response plans for ramp patterns without travel lanes (Issue #895)
    - Removed unwanted punctuation from vehicle alert e-mail templates (Issue #864)
    - Fixed failure to generate response plans using Amber Alert template when involved vehicles are missing data (Issue #841)
    - Added vehicle state option to Amber Alert template (Issue #654)
  - TSS
    - Fixed Probe Fusion driver functional problem (Issues #983 and #975)
- Release 4.1.3
  - AVL/RR
    - Expand the event data interaction between SunGuide and Road Ranger devices to allow for adding/updating of live events
    - New RR-related reports
  - The following Footprint issues:
    - Traffic Flow Monthly Report in D6 (Issue #689)
    - User Account Permission Changes / Re-Authentication (Issue #704)
    - Password change — DMS fails to authenticate (Issue #717)
    - TSS Raw Data Duplicates (Issue #728)
    - DMS randomly blanking (Issue #774)
    - DMS and TSS Report Problems (Issue #809)
    - DMS Mark IV Controller reports "NODE OFFLINE" but SunGuide reports ActiveRo (Issue #818)
    - RPG Failed to generate DMS in response plan (Issue #882)
    - Config Editor Crash (Issue #887)
    - DMS VSL Message Travel Time Report Per DMS Comments (Issue #897)
    - LineGraphOfTotalVolumePerDetectorPerDirection comments (Issue #898)
    - TabularSpeedsByDetectorStationPerLanePerDirection Comments (Issue #900)
    - Incident_Management_Monthly Comments (Issue #901)
    - Weekly_Report Comments (Issue #902)
    - Monthly_Report Comments (Issue #903)
    - Central_Computer_System Comments (Issue #908)
    - Controller rejecting DMS message while queue state indicates complete (Issue #917)
    - If you put an Address of 65535 for a DMS device the device and IP address gets modified to 0 and localhost (Issue #927)

- DMS Message report showed travel times in second and incorrect (Issue #935)
- RS took long time to generate reports (Issue #937)
- Javascript error when attempting to set the Ramp Metering Time of Day tables (Issue #939)
- XML validation error between RRXMLDriver and RRMA application for user_type field (Issue #970)
- VSL signs Display "@nbsp;" instead of speed limit (Issue #985)
- Change C2C schema Location sort order from short to integer (Issue #994)
- Traffic Detection Reports not working (Issue #1001)
- DMS Errors — MAS/DMS show Failed but message is on sign (Issue #1004)
- Modifying Probe Fusion device mapping causes tag matching failure (Issue #1013)
- VSL need to be removed from signs tab on the 511 webiste. (Issue #1015)
- RMS metering mode not restored on subsystem restart. (Issue #1020)
- RM 170 Controller is locking. (Issue #1021)
- Admin Editor gives error when editing (Issue #1022)
- Getting a lot false alarms from 511 alerts (Issue #1024)
- Toll Viewer calendar (Issue #1031)
- Problem editing link lengths via the AE Map Detector screen (Issue #1032)
- 2 Page DMS Message Display in Response Plans (Issue #1035)
- AVL Driver error upon creating unconfirmed event with location (Issue #1037)
- Missing Line Header in TVT configuration causes TVT messages to error when formatting strings (Issue #1039)
- TVT viewer fails to display content unless .NET 2.0 SDK is installed. (Issue #1040)
- Remove Event from FLATIS when an event is closed (Issue #1041)
- Simplify deleting Floodgate Audio Messages and Banners (Issue #1042)
- Toll Viewer and PS out of sync (Issue #1046)
- All cameras spinning out of control (Issue #1047)
- RM 170 Controller is locking when comm is lost and power cycled. (Issue #1050)
- RM Subsystem fails to change metering mode based on Central TOD table (Issue #1058)
- RM central TOD table displays 'Local' entries incorrectly as 'Fuzzy' (Issue #1059)
- RM 170 Controller should return to the correct metering mode after power cycle or software reset. (Issue #1061)
- Add Floodgate command history storage to SG (Issue #1071)
- EM Thinks the Earth is Smaller Than It Is (Issue #1073)
- RM 170 controller meters incorrectly when a 'short stop' occurs. (Issue #1076)

- RM 170 Controller detects a 'long stop' prematurely. (Issue #1079)
- Publish to FL-ATIS does not persist between DMS subsystem restarts (Issue #1093)
- C2C use of Long Name instead of Short Name for EM Reference Points (Issue #1098)
- Add TvT length to C2C data (Issue #1106)
- Add a "can publish" flag to DMS, CCTV, TVT data (Issue #1107)

- Release 4.2.0
  - IDS
    - Added new driver and updated IDS for retrieval and processing of FHP CAD incident data
    - UpdatedIDS and VisioPaD driver to allow operators to disable/enable incident detection by Citilog cameras
  - Travel Time
    - Added uncapped data to archived data and updated Travel Time Performance Measure Report
  - FootPrints issues addressed:
    - Fixed problem with incorrect display of available and selected counties on Admin Editor Roadway page (Issue #1232)
    - Fixed problem causing a reset of map preferences when upgrading from 4.1.2 to 4.1.3 Patch 3 (Issue #1231)
    - Fixed problem using the Vehicle Tag Match link in EM (Issue #1224)
    - Enhancement for reporting vehicle GPS location as a new report column (Issue #1215)
    - Enhancement for adding FHP Filter alert box option (Issue #1209)
    - Enhancement for VSL Plan Groups drop down list to GUI (Issue #1208)
    - Enhancement for including cross street in FHP CAD incident filtering (Issue #1205)
    - Enhancement to include additional FHP CAD incident actions to event chronology (Issue #1204)
    - Enhancement to alert operator when non-dismissed incident is closed by FHP CAD (Issue #1202)
    - Enhancement to include additional alerts for FHP events in archive (Issue #1201)
    - Enhancement for adding responder arrival in FHP CAD events (Issue #1200)
    - Enhancement for FHP CAD event updates (Issue #1199)
    - Fixed problem with AVLRR retrieving events from databus on startup (Issue #1192)
    - Fixed problem adding loop or radar detector types with Admin Editor (Issue #1190)
    - Updated vehicle location reports (Issue #1185)
    - Fixed problem with VisioPaD alarms involving acknowledgement of a system-wide disabled camera response (Issue #1184)

- Fixed database query for retrieving unresolved external events on startup Enhancement that retrieves unresolved external alerts on IDS startup (Issue #1183)
- Fixed problem with probe fusion detector mapping (Issue #1180)
- Fixed error archiving TSS data received from C2C sources (Issue #1176)
- Fixed e-mail description in response plan generated e-mails (Issue #1170)
- Fixed problem with Admin Editor EM Vehicle Model dropdown (Issue #1168)
- Fixed problem caused when changing the AVL/RR IP port (Issue #1167)
- Fixed editing of Detector maps by Admin Editor (Issue #1165)
- Fixed propagation of report filter edits and deletions (Issue #1161)
- Corrected missing VSL data in reports (Issue #1152)
- Fixed mismatch of colors between Operator Map and 511 website (Issue #1150)
- Fixed problem that caused trouble opening newly created Road Ranger vehicles in Admin Editor (Issue #1149)
- Fixed handling of modified EM location data by AVL (Issue #1141)
- Fixed failure in CCTV NTCIP driver when saving CCTV changes (Issue #1139)
- Added updated Floodgate Data file to release documents (Issue #1136)
- Fixed Admin Editor failure to edit reference points and filter locations (Issue #1129)
- Fixed the loss of detector map configuration on TSS restart (Issue #1127)
- Fixed problem with modifying an AVI/LPR detector causing multiple polls to occur simultaneously (Issue #1121)
- Added ability for operators to turn off travel time messages to a DMS (Issue #1120)
- Fixed exception in Travel Times caused by enabling or disabling of message generation on a device (Issue #1119)
- Enhancement that handles invalid characters during database import using data pump (Issue #1105)
- Fixed problem modifying local TOD table for some Ramp Meter sites (Issue #1102)
- Fixed problem with updating TSS thresholds on the GUI as changed are made (Issue #1092)
- Fixed EM auditing problem (Issue #1089)
- Suppressed duplicate e-mail generation in EM (Issue #1086)
- Fixed excluding of ramp event filtering in report (Issue #1082)
- Fixed problem logging into DMS subsystem (Issue #1049)
- Fixed C2C installer and documentation to only use space-delimited server URI lists (Issue #1045)
- Enhancement to add "Commissioned" flag to DMS and CCTV devices (Issue #1044)
- Fixed problem saving EM location after changing direction with congestion (Issue #1034)

- Release 4.2.2
  - Express Lanes
    - Persist toll requests through PS subsystem restarts
    - Quality control system for tolls
    - Toll Viewer usability updates
    - Logging of previous day's activity
  - EM
    - Added send of user notification message when event commands to FLATIS fail.
  - FootPrints issues addressed:
    - Fixed EM icon legends in GUI (Issues #1279 and #1278)
    - Fix for Floodgate editor crashing IE in GUI(Issues #1277 and #1238)
    - Fixed incident alert getting stuck in EM in IDS VisioPad driver (Issue #1275)
    - Fixed problem editing "Florida's Turnpike" equipment in Admin Editor (Issue #1274)
    - Enhancement that added a "Hide Full Track" button in AVL Replay dialog (Issue #1265)
    - Enhancement that clarified controls for enabling tracks for individual vehicles (Issue #1264)
    - Fixed publishing of remote roadway links when used by local Travel Time links in C2C Plug-in (Issue #1251)
    - Fixed problem with events in D6 locking EM (Issue #1245)
    - Fixed loss of update handling problem in RR driver after after adding new vehicle operator (Issue #1239)
    - Enhancement added Center ID attribute to Travel Time link roadway link list in C2C Plug-in (Issue #1237)
    - Fixed a problem in EM with use of ampersand in reference points (Issue #1235)
    - Fixed saving of message priority from GUI (Issue #1233)
    - Fixed missing Exit number in RPG Suggested Email locations (Issue #1230)
    - Fixed problem in MAS that generated no DMS queue error on MAS restart (Issue #1229)
    - Fixed problem saving weather conditions in EM (Issue #1227)
    - Fixed problem with VSL signs not receiving suggested plans from (Issue #1218)
    - Removed exponential scale from chart in Weekly PM report (Issue #1198)
    - Fixed event status filter of "Any" not capturing events in RM (Issue #1148)
    - Fixed problem in EM with Contact appearing multiple times (Issue #1137)
    - Fixed problem in EM with approved alerts showing in event list (Issue #1064)
    - Fixed problem with approved VSL plans not being updated in SunGuide (Issue #947)
- Release 4.3.0

- o Express Lanes Enhancements
    - Updated Pricing modes to include Time of Day, Zero Rate, Closed, Manual, and Dynamic.
    - Pricing tabbed GUI displays a full rate history table and last message sent to each DMS.
    - Added Offline Synchronization.
    - Added ability to specify transit times during mode change.
    - Added starting state checks and recommendations.
- o TSS
    - Implemented an alarm recovery threshold to limit the number of alarms generated when speed or occupancy fluctuates around the alarm threshold (Issue #1096)
    - Implemented the slow polling of failed traffic detectors so comms can resume automatically (Issue #102)
- o FootPrints issues addressed:
    - Fixed Ramp Meter 170 driver polling of failed devices (Issue #1412)
    - Fixed database exception when archiving express lanes DMS data (Issue #1406)
    - Fixed Pricing not updating tolls intermittently (Issue #1402), This issue will remain open until the fix has been operating successfully in D6 for some time.
    - Changed Admin Editor to prevent editing of a camera's poll process (Issue #1399)
    - Fixed merge message functionality in MAS for Mark IV signs (Issue #1396)
    - Fixed incorrect "Field in Error" indication in Admin Editor (Issue #1360)
    - Provided instructions to removed unused DMS group info from database that was causing exceptions (Issue #1356)
    - Fixed a problem auditing EM event type change (Issues #1385 and #1355)
    - Fixed a problem in the handling of apostrophes in the Event List (Issue #1352)
    - Fixed a problem adding new Ramp Meter controllers in Admin Editor (Issue #1336)
    - Fixed report template issues (Issue #1327)
    - Fixed problem with toggling Abandoned/Disabled vehicles icons on map (Issue #1316)
    - Added separate event severity for FL-ATIS (Issue #1280)
    - Fixed problem with updates to Ramp Meter Controller Status Overview dialog (Issue #1142)
- Release 4.3.1
    - o Post-FAT FootPrints issues addressed:
        - Implemented alerts for zero rates in Pricing (Issue #1431)
        - Updated Express Lanes GUI headings (Issue #1430)
        - Implemented alerts for Pricing offline file handling errors (Issue #1429)
        - Fixed Toll Viewer Lanes Affected message (Issue #1428)
        - Implemented single TSS alert per link (Issue #1426)

- ▪ Replaced checkbox with radio buttons for selecting Speed and/or Occupancy (Issue #1423)
- ▪ Updated audit record timestamps (Issue #1422)
- Release 4.3.2
  - o Enhancements:
    - ▪ Added support for multiple simultaneous DMS sequences (Issue #1123)
  - o TERL IV&V issues addressed:
    - ▪ Update build scripts to ensure latest IP video devices file is included on the install media
    - ▪ Updated Video Source and Destination Admin Editor screens to allow up to 8 "cards"
    - ▪ Fixed problem with single TSS alarm per link when more than one link is assigned to a detector
  - o FootPrints issues addressed:
    - ▪ Fixed icons for Events marked as Crashed (Issue #1444)
    - ▪ Fixed problem sending HAR messages (Issue #1440)
    - ▪ Improved performance of EM Maintenance query (Issue #1286)
- Release 4.3.3
  - o TERL IV&V issues addressed:
    - ▪ Changed the logic used to dismiss unacknowledged TSS Speed AND Occupancy alarms
  - o District 6 IV&V issues addressed:
    - ▪ Changed reissued update rate to use the same rules as when originally requested (Issue #2)
    - ▪ Fix error message to use the text "ID" instead of "i/d" (Issue #3)
    - ▪ Remove the text "you should" from "suggested" message (Issue #4)
    - ▪ Change the word "Lane" to "Mode"(Issue #5)
    - ▪ Changed alert logic so that a vehicle moved from a travel lane to a shoulder will generate an alert (Issue #6)
    - ▪ Changed rate mode recommendation from "manual" to "TOD" when system is in manual prior to shutdown and all signs match the current TOD rate at restart (Issue #9)
    - ▪ Changed logic to prevent a rate adjustment after restart if rate adjustement was ended before restart (Issue #10)
    - ▪ Changed alert logic resolution to recognize "Ended due to restart" (Issue #11)
  - o FootPrints issues addressed:
    - ▪ Fixed problem causing HAR subsystem to exit when connecting to HAR driver (Issue #1460)
    - ▪ Added "direction" data that was missing from Event Detail report (Issue #1443)
    - ▪ Made improvements to Data Archive so it could keep up with archiving traffic data (Issue #1442)
    - ▪ Sorted the lanes displayed in the TSS Link Speed window (Issue #1438)
    - ▪ Fixed parsing of RWIS XML in Publisher (Issue #1387)
- Release 5.0.0

- o SunGuide Operator Map revisions:
  - ▪ Replaced SVG Viewer and SVG map fragments with Windows Presentation Foundation (WPF) and map tiles
  - ▪ Removed dependencies on PHP
  - ▪ Moved shield data into database
  - ▪ Integrated device linking into Operation Map
  - ▪ Fixed problem that caused some TSS Links to disappear from the map (Issue #1465)
- o Response Plan Generation revisions:
  - ▪ Completed migration of response plan generation from Java RPG app to .NET EM app
  - ▪ Moved device linking data into database
  - ▪ Fixed problem that prevented contacts marked as "Sensitive" from receiving e-mail alerts (Issue #1482)
- o Databus revisions:
  - ▪ Incorporated TxDOT databus changes. No functional changes but improvements for speed and efficiency.
- o Status Logger revisions:
  - ▪ Changed file dialog handling in Status Log Viewer for Windows Vista and Seven compatibility (Issue #1437)
- o C2C revisions
  - ▪ Provided Floodgate configuration file with fixed counties/regions (Issue #1302)
- Release 5.0.1
  - o District 6 IV&V issues addressed:
    - ▪ Pricing
      - Changed Rate History Table to show entries by the effective time (Issue 7)
      - Changed Toll Viewer to not eliminate entries with the end time before the start time (Issue 8)
      - Changed Pricing Startp State dialog to always require operator approval before Pricing can be initialized (Issue 12)
      - Changed Offline Synchronization to stop processing rates if a recoverable error is found, and continue tying the rate until successful (Issue 13)
      - Changed Toll Viewer to allow pasting a date and starting a search without clicking outside of the Date/Time field (Issue 14)
      - Changed Dynamic Mode alerts to replace an alert for the same segment (Issue 15)
      - Changed Pricing to automatically acknowledge a Rate Change alert when the Supporess Rate Change Alets flag is set (Issue 16)
      - Changed Pricing to only log the Effective Time if it was provided by the Middleware (Issue 17)
      - Removed roadway filter from the Toll Viewer's event list (Issue 18)

- Added more meaningful error descriptions to Admin Editor (Issue 21)
- Added Event ID field to the DA_PS_TOLL_RATES table (Issue 22)
- Changed the displayed rate table to suppress the rate charged field until rate goes into effect (Issue 26)
- Changed Pricing to not persist comments for a mode change or rate adjustment at periodic updates (IV&V pg. 21 under "Issues During Re-Testing")
- o Post-FAT enhancements addressed
    - Operator Map
        - Non-TSS links edited in the Link Editor will update when changed without having to restart the map.
    - RPG
        - All references to "511" will be replaced with FL-ATIS, excluding the RPG icon.
    - Pricing
        - In Pricing, Non-TOD alert messages will be changed from "Lane is operating…" to "Express Lanes segment (segment name) is operating…"
        - In Pricing, lane blockage removal alert messages will be changed from "Lane associated with…" to "Express Lanes segment (segment name) associated with …"
- o GUI revisions:
    - Updated VDD and IN regarding map tile location (FP Issue 1503)
- o Admin Editor revisions:
    - Fixed handling of abbreviations and approved words with apostrophe (FP Issue 1496)
- o EM revisions:
    - Fixed problem with adding new event (FP Issue 1494)
    - Added a chronology record when contacts are added to events (FP 1493 and 1487)
- o Reporting and VSL revisions:
    - Fixed VSL reports that were not slowing date and time posted (FP Issue 1414)
- o TSS and IDS revisions:
    - Fixed a problem that caused TSS alarm generation to not recover when TSS was restarted (FP Issue 1134)
- o C2C Plug-in revisions:
    - Fixed a problem that caused new devices or messages to be sent to subscribers as "update" instead of "add" (FP Issues 1497 and 1357)
- Release 5.0.2
    - o TERL IV&V issues addressed:
        - Fixed saving of current window positions (Issue #1)
        - Fixed TSS link status tooltip text (Issue #2)
        - Fixed problem with multiple windows for "Add New Event" (Issue #3)

- Fixed problem with camera sequences (Issue #4)
- Fixed saving of event severity icon selections (Issue #6)
- Fixed Ramp Meter dialog error during TOD entry (Issue #7)
- Fixed subsystem logout problem when using Logout from context menu (Issue #9)
- TSS no longer has to be restarted to get new links from Link Edtior (Issue #11)
- Fixed RPG HAR dialog resetting priority to zero (Issue #12)
- MAS no longer has to be running for RPG to function properly (Issue #14)
- Fixed usage of HAR icon on map when message is present (Issue #15)
- Fixed TSS alarm cause updates in alert list (Issue #16)
- Removed Gilchrist county from Panhandle region (Issue #17)
- Added direction info to Event Detail report (Issue #18)
  - o GUI revisions:
    - Added missing HAR GUI file items to installer (FP 1521)
    - Fixed JavaScript out-of-memory error (FP 1515)
    - Fixed resetting of AVL/RR GUI drop down boxes content after update receipt (FP 1347)
    - Fixed GUI slowness (FP 1343)
    - Fixed GUI excessive memory usage (FP 1256)
    - Fixed Device Sequencing Editor timeout when attempting to retrieve data from C2C Subscriber (FP 1236)
    - Fixed resizing problem in AVL/RR Details window (FP 1219)
    - Fixed EM GUI code to eliminate constant errors being logged (FP 1085)
    - Fixed problem that cause response plans to be missing from EM list (FP 1083)
    - Fixed databus connection from GUI problem (FP 1029)
    - Added new options for displaying event icons on the map (FP 598)
  - o HAR revisions:
    - Fixed set of beacon status in HAR driver (FP 1520)
  - o C2C Plugin revisions:
    - Fixed reporting of county info for TSS links (FP 1516)
    - Fixed reporting of county info for EM events (FP 1461)
  - o EM revisions:
    - Fixed county sort order (FP 1484)
    - Fixed last update time on e-mail alerts (FP 1333)
  - o DMS revisions:
    - Fixed use of apostrophes in abbreviations (FP 1478)
    - Fixed sequencing/authentication problem (FP 1388)
  - o Data Archive revisions:
    - Fixed disconnection from TSS after C2C Subscriber restart (FP 1452)
    - Fixed incorrect timestamps in TSS status records (FP 1225)
  - o Pricing revisions:
    - Fixed problem with Toll Viewer Discrepancy report (FP 1446)
    - Fixed problem with Toll Rate Discrepancy report (FP 1408)
  - o Video Switching revisions:

- ▪ Fixed usage of non-default SNMP ports (FP 1436)
  - o AVL/RR revisions:
    - ▪ Fixed duplicate status entries in RR Admin report (FP 1196)
    - ▪ Revised AVL/RR to use Navteq map data in place of Dynamap data (FP 1157)
  - o Reporting revisions:
    - ▪ Fixed Quarterly Incident Detail report (FP 905)
    - ▪ Fixed RR Admin report (FP 904)
- Release 5.0.3
  - o TERL IV&V issues addressed:
    - ▪ Fixed TSS alarm cause updates in alert list (Issue #16)
  - o Data Archive revisions:
    - ▪ Addressed TSS archiving latency issue (FP 1499)
- Release 5.0.4
  - o INRIX Publisher Enhancement:
    - ▪ Retrieve speed data from INRIX web service, initially for I-10 and part of I-75.
    - ▪ Make the speed data available to SunGuide and FL-ATIS using the C2C Status Infrastructure on a configurable county-by-county basis.
  - o General System revisions:
    - ▪ Changed sort order in EM tables to fix issue with EM Locations published to C2C (FP 1570)
    - ▪ Fixed database update script (FP 1618)
    - ▪ Implemented performance improvements (FP 1628)
    - ▪ Fixed installer to include missing text-to-speech library (FL 1733)
    - ▪ Updated dependencies in installer that prevented county data for devices going to C2C if AVL not installed on same host as C2C Plug-in (FP 1751)
  - o Admin Editor revisions:
    - ▪ Enhancement to append short name to reference point list in EM Reference Point editor (FP 1508)
  - o C2C Plug-in revisions:
    - ▪ Fixed problem in Subscriber caused loss of Floodgate data (FP 1552)
  - o Data Archive revisions:
    - ▪ Fixed DMS Message query that was taking too long (FP 1606)
    - ▪ Issue addressed with FP 1499 in 5.0.3 (FP 1643)
    - ▪ Fixed a problem that TSS CSV files from being created (FP 1668)
  - o EM/RPG Subsystem revisions:
    - ▪ Removed dependency on Data Archive for DM message event chronology records (FP 1223)
    - ▪ Fixed problem building a modify DMS message (FP 1246)
    - ▪ Enhancement to forced abbreviations logic in RPG (FP 1413)
    - ▪ Made a change to include Road Ranger timestamps in the event chronology (FP 1486)
    - ▪ Updated EM to subscribe for DMS messages (FP 1511)
    - ▪ Fixed issue of devices not using the correct device template (FP 1512)

- Fixed problem finding particular DMS signs on the TurnpikeSpur (FP 1524)
- Fixed problem selecting a Road Ranger as a contact (FP 1549)
- Fixed a problem that prevented dialog from opening if DMS/HAR/MAS were not started (FP 1544)
- Fixed problem with no dispatch/arrival after selecting RR as contact (FP 1550)
- Fixed a problem with the way virtual devive linking nodes were passed to the GUI (FP 1551)
- Ported abbreviation code from RPG (FP 1555)
- Fixed a problem with direction name lookup in predefined response plans (FP 1565)
- Fixed problem calculating distances to signs (FP 1569)
- Implemented speed improvement in event creation and response plan generation (FP 1577)
- Fixed problem with incorrectly sorted locations in ported RPG Java code (FP 1582)
- Changed response plans to use long names instead of short names (FP 1605)
- Fixed ramp text in response plan messages (FP 1607)
- Fixed problem with vehicle alert vehicle model selection (FP 1611)
- Added a check that Subscriber is connected before sending event publish/unpublish messages to it (FP 1627)
- Fixed problem with lane blockage for shoulder blockage (FP 1645)
- Fixed a problem with response plan device templates not being correctly applied (FP 1652)
- Fixed a problem that prevented e-mail generation when event vehicle ahd N/A for the make (FP 1656)
- Made a change to allow selection of a vehicle without a color (FP 1658)
- Fixed a problem with vehicle info in response plan e-mails (FP 1662)
- Fixed problem that prevented DMS chronology entries from showing in EM chronology (FP 1667)
- Changed a DB query to exclude the to-be-deleted row (FP 1671)
- Fixed a problem that prevented event attributes from being included in response plan e-mails (FP 1672)
- Made a change to allow selection of a vehicle without a model (FP 1682)
- Fixed problem auditing responder timestamps (FP 1710)
- Changed RPG to use "Crash" instead of "Incident" for event type (FP 1738)
- Fixed device templates for response plans using incorrect templates (FP 1766)
- Fixed Audit permission within the GUI (FP 1767)
  - o GUI revisions:
    - C2C links will be now be shown on the Operator Map
    - Addressed slow performance issues with AVL dialogs (FP 1343)
    - Fixed AVL/RR UI problem; added performance improvements (FP 1541)

- Fixed problem saving window positions when dialog is minimized (FP 1545)
- Fixed problem where Disabled Subsystems preference is ignored (FP 1547)
- Fixed problem with Floodgate icons in Floodgate summary dialog (FP 1554)
- Fixed problem with automatic population of congestion tail offset (FP 1556)
- Added new parameter to prevent change of focus to System Messages when new messages arrive (FP 1557)
- Fixed problem that caused VSL alerts to be shown in pop-up (FP 1558)
- Fixed problem with Event Details dialog loading if vehicle make or model is N/A (FP 1559)
- Revised some JavaScript calls that caused exception generating event from FHP alert (FP 1560)
- Fixed problem causing tabbed UI scroll headers to throw errors (FP 1561)
- Fixed problem with missing VisioPad snapshots in alerts (FP 1562)
- Made changes to prevent spontaneously closing of Operator Map (FP 1564)
- Added code to allow blanking of multiple signs from DMS Status dialog (FP 1571)
- Addressed Operator Map crashes in D5 (FP1583)
- Fixed possible threading problem for UI updates (FP 1588)
- Fixed dialog close exceptions (FP 1624)
- Fixed problem that prevented response plan dialog from terminating (FP 1625)
- Fixed problem with the DMS short status window being unable to blank a DMS (FP 1666)
- Fixed problem of being unable to select a roadway of direction for a new TSS link in the TSS Link Editor (FP 1684)
- Fixed Link Editor to work with an empty node list (FP 1712)
- Fixed problem that caused an exception when selected event responder has no contacts (FP 1746)
- Fixed issue of Toll Rate signs sending messages to MAS instead of directly to DMS (FP 1749)
- Fixed Core Responders not showing (FP 1752)
- Fixed issue where responder agency would not be checked when assigned a response time (FP 1754)
- Fixed Issue of RR response time are clickable in Responder table (FP 1780)
- Fixed Issue of selecting the first contact for a responder was not working (FP 1792)
- Fixed issue of CCTVs not sorting in the nearest CCTV section (FP 1794)
- Fixed issue of weather radio buttons unselecting after save (FP 1797)
- o IDS revisions:
  - Fixed problem with display of FHP and VisioPad alerts (FP 1580)

- ▪ Fixed problem handling FHP removal notifications (FP 1594)
  - o Pricing Subsystem revisions:
    - ▪ Updated so that event association for rate adjustements is always optional (FP 1637)
  - o Reporting Subsystem revisions:
    - ▪ Event_Stat_Level report will now take into account closures of the shoulders and previous blockages when claulates reopen lane times (FP 1364)
    - ▪ Fixed problem that prevented selection of roadway direction and from/to options (FP 1581)
    - ▪ Added additional exception handling for failed report generation attempts (FP 1660)
    - ▪ Removed filter that event chronology is based on, which removed dependency on DA (FP 1690)
  - o Safety Barrier
    - ▪ Added alert in Alert Box for SB alerts (FP 1510)
  - o Status Logger revisions:
    - ▪ Fixed a problem that caused SL Viewer to fail when reading a corrupt log file (FP 1630)
- Release 5.0.5
  - o AVL SPARR Enhancement:
    - ▪ Developed new AVL driver to interface with smart phones.
    - ▪ Developed Road Ranger application for the Android smart phone platform.
    - ▪ Updated AVL subsystem to use new driver.
- Release 5.1.0
  - o Connected Vehicle
    - ▪ Configuration, Data Acqusition, Archiving, C2C, and GUI work to support RSE devices
  - o Event Mangement
    - ▪ Do not publish flag for EM locations
    - ▪ Chronology Blockage time was corrected (FP 1138)
    - ▪ Genearte Mileage from DMS for RPG messages (FP 1260)
    - ▪ Last update Time for an email from RPG was corrected (FP 1333)
    - ▪ Auditing an event status issue (FP 1378)
    - ▪ Fixed Chronology to show "No Lanes Blocked" at proper time when changing the event location (FP 1389)
    - ▪ EM Location changed to make description optional (FP 1683)
    - ▪ EM Lanes Reopen time now reports the correct time even when blockage is changed during auditing (FP 1743)
    - ▪ Chronology does not show "blanked" if message was removed by user (FP 1753)
    - ▪ Event Type audit now modify the event type date (FP 1817)
    - ▪ Auditing the RRs corrected (FP 1840)
    - ▪ Deafault templates for HAR and DMS are now editable (FP 1909)

- Invalid error message when an event is removed from the event list has been removed from the status log (FP 1922)
- o Center to Center
  - Publish "Unconfimed" Events (Soft Messaging)
  - Updated to be Windows Server 2008 compliant
- o DMS
  - Mutilthreaded process for process status and sending commands
  - DMS now sends updates to connected clients after a systemUpdateMsg (FP 1821)
  - DMS now works in clustered environments with multiple Ips assigned to the machine (FP 1969)
- o TSS
  - Email Alerts for Failed dectectors
  - Email Alerts for Invalid Data from a detector
- o GUI
  - Closed events are no longer shown on the Operator map (1601)
  - DMS conflicts will now only show in a single dialog (FP 1522)
  - A popup will warn operators if they attempt to close an event that will not be included in performance measures (FP 1514)
  - Missing DMS sign from drop down (FP 1529)
  - Fixed problem of EM List failing to Update (FP 1563)
  - TSS Link Editor Dialog issues have been corrected (FP 1722, FP 1962)
  - Map now handles N/A as valid make or model (FP 1784)
  - Comment Box defaults to the 1st item in the sort order configured (FP 1811)
  - Multiple map views can be created in the same session (FP 1824)
  - Autosize function corrected to help with dialog sizing (FP 1852)
  - Fixed issue where TSS contact where attempted to be created with invalid data (FP 1913)
- o VW
  - Multiple Lauouts for Virtual Video Wall (FP 730)
- o RS
  - Updated to be Widows Server 2008 compliant
  - RR Admin Details Report Billable time calculation fix (FP 906)
  - RR Administration Report Billable calculation fix (FP 1075)
  - Weekly PM Report Problems (FP 1491)
  - Threading issue when generating reports (FP 1602)
  - New IDS Alert Summary Report (FP 1619)
  - Reports from Multiple users will not cause issues (FP 1803)
  - VSL Header correction (FP 2004)
- o AVL
  - Remove extraneous XML from vehicle marked as AVL Only (FP 1195)
  - Threading issue caused a database problem (FP 1454)
  - Status update problems (FP 1506)
  - Corrected Locking issue in the SPARR Driver (FP 1843)
  - Fixed issue where the SPARR app would close unexpectedly (FP 1864)

- ▪ Additional Thread safety was added to data lists within AVL (FP 1903)
- o MAS
  - ▪ Message Priorities corrected to be priorities right at all times (FP 1376, FP 1950)
  - ▪ Now Sends any event Id in a merged message, even if the event Id is on the lower priority message (FP 1770)
  - ▪ Fixed issue where MAS would not always honor the priorty of messages (FP 1804)
  - ▪ Optionally can bypass DMS conflict checking (FP 1854)
- o Admin
  - ▪ Updated error handling (FP 1427)
  - ▪ Live update on Toll Lane Status Signs (FP 1750)
  - ▪ Text correction in PS (FP 1818)
  - ▪ More informative Error Messages (FP 1829)
  - ▪ Sort Order increased to allow more than 9 digits (FP 1887)
- o HAR
  - ▪ Ensure Unique name when sending message (FP 1527)
- o DA
  - ▪ Adding index to keep pace with data inserts (FP 1532)
  - ▪ TSS Rollup data time correction (FP 1849)
- o VS
  - ▪ Tours switching rapidly (FP 1578)
  - ▪ Threading issue when performing connection request corrected (FP 727)
- o IDS
  - ▪ IDS no longer closes when there are multiple alerts with the same id on startup (FP 1705)
  - ▪ Remarks column in database was lengthened to 256 (FP 1731)
- o CCTV
  - ▪ Fixed problem where Bosch camera would lock up and driver would report 100% usage (FP 1737)
- o PS
  - ▪ Now ignores fractional seconds in the discrepancy report as SunPass does not provide that accuracy (FP 1756)
  - ▪ Toll Viewer speed improvd to prevent timeout errors (FP 1791)
- o GUI Pref
  - ▪ Now sends updates about user changes such as map views created (FP 1825)
- o C2C
  - ▪ Fixed Publisher and now reads RWIS temperatures correctly (FP 1837)
  - ▪ Fixed issue where Publisher reported -1 for all trafficSpeedData (FP 1856)
  - ▪ Fixed issue where recycling the Publisher would result in data no longer being sent to the Provider (FP 1926)
- o RWIS
  - ▪ Removed unwanted warning message (FP 1859)
- Release 5.1.1
  - o Enhancements

- ▪ Activu Video Wall Driver Support
  - • Support Driver for Activu Video Wall control
- ▪ Admin
  - • Renamed UDP and TCP protocols for Transcore devices (FP 2084)
- ▪ C2C
  - • Subscriber now logs the text description of the location information in the database (FP 1687)
- ▪ DAR
  - • Data Archive RITIS support to write updates to a RITIS FTP site
- ▪ Data Archive
  - • DA now writes classification reads to the CSV files (FP 2137)
- ▪ DMS/MAS
  - • MAS was made aware of DMS status. DMS will now attempt to stay in sync with the MAS queue. (FP 1310)
  - • MAS now uses the database to persist MAS queues through a restart
- ▪ Event Management
  - • Configuable option to use long name in email for roadway description and ref point (FP 1530)
  - • Multiple contacts with the same name are now allowed. Must be different agencies (FP 1748)
  - • New mapping of event types to human readable response plan event types (FP 1744)
- ▪ Juptier Video Wall Driver
  - • Support Driver for Jupiter Video Wall control
- ▪ Probe Fusion Driver
  - • Additional configuration and driver changes to support an advanced filtering and averaging algorithm
- ▪ RS
  - • Excel reports now generate in a data only format (FP 1055)
- ▪ Safety Barrier Alert Driver
  - • New driver for Safety Barrier alerts. SB Alerts will now go through IDS. Alerts and operator responses will be logged in the database
- ▪ SPARR Driver
  - • Driver now supports a close event command
- o Admin
  - ▪ TSS detector and protocol matches are enforced (FP 1813)
  - ▪ No longer trims name of ramp meter on edit/delete(FP 2071)
  - ▪ Fails and alerts user when attempting to edit a TvT link when one of the TSS links has been deleted(FP 2076)
  - ▪ No longer allows trailing or leading whitespace on DMS signs (FP 2145)
- o AVL
  - ▪ Fixed RR stop alert issues (FP 1998)
  - ▪ SPARR Driver checks to see if driver is already logged in (FP 2001)

- Fixed issue of database logging when driver is running but is not connected to the proxy (FP 2211)
- o C2C
  - Additional information stored on floodgates (FP 1687)
  - Fixed issue with status webste icons (FP 2120)
  - Fixed C2C disconnect/reconnect issues (FP 2121)
  - Fixed issue on reconnection of C2C components (FP 2209)
  - Fixed issue sending event start time for Unconfirmed events (FP 2242)
- o DA
  - Restructured DMS query to allow for faster execution (FP 2086, 2283)
  - Fixed issue logging remote TSS Data (FP 2989)
- o DMS
  - Packet length on a UDP port server message was increased for larger messages (FP 1927)
  - Fixed log in issue with DMS (FP 2108, 2127)
  - Time sync is now configurable (FP 2193)
- o EM
  - Chronology entries when using multiple events now show DMS posting messages correctly (FP 1223)
  - Chronology now automatically refreshes after receiving successful response from FLATIS (FP 1382)
  - Multi-word abbreviations allowed(FP 1827)
  - Aways add chronology records when Activating/Terminating response plans for each item (even if unchanged) (FP 1902)
  - Added ability to set quantities for activites of RRs (FP 1997)
  - Exit Number is now available for use in templates (FP 2045)
  - Added ability to delete activities from an event(FP 2052)
  - No longer use "—Between—" when replacing 50nstalla messages (FP 2082)
  - Chronology shows when a response plan is published (FP 2113)
  - Emails are now generated and sent to multiple recipients instead of individual emails (FP 2207)
  - Fixed RPG distance calculations (FP 2219)
- o IDS
  - FHP Alerts are created as Uncofirmed if no trooper arrival is present (FP 1740)
- o INRIX
  - Now allows multiple SetIds (FP 2027, 2096)
  - Uses the Full Name if the Roadway name is missing (FP 2155)
- o Installer
  - Folder picker issues resolved (FP 1939)
- o MAS
  - Better handling of timeouts when using merged travel time messages (FP 1941, 2215)
- o Operator Map
  - Audited contacts with no name can now be saved(FP 1816)

- Editing and drawing a TSS link has been corrected (FP 2039)
- Ramp Meter list no longer loses focus when refreshing (FP 2064)
- Spelling conflict dialog closes when all conflicts are resolved (FP 2085)
- Fixed find on map for RSE (FP 2106)
- Fixed issue with custom-defined fonts on DMS signs (FP 2133)
  - o PS
    - Segment Rate Schedules with the same start time are now allowed (FP 2035)
  - o RMS
    - Fixed issue sending updates on modification of ramp meters (FP 2112)
- Release 6.0.0
  - o Enhancements
    - Dual Support of Oracle and SQL Server databases
      - Renaming now support on devices
    - NTCIPv2 Color/Graphics support for DMS signs
    - Scheduled Action Subsystem revision to handle
      - Camera Actions
      - DMS Sequences
      - Travel Times Display
    - Video on Desktop including a software video decoder for viewing video directly from the Operator Map
    - Ownership of DMS messages when using predefined response plans/generated response plans (FP 1498)
    - Bulk Updates for AVLRR (FP 1591)
    - "Nearest CCTV" doesn't populate with geographically closest cameras (FP 1455)
    - AVL Alerts need to be logged (FP 1999)
    - Populate contact phone numbers if contact is already defined in EM (FP 1634)
    - Allow Construction/Planned Construction events to have "zones" like Congestion (FP 1579)
    - Add vehicle alert (amber, silver, leo) templates
    - TransCore Encompass driver support of the TCP and status message
    - Store priority in DMS message library (FP 2301)
    - TSS validation of speeds using the reported volume value
    - Travel time message templates can be displayed with no units
    - EIS G4 detector support
    - Lane averages will be volume weighted in the rolling average
    - Link averages will be volume weighted as a rolling average as well as a poll cycle average of the lanes.
    - Added a configurable minimum volume for a lane to produce a TSS alert based on speed or occupancy
    - Added a configurable option for running report against a database that is not the primary SunGuide Database.
  - o Admin
    - Fixed issue with vehicle Operator configurations in AVL (FP 2172)

- o AVL
    - Fixed stop alerts triggering an the incorrect times (FP 2161)
    - Fixed issue logging RR activities sent by the Operator Map when running the RRXML driver with no incoming connection on that driver (FP 2347)
- o DMS
    - Fixed clock syncing issue causing DMS to stay in a pending state (FP 2163)
    - Fixed issue causing DMS to sporadically stop sending status updates (FP 2352)
- o EM
    - Fixed issue creating lane blockage records through auditing (FP 1492)
    - Fixed issue of logging a DMS response in an event response plan when activating a unrelated sequence on a sign used by the response plan (FP 2195)
    - Fixed issue activating a response plan on a DMS that used the "Default DMS" template (FP 2225)
    - Fixed issue audit a section of the event next to a part that had also be previously audited. (FP 2294)
- o GUI
    - Fixed issue in Operator Map that allowed user to input an incorrect value that would cause Ramp Metering firmware to stop functioning correctly (FP 1636)
    - Events created from a TSS alert will default to a "Congestion" event type (FP 2243)
    - Fixed issue setting English and Spanish Floodgates using the set multiple option (FP 2273)
    - GUI now populates the Mile Marker field if the mile marker is defined (FP 2307)
    - Fixed issue not requiring an activity to be set before departing a Road Ranger. (FP 2355)
    - GUI now allows sorting by Columns on the Travel Times tab (FP 2423)
- o INRIX
    - Introduced a publish flag to the INRIX links so a district can choose to not publish particular links on the FLATIS site. (FP 2336)
- o Jupiter Driver
    - Fixed issue where Jupiter driver would not start using the Executive Handler (FP 2337)
    - Fixed issue on Jupiter Driver startup when using the IP as the hostname (FP 2367)
- o MAS
    - Fixed issue where MAS would not honor the operator approval override flag in the config file (FP 2361)
    - Fixed issue where beacons would not be set for the VSLs (2368)
- o MCP
    - Fixed issue where video was unable to be switched via the MCP (FP 2129)

- o RM
    - Fixed issue setting the controller to the active state (FP 2354)
- o RS
    - Fixed issue overwriting existing reports if a report with the same name is attempted to be uploaded (FP 2310)
- o RTMS Driver
    - Fixed CRC check and the ability to set the detector to Wavetronix HD through Admin Editor (FP 2366)
    - Fixed issue generating XML for the Canoga detectors (FP 2380)
- o TSS
    - Fixed a logging issue that would log classification data was not present even though the data was not mandatory (FP 2362)
- Release 6.0.0, Patch 1
    - o Enhancements
        - Updated logging of CCTV, DMS, MAS, TSS, and TVT to report device names instead of internal IDs where possible (FP 2535)
    - o AVL/RR
        - Synchronized use of IDs for vehicles across subsystem, driver, and EM (FP 2555)
    - o C2C
        - Synchronized IDs of roadways in location and roadway definitions (FP 2543)
        - Fixed publishing of FLATIS events (FP 2548)
    - o Data Archive
        - Reduced startup overhead of reading configuration (FP 2549)
    - o DAR
        - Fixed issues causing warning and error messages and process restarts (FP 2553)
    - o DMS
        - Disabled sending of deprecated sequence messages (FP 2529)
        - Allowed SID and service name of Oracle database to differ (FP 2537)
        - Fixed behavior on disconnecting from other subsystems (FP 2544)
    - o EM
        - Fixed issue preventing response plan actions from executing when email actions failed to execute (FP 2523, 2787)
        - Fixed process of creating events from SPARR app (FP 2526)
        - Fixed auditing of duplicate RR activities (FP 2530)
        - Fixed blocked lane wording (FP 2532)
        - Fixed behavior when requesting response plan with explicit zero radius (FP 2536)
        - Fixed failure to save event using custom comment types (FP 2538)
        - Fixed sending of multiple emails to recipients in responses (FP 2539)
        - Fixed wording of shoulder blockages (FP 2546)
        - Fixed chronology report issues and nearest camera error (FP 2550)
        - Fixed event severity updates (FP 2552)
    - o IDS

- Fixed an error causing exceptions when resolving IDS alerts (FP 2519)
- Fixed synchronization of UI and subsystem alert resolution (FP 2547)
  - o Operator Map
    - Fixed crash bug relating to DMS spelling conflicts (FP 2564)
  - o SAS
    - Fixed timing issue caused by scheduled items being configured with different time zones (FP 2540)
    - Allowed multiple DMS scheduled items to overlap (FP 2542)
    - Fixed duplication of messages in MAS on SAS restart (FP 2565)
  - o TVT
    - Fixed handling of MAS connection/status changes (FP 2545)
- Release 6.0.0, Patch 2
  - o Admin
    - Renaming devices now supported (FP 116)
    - Added VDD documentation (FP 2492)
    - Upded Platform requirements in VDD (FP 2573)
  - o AVL/RR
    - Improved behavior of stop alerts (FP 1998)
    - Fixed issue with departure time of vehicles (FP 2241)
    - Fixed memory issue within AVL (FP 2261)
    - Fixed issue of multiple arrivals of a RR from a tablet (FP 2414)
    - Fixed startup issue with SPARR driver (FP 2571)
    - Restored previous interface of RRXML driver (FP 2575)
  - o C2C
    - C2C Collector connection issue resolved (FP 1958, 2095)
  - o CCTV
    - CCTV no longer uses rangeZoomLimit (FP 2500)
    - Improved disconnect/reconnect logging (FP 2583 (part 1))
    - Fixed IpVideoSwithDriver to allow alternate switch configurations (FP 2609)
  - o DA
    - Fixed Data Archive of DMS message so they no longer archive the "current_tvt" and cause a backlog (FP 1888)
    - Fixed issue with connection issues to Executive Handler (FP 1973)
    - Restructured DMS insertion query to allow for faster execution (FP 2283)
  - o DAR
    - Fixed issue with connectivity to the DAR FTP (FP 2417)
    - Enhanced to resend TSS configuration to RITIS nightly (FP 2637)
  - o DMS
    - Fixed issue editing DMS with an IP conflict (FP 2464)
    - Fixed issue sending messages to SES America signs (FP 2638)
  - o EH
    - Fixed issue where EH crashes upon multiple disconnect/reconnect attempts (FP 1786)
  - o EM
    - Fixed issues with agency contact records (FP 1748)

- Fixed an issue with which message template to use for a particular lane configuration (FP 2299)
- Fixed issue retrieve message templates for DMS in RPG (FP 2345)
- Added configuration item for using County long name in emails (FP 2466)
- Chronology now reports "Unconfirmed" when publishing unconfirmed events to FLATIS (FP 2495)
- Fixed issue with auditing duplicate responder timestamps (FP 2586)
- Fixed issue with case insensitivity when comparing license plates (FP 2613)
- Fixed issue with events not storing arrival time of responder if the notified time was not set (FP 2618)
  - o HAR
    - Fixed issue setting beacons and configuring HARs (FP 2609)
  - o MAS
    - Fixed high utilization issue (FP 2505)
    - Improved interaction with TVT (FP 2541)
  - o IDS
    - Improved handling of FHP updates (FP 2480)
  - o Nokia
    - Corrected mapping of link data (FP 2581)
  - o Operator Map
    - Prevented saving of map views with identical names (FP 1825)
    - Fixed issue with displaying "MM" in mile marker section of event details dialog (FP 2194)
    - Fixed issues recording and saving floodgate messages (FP 2254)
    - Fixed issue editing multiple DMS signs at the same time (FP 2369)
    - Improved editing of multiple DMSs (compared with 5.1 and previous) (FP 2381)
    - Improvements to the Edit Link Placement Dialog (FP 2391, 2461)
    - Limited use of auto-focus by desktop video wall (FP 2583 (part 2))
    - Fixed issue with display of Blue TOAD links (FP 2590)
    - Response now can be generated with a "0" radius selected (FP 2605)
  - o RMS
    - Fixed issue moving RMSs between installations (FP 1635)
    - Fixed error setting RMC rate/range values (FP 2576)
  - o RS
    - Fixed Road Ranger Admin Detail report (FP 1523)
    - Fixed Performance Measure reports (FP 2531)
  - o RWIS
    - Fixed missing dependency of driver (FP 2589)
  - o SAS
    - Allows Termination of a SAS item (FP 286)
    - Fixed timing issue within SAS schedules for DST (FP 2627)
  - o TSS
    - Fixed handling of zero speed report (FP 1526)
  - o TVT

- Fixed integration of C2C links (FP 2566)
- Improved handling of MAS blanking (FP 2588)
    - o VS
        - Fixed missing dependency of driver (FP 2580)
    - o VW
        - Removed unnecessary error report on successful action (FP 2591)
        - Fixed issues with updated Activu driver (FP 2592)
        - Jupiter Driver now supports HD sources (FP 2191)
- Release 6.0.0, Patch 3
    - o AVL
        - Fixed issue where AVL vehicle stuck in arrive state (FP 2411)
        - SPARR Driver may now set status to Unresolved (FP 2652)
        - Fixed issue with RR Status (FP 2685)
        - Fixed issue creating geofence midpoints (FP 2713)
    - o C2C
        - Fixed issue where county information is missing (FP 2623)
        - Fixed issue with link name containing name instead of ID (FP 2663)
        - Fixed issue with command received by the command receiver (FP 2758)
        - Fixed C2C component reconnect issue (FP 2797)
        - Fixed issue posting floodgate messages (FP 2803)
    - o DA
        - Improved purge method (FP 2724)
    - o DMS
        - Re-implement DMS Groups for SAS (FP 2563)
        - Added ability for third parties to submit color DMS messages (FP 2676)
    - o EM
        - Fixed Response Plan Discrepancy Email vs. DMS Wording (FP 2579)
        - Fixed Chronology not showing Primary/Secondary Entries (FP 2598)
        - Fixed issue with auditing EM Responders (FP 2653)
        - Fixed EM lag behavior and slow startup (FP 2668)
        - Fixed Lane Blockage Description (FP 2683)
        - Fixed issue with FHP event not getting correct nearest camera (FP 2688)
        - Fixed issue with cloned event not copying involved vehicle data (FP 2688)
        - Fixed issue with Primary event ID set to NA (FP 2691)
        - Fixed issue with Chronology entries showing device ID (FP 2692)
        - Fixed issue with email body for full closure events (FP 2712)
        - Fixed minor issues with EM after hotfix 6 and 9 (FP 2717)
        - Fixed issue with releasing ownership of an event (FP 2726)
        - Fixed issue with email body containing multitext from DMS (FP 2731)
        - Fixed issue with Email body for center lane blockage (FP 2759)
        - Fixed issue with EM locking up (FP 2785)
    - o GUI
        - Fixed issue with some dialogs displaying too small (FP 1852)
        - Better filtering of TSS road link information (FP 2181)
        - Added a shortcut to the Short status (FP 2649)
        - Fixed several small exceptions (FP 2658)

- Fixed issue editing pre-defined response plans (FP 2671, 2708)
- Fixed issue with FHP Incident ID not populating in Event (FP 2686)
- Fixed issue with AVL RR not being sorted in a list (FP 2694)
- Fixed issue with the default email group not being selected (FP 2695)
- Fixed issue searching the message library in a response plan (FP 2699)
- Fixed issue with the response plan dialog not showing the priority of the currently active message on the DMS (FP 2749)
- Fixed issue with message pop for response plan (FP 2770)
- Fixed issue editing layouts (FP 2809)
  - o IDS
    - Fixed issue with too many alerts (FP 2646)patch 2
    - Fixed issue with FHP Alerts not resolving correctly (FP 2660)
  - o MCP
    - Fixed connectivity issue (FP 2624)
    - Fixed issue with the joystick (FP 2698)
  - o SAS
    - Fixed issue to prevent end date from occurring prior to start date (FP 2719)
  - o SB
    - Fixed issue with SB selection window snapping back to first entry in the list of safety barriers (FP 2718)
  - o RM
    - Fixed Ramp meter shut down issue (FP 1574)
  - o RS
    - Fixed issue with ID being used instead of name (FP 2648)
    - Fixed view in for Event Reports (FP 2684)
    - Fixed report issue Incident Duration Full Detail report (FP 2696)
    - Fixed issue with the VW_DEVICE View (FP 2710)
    - Fixed issue with VW_RS_EVENT_PERFMEASD view (FP 2753)
    - Fixed issue with VW_RS_DMS_MESSAGE view (FP 2754)
    - Fixed issue with view for Road Rangers (FP 2769)
    - Fixed issue with filtering by RR, vehicle, or detector (FP 2788)
  - o TSS
    - Fixed issue with Wavetronix protocol displaying incorrect speed (FP 2422)
    - Fixed issue with TSS threshold dropping out after midnight (FP 2665)
    - Fixed issue adding TSS links to roadway geometry (FP 2804)
  - o VS
    - Fixed issue disassociating Video Source from Camera (FP 2634)
- Release 6.1.0
  - o Enhancements
    - Modified the permission architecture of the system to unify with the TxDOT permission model
    - Unified Executive Handler with TxDOT
    - Added a configuration file editor for config file validation

- Added a beacon management subsystem to control beacon activation/deactivation
- Added NTCIP version 2 and version 3 compliance for RWIS devices
- Created an RWIS simulator for all versions of NTCIP supported by SunGuide
- Added the ability for the software to alert users on RWIS readings exceeding defined thresholds
- Added the Nokia Publisher to the SunGuide installation
- Added a CCTV Driver to support the ONVIF protocol
- Improved the installer and installation process
- Re-arranged the Report Templates in the installation media (FP 2522)
- Reimplemeted DMS Groups (FP 2563)
- Added a bulk insert tool for devices (FP 2438)
- Added response plan termination capability to the Event Details dialog (FP 2511)
- Added a Response plan status for events which will require termination of a response plan prior to the close of an event (FP 1769, 2525, 2862, 583)
- Added the ability to schedule response plan from SAS
- Integrated the login and subsystem dialogs into the Operator Map
- Added ability to configure and use remote center CCTV video streams within Video on Desktop
- Added support for the Click!512 device to detect Wrong Way Driving incidents
- Added alerting based on Wrong Way Driving event detections (FP 2922)
- Added a "Turn Lane" lane type to the available lane configurations (FP 722)
  - o Admin Editor
    - Updated logging when trying to delete a camera or source when in use by a tour (FP 2705)
    - Fixed issue allowing duplicate renames in RM Controllers (FP 2927)
    - Fixed issue of configuring HAR control number (FP 2941)
    - Fixed issue of Admin losing authentication (FP 2942)
    - Fixed confirmation dialog to show the display name of the device (FP 2962)
    - Fixed issue allowing user to map multiple lanes to the same detection zone (FP 2965)
    - Fixed issue allowing duplicate Lane Map configurations (FP 2967)
    - Fixed issue of adding duplicate poll process (FP 2968)
    - Fixed issue with RM Controllers and mileposts (FP 2970)
    - Fixed issue with duplicate TSS Detector display names (FP 2971)
    - Fixed button enabled issue for TSS Mapping (FP 2973)
    - Fixed issue with missing zone configuration for a link (FP 2974)
    - Reworded error message in in TVT Configurations (FP 2976)
    - Duplicate contact names are now case-insensitive (FP 3022)
  - o AVL
    - Reworked AVL logic for better performance (FP 2411)

- Fixed issue with AVL storage of event IDs (FP 2685)
- Updated the SPARR Android app to be used on Android 4.4 and above (FP 2842)
- Fixed issue with an memory exception in AVL after deployment of newest version of the SPARR app (FP 2842)
-
- Fixed issue with handling of deleting vehicle statuses (FP 2985)
- Added additional SPARR configuration documentation to VDD (FP 3127)
  o BlueTOAD
    - Fixed an issue with password changes affecting authentication with the BlueTOAD subsystem (FP 2763)
    - Added BlueTOAD Subsystem to the SunGuide Installation (FP 2799)
  o C2C
    - Added timestamps to the C2C link data (FP 2735)
    - Fixed C2C/CCTV connection issue (FP 2735)
    - Added full event type name in the C2C XML feed (FP 2776)
    - Fixed an issue with adding C2C devices from databus (FP 2905)
    - Fixed issue adding remote DMS to response plan (FP 3036)
  o CCTV
    - Added a parameter to multiple the zoom for each manufacturer (FP 2185)
    - Add ability to add a camera for Video on Desktop purposes but has no camera controls (FP 2730)
    - Increased cctv_video_stream_info.stream_url from 100 to 1000 characters (FP 2902)
    - Addressed possible issue with CCTV camera status (FP 3030)
  o DA
    - Fixed issue with ODS tables having multiple parent records (FP 1589)
    - Fixed issue with ODS tables picking up a name change of a DMS (FP 2702)
  o Database
    - Modified a view to show the CCTV device id (FP 2773)
  o DMS
    - Added the ability to use contractions in the approved word list (FP 2397)
    - Fixed issue editing DMS message Library messages (FP 2822)
    - Fixed permission issue in DMS (FP 2841)
    - Fixed issue with maximum message length to be logged in the Database (FP 2852)
    - Allow external user to tell DMS not to modify the multi (FP 2676, 2854)
    - Fixed issue with BrightnessLevel and BrightnessMode values (FP 2917)
    - Fixed issue with REF_ID being consumed by a failed Approved Word addition (FP 2988)
    - Fixed issue with sign deletion failure causing queue status issues (FP 3012)
    - Fixed issue with device renaming causing stale data to be sent to the Operator map (FP 3013)

- Fixed issue with the logic to retrieve graphics dealing with signs that do not have graphics (FP 3041)
- o Documentation
  - Added RS configuration to the VDD (FP 2810)
- o EM
  - Fixed issue with unresponsive SMTP server not allowing a response plan to fully activate (FP 2335)
  - Adjusted wording for block vs closed DMS signs (FP 2579)
  - Fixed issue with responder departure times (FP 2764)
  - Fixed issue with logging Severity 2 events in the database (FP 2848)
  - Fixed issue auditing chronology (FP 3005)
  - Fixed device naming issue in chronology (FP 3014)
  - Added first response plan time to the database (FP 3018)
  - Fixed an issue departing multiple road rangers (FP 3023)
  - Fixed issue with terminating a large number of DMS signs from a response plan (FP 3054)
  - Fixed error condition when editing lane blockage (FP 3072)
  - Fixed issues with EM not removing messagages on DMSs as part of a termination (FP 3140)
- o GUI
  - TSS Link Editor Improvements (FP 2391)
  - Added option stretch Video on Desktop windows by default (FP 2458)
  - Added Digital Zoom Functionality (FP 2508)
  - Added timestamp to all C2C link data (FP 2595)
  - Fixed issue randomly causing a deadlock on logins (FP 2626)
  - Filtered list of events in the re-publish event dialog (FP 2314, 2633)
  - Added a list of available cameras within Video On Desktop (FP 2716)
  - Fixed display of VidioPad images on IE9 and above (FP 2855)
  - Added configurable buffer to Video on Desktop (FP 2887)
  - Fixed issue with modifying message libraries and messages at the same time (FP 2910)
  - Fixed Manage Manufactures dialog (FP 2930)
  - Fixed issue with showing error message for editing blockage dialogs (FP 2933)
  - Fixed issue with DMS showing a small size (FP 2938)
  - Fixed issue with the number of lanes not matching the number of lanes in the GUI when using the link editor (FP 2945)
  - Fixed issue with DMS add attempt showing current message (FP 2946)
  - Fixed issue with modifying active schedules and schedule items (FP 2950)
  - Fixed selection issue of permissions in SSA (FP 2955)
  - Fixed issue with saving devices when editing a SAS item (FP 2961)
  - Fixed issue with how MAS Queues for DMSs without queues are shown in the DMS Status Dialog (FP2980)
  - Fixed issue with editing a schedule item with a range of recurrence selected (FP 2998)
  - Fixed issue with AVL Responders in the EM dialog (FP 3007)

- Fixed selection issue in Video Wall Control dialog (FP 3043)
- Fixed issue when dealing with the blank status in the Short Status dialog for Express Lane signs (FP 3049)
- Fixed issue editing DMS message libraries (FP 3062)
- Added missing FHP actions (FP 3073)
- Fixed issue with VW list jumping to top of list (FP 3076)
- Fixed issue with DMS losing correct size in the GUI (FP 3085)
- Fixed issue with Blank Queue button Short Status Dialog for Toll Rate signs (FP 3118)
- Fixed issue with being able to select Toll Rate signs in a response plan (FP 3129)
- Fixed issue sorting dates in the DMS Status Dialog (FP 3138)

  o IDS
    - Fixed issue with ordering of subsystem in config file or missing drivers from config file (FP 2647)
    - Added ability to filter out alerts based on what changed in the alert (FP 2675)
    - Fixed issue with IDS restart affecting the TSS Alarm Driver (FP 3020)
    - Fixed logging level issue with Weather Driver (FP 3021)
    - Fixed issue to better handle FHP incidents with no direction (FP 3037)
    - Fixed issue saving WWD device configurations (FP 3051)
    - Fixed issue removing alert box for WWD alerts (FP 3093)

  o Installer
    - Moved operation files from the installation folders to configurable locations (FP 2204, 2205)
    - Added Navteq data to the installation media (FP 2672)
    - Added workstation/server time sync requirement to the VDD (FP 2738)
    - Updated the ERWIN Database model (FP 2742)

  o MCP
    - Fixed issues with reconnecting to devices on timeout of connection (FP 3050)

  o NOKIA
    - Upgraded feed to support version 3.1.2 (FP 3119)

  o RM
    - Fixed issue deleting controller (FP 2966)

  o RS
    - Enhanced reporting to include a report queue, scheduled reports, and email reports (FP 2100, 2729)
    - Fixed error text for overwriting and existing file (FP 2953)

  o SAS
    - Fixed issue with recurrence patterns with no end date (FP 2901)
    - Fixed issue with SAS terminating message that were manually removed (FP 3108)

  o TSS
    - Added a time sync ability for Wavetronix and Wavetronix HD detectors (FP 2456)

- Added the AWAM Protocol (FP 2801)
- Added the Sirit Flex 520x protocol (FP 2802)
- Fixed issue with maintain current detector status in the database (FP 2876)
- Fixed issue with XML for added links and lanes (FP 2943, 2979)
- o TVT
  - Fixed issue in configuration of C2C link used in travel times (FP 2909)
  - Clarified error in the case of deleting a message template that is in use (FP 2969)
  - Fixed naming issue for TVT System Messages (FP 3079)
- o VW
  - Added IPStream to the Jupiter video wall (FP 2379)
  - Fixed reconnect logic for Activu Driver (FP 2816)
  - Fixed issue with retrieving 'mpeg-4' video sources (FP 3150)
- Release 6.1.0 Patch 1
  - o Enhancements
    - Updated a view to account for WWD device uptime information (FP 3100)
    - Updated VLC libraries to version 2.1.5 (FP 3216)
    - Added the ability to search on the VOD cameras (FP 3217)
    - Added documentation for various installation conditions to IN (FP 3226)
  - o Admin
    - Warning added when changing DMS sign types (FP 3011)
    - Fixed display issue with lat/lon values for detectors (FP 3163)
  - o C2C Publisher
    - Fixed issue with camera blocking (FP 3162)
  - o CCTV
    - Fixed issue when changing information for a camera (FP 3170)
    - Fixed issue with Device uptime (FP 3185)
  - o EM
    - Updated the email editor to WPF (FP 2811)
    - Events that are associated to another now stay in cache until all associated events are closed (FP 3001)
    - Fixed issue with 511 messages not being removed for events with associated events (FP 3122)
    - Fixed issue that was inserting blank chronology entries (FP 3181)
    - Fixed issue in blockage calculation (FP 3188)
    - Fixed issue with DMS chronologies entries (FP 3197)
  - o IDS
    - Fixed issue disabling Citilog detection (FP 3184)
    - Removed extraneous column from the database (FP 3252)
  - o Nokia
    - Fixed display issue of roadway name on FLATIS (FP 3204)
  - o Operator Map
    - Fixed display issue with current AVL status (FP 3141)
    - Fixed issue with TSS links showing transparent (FP 3160)
    - Fixed issue displaying VisioPad alerts in a WPF window (FP 3168)

- Fixed RWIS dialog column display issue (FP 3215)
  - o Ramp meter
    - Fixed issue with volumes on tamp meters (FP3165)
  - o SAA
    - Fixed issue with roadway shields not appearing on the map (FP 3222)
  - o Status Logger
    - Updated log message to include display name (FP 3015)
  - o Toolset
    - Fixed crash when Excel is not installed (FP 3246)
  - o Travel Times
    - Fixed issue with travel time calculation in 0 volume conditions (FP 3189)
- Release 6.2
  - o Enhancements
    - Modified EM to add a sort order to all roadway displays (FP 448)
    - Modified DMS to optionally force a blank for the status in SG upon a device failure (FP 955)
    - Modified the Operator Map to have a "Find on Map" for all IDS alerts (FP 1715)
    - Modified EM to hold as much information as possible when changing event locations (FP 1734)
    - Events owned by the user will highlight in the event list (FP 1910)
    - Modified EM to support discontinuous lane blockage (FP 1912)
    - Added support to IDS for alerts from C2C TSS links (FP 2073)
    - Added a "Year" field for involved vehicles and response plan templates (FP 2223)
    - TSS configuration was moved from the Admin Editor to the Operator Map (FP 2418)
    - Modfied EM to allow comments via audit (FP 2570)
    - Added toggle settings for C2C devices (FP 2587)
    - Modified EM to accept reponse plan templates per event type (FP 2620/2621)
    - Modified SAS to allow a user to see all scheduled items within a schedule (FP 2629)
    - Modified EM to optionally set the DMS capitalization globally (FP 2650)
    - Altered Involved Vehicle Tag matching to exclude alpha-numeric characters (FP 2656)
    - Modified the way the operator handles the Road Ranger when the Road Ranger is the notifier of an incident (FP 2661/3040)
    - Modified the TSS Alerts to auto-dismiss redundant alerts (FP 2845)
    - Stale TSS links now grey out on the Operator Map (FP 2989)
    - The Subsystem Pane with now auto-hide after all subsystems are connected (FP 3153/3219)
    - Added Support for the Single and Quad model of Web Relay (FP 3395/3257)
    - Enhanced the Activu Driver to persist a connection for better sync with the Activu controller (FP 3375)

- Synced statewide database indicies (FP 3378)
- Added different AutoFocus and AutoIris commands through NTCIP (FP 3415)
- Added support for BlueMac devices (FP 3345)
- Modified Probe Algorithm to account for Arterial Roadways
- Added support for WAZE alerts through IDS
- Added additional support including automatic response plans for Wrong Way Driving

o Admin Editor
- Fixed issue selecting graphics and TVT templates (FP 3426)
- Fixed issue for event type when switching through default DMS Message Templates (FP 3571)

o Config Editor
- Fixed issue with selection of objects (FP 3248)

o C2C
- Fixed issue with roadway id in the linkData (FP 2663/3430)
- Fixed issue with C2C Roadways not showing display name to the user (FP 3445)
- Fixed issue with roadways having duplicate shortnames not appearing in the feed (FP 3451)
- 3rd party TSS links now have an optional display name (FP 3526)

o Database
- Fixed issue with upgrade scripts (FP 3587)

o Data Archive
- Fixed issue with archived TSS lengths (FP 3231)
- Fixed issue archiving detector data (FP 3418)
- Fixed issue storing RWIS data (FP 3543)

o DMS
- DMS library message will now store priority (FP 2301)
- Fixed issue with status poling (FP 3183, 3399)

o EM
- Added SAE code descriptions for 5 new lane types (FP 2332)
- Added log message if user tries to delete a message template while in use (FP 2969)
- Fixed issue with extra space in response plan template (FP 3313)
- Fixed issue with initial confirmed date when event is created via the SPARR Driver (FP 3321)
- Fixed issue with unpublishing an issue from FLATIS (FP 3366)
- Fixed issue with long usernames and response plan items (FP 3370)
- Fixed a locking issue (FP 3371)
- Fixed issue with slowness in returning a response plan (FP 3379)
- Fixed issue with the response plan email item not wrapping the body text (FP 3385)
- Fixed issue with cloned events' response plan (FP 3411)
- Fixed issue with nearest camera button not working (FP 3419)

- Fixed issue with the pre-defined response plans not updating correctly upon configuration (FP 3443)
- Fixed issue with operators not able to dispatch RRs with no radio assigned (FP 3452)
- Fixed issue in classification of HOV, Gore, and HOT lanes for blockage (FP 3461)
- Fixed issue creating DMS Library messages (FP 3531)
- Fixed issue with Roadway sorting (FP 3593)

o Event Viewer
  - Fixed issue with multiple logins from the same machine (FP 3305)

o IDS
  - Fixed issue with IDS restarting if an active VisioPad camera had currently disabled detection (FP 3523)
  - Fixed issue with TSS alerts not clearing (FP 3589)

o MCP
  - Fixed issue with Joystick not being able to move camera (FP 3416)
  - Fixed issue with cycling through presets (FP 3454)

o Operator Map
  - Fixed issue when renaimgn a vehicle status (FP 2984)
  - Fixed issue in sort order for Auditing Lane Congestion (FP 3423)
  - Fixed issue editing Pre-defined Response Plans (FP 3443)
  - Added error notification if a detector is attempted to be deleted while its links are in use (FP 3475)
  - Fixed issue with EL Permissions to signs (FP 3479)
  - Fixed issue with the Message library in the DMS Send Message dialog (FP 3481)
  - Fixed issue adding DMS Groups to Response plans (FP 3505)
  - Changed default RWIS column for Visibiity to be the number instead of the description (FP 3514)
  - Fixed issue with dates in the reporting dialog (FP 3533)
  - Fixed issue with Find on Map from the Event List dialog (FP 3577)
  - Fixed issue with Floodgate recording (FP 3581)

o Ramp Meter
  - Fixed issue editing configuration of a Ramp Meter (FP 3471)
  - Fixed issue with log message having ID but no device name (FP 3472)
  - Fixed issue with state changes (FP 3482)
  - Fixed error handling when RM fails to create (FP 3483)

o RS
  - Fixed issue with CCTV Report display of camera name (FP 3440)

o RWIS
  - Fixed issue with adding with the same name (FP 3311)
  - Fixed issue with RWIS Op Status (FP 3448)

o SAS
  - Fixed issue running a report through SAS (FP 3355)
  - Fixed issue editing SAS Schedules (FP 3554)

o Status Logger

- ▪ Fixed issue with SL Details dialog buttons (FP 3588)
    - o TSS
        - ▪ Fixed issue with Out of Range Exception for Probe Fusion Driver (FP 3342)
        - ▪ Fixed issue with Tag Expirations being shorter than poll cycles (FP 3376)
        - ▪ Fixed issue remapping lanes after BlueMac hotfix (FP 3496)
        - ▪ Fixed issue with added detectors that never receive updates (FP 3519)
    - o VS
        - ▪ Fixed issue VS not connecting to the IP Switch Driver properly (FP 3422)
    - o VW
        - ▪ Fixed issue with Jupiter Canvas driver with UTF-8 vs ASCII (FP 3396)
- • Release 7.0
    - o Enhancements
        - ▪ Converted the following subsystems to WPF dialog in the Operator Map
            - • AVLRR
            - • CCTV
            - • EM
            - • SAA
            - • System
            - • TSS
                VW
        - ▪ Converting the following administration dialog from Admin Editor to the Operator Map
            - • AVL
            - • CCTV
            - • VS
            - • DMS
            - • EM
            - • TVT
        - ▪ Added the Traffic Controls Subsystem (TCS)
        - ▪ Added the Managed Lanes Subsystem (MLS)
        - ▪ Added the Truck Parking Subsystem (TPS)
        - ▪ Poll CCTV Cameras (FP 3187)
        - ▪ Archival of Ramp Metering data (FP 1081)
        - ▪ Allow Ramp Meter to be scheduled "Off" (FP 1407)
        - ▪ Allow some presets to be locked by admins (FP 2303)
        - ▪ Allow PTZ Control for tours in VOD (FP 2569)
        - ▪ Removal of non-TSS links (FP 3251)
        - ▪ Configurable sounds for alert messages (FP 3004)
        - ▪ System Message categorization and filtering (FP 3564)
        - ▪ Auto-merge operator and travel time messages (FP 3565)
        - ▪ Disable response plan items for suggestion (FP 3180)
        - ▪ Allow device specific default messages when travel times can't be calculated (FP 3566)
        - ▪ Alternate travel time destinations if travel time cannot be calculated (FP 3567)

- ▪ Unconfirmed Lane Blockages (FP 3195)
  - o C2C Publisher
    - ▪ Fixed issued with cameras being removed from C2C (FP 3770)
  - o DMS
    - ▪ Fixed an issue with DMS hanging on startup (FP 3783)
    - ▪ Fixed issue with startup for graphic signs not having status (FP 3856)
  - o EM
    - ▪ Fixed issue with Executive Notifications emails and chronology entries (FP 3536/3832)
  - o Operator Map
    - ▪ Fixed issues with Link Editing dialog (FP 3687)
    - ▪ Fixed issue with Operator Map freezing (FP 3743/3804)
    - ▪ Fixed issue with Operator Map crashing (FP 3662)
    - ▪ Fixed memory Utilization issue (FP 3719)
    - ▪ Fixed issue with Turn Lanes not considered as blockage in Event List (FP 3866)
    - ▪ Fixed issue with DMS Sign use change to a Toll Sign (FP 3665)
  - o RS
    - ▪ Fixed issue with reports not taking Turn Lanes into account when the "Any Lane" filter is used (FP 3712)
  - o RWIS
    - ▪ Fixed issue with SNMP library for device communication (FP 3865)
  - o SPARR Android application
    - ▪ Fixed issues with notifications and recovery from standby (FP 3221)
  - o TSS
    - ▪ Fixed parsing issue in the Wavetronix HD protocol (FP 3790)

3. SunGuide Application Installation

The following sections provide an overview of how to install the SunGuide software. The installation of the software should be performed by someone who has attended the SunGuide"System Administration/Deployment Training Course" as many of the installation procedures are not obvious to a user who is not familiar with the software design and implementation.

The SunGuide software is installed using custom setup programs that are included on the SunGuide distribution CD and the manual operations described in the following sections.

3.1 Installation Overview

The following steps needs to be performed to install the SunGuide application software:

- Backing up existing SunGuide servers (see Section 3.2)
- Prepare the SunGuide servers (see Section 3.3)
- Install the database (see Section 3.5)
- Install the application software (see Section3.8)
- Install and Configure the Center-to-Center software (see Section 3.9)
- Configure the system (see Section 3.10)

3.2 Backing Up Existing SunGuide Servers

If the installation to be performed is on servers currently configured to execute SunGuide, the following files should be backed up prior to installation so that they can be reused once the new installation is performed:

- config.xml – primary configuration file that contains the settings for all of the SunGuide subsystems and drivers
- FL-ATIS_FloodGate_Data.xml – contains the floodgate message "slot" configuration data used by the Floodgate GUI
- IpVideoDevices.xml – provides model specific settings for video devices
- SnapshotDevices.xml – defines video capture devices and corresponding IP video decoder devices
- OMInterface.dll.config.xml – Operator Map client configuration settings
- ProcessList.xml – Executive Handler Server's list of installed services
- Note: This is only necessary if the system is not operating in a clustered environment. The Installer will auto-generate a ProcessList.xml for all installed SunGuide application processes.
- Web.config – If uninstalling and re-installing any C2C web services, each web service contains a web.config file for C2C configuration.

3.3 Platform Requirements for the SunGuideSystem

Application Server:
- – Operating System: Windows Server 2003, 2008R2, or 2012
  - o If running the Reporting Subsystem with a SQL Server database, the minimum OS is Windows Server 2008R2
- – .NET 2.0, 4.0 minimum required. Highest supported version is .NET 4.6.

       – IIS Web Server

Database Server:
       – Operating System: Windows Server 2003, 2008R2, 2012
       – Database Product: Oracle 11.2 or 11.1 or SQL Server 2012, 2014, 2016

Workstation:
       – Operating System: Windows XP, 7, or 10
       – Browser: IE 8, 9, 10, or 11
       – NET: 2.0, 4.0 minimum required.Highest supported version is .NET 4.6.

Please note that ALL servers and workstations needed to be time-synced to a common source.

3.4 Preparing SunGuide Servers

The following is a list of steps that need to be performed to install the SunGuide software:

1. Ensure that the current user on the server has Administrative privileges.

2. Create a share point (which will be called the "SunGuide share point" for the remainder of this document) on a system folder that is accessible to all SunGuide application and database servers (e.g., \\Archimedes\fdot). Be sure to give the SunGuide services account full access to this share.

3. Copy "config.xml"file to the SunGuide share point. This file will be called the <config file loc> for the remainder of this document (e.g., \\Archimedes\fdot\config.xml). Incorporate any changes from the config file updates included on the distribution CD. See the section titled Configuration Editor in the Software User's Manual on how to edit the configuration file.

4. Verify available ports for Status Logger (8000) and Executive Handler (8001, 8002) by running "Netstat –a" from a DOS command line from theSunGuide application servers.

5. If the AVL/RR subsystem orthe C2C plug-inwill be installed on the target system, the Navteq map data must be located local to the server or on a file share accessible by the applications.

6. Ensure that IIS and ASP.NET4.0 are installed and enabled on each server that will host a webserver application (e.g. OperatorMap, Webserver). Ensure that the ASP.NET 4.0 and Active Server Pages web extensions are enabled in IIS.

7. Install SunGuideSoftware using SunGuideInstall.exe (see Section3.8).

8. In the location that the OperatorMap web application is installed, edit the "OMInterface.dll.config.xml" file appropriately. These edits include server locations, floodgate message configuration file name and location, and map tiles location.The map tiles location must match the actual location of the map tile files. The default location is a folder named "Tiles" under the "OperatorMap" folder. To change the default location, edit the "value" attribute associated with the "key" attribute named "tilesets". The "value" attribute must contain pairs of strings that define the label of the tile set and the file system path of the tileset. The file path can relative to the "OperatorMap" folder or it

can be an absolute path. Note that neither the label nor the file path may contain any whitespace characters.

3.5 SunGuide Database Installation

The SunGuide database installation occurs in three steps: Oracle installation, creation of the SunGuide database container and preparing it for data, and loading starter data.

3.5.1 Oracle Installation

This section does not replace the detailed instructions published by Oracle for the installation of Oracle 11g server and client. These instructions only describe the highlights and are really for persons experienced with installing Oracle products. Stop all Oracle services running (if any); these services should be set so that they do not start automatically. It is helpful if all previous Oracle installations are removed using the appropriate Oracle installer. Remove empty Oracle directories from previous installations.

3.5.1.1 Install OracleServer Software

The Oracle server software should be installed on every server that will host the SunGuide database. It is recommended to use Oracle 11.2; however Oracle 11.1.0.7 will also be sufficient to run SunGuide.

If server does not have a static IP address, install the Microsoft Loopback Adaptor:

- Install hardware
- Choose from list
    - Network adaptors
    - Microsoft
    - Loopback Adaptor
- Configure Microsoft Loopback adaptor
    - Static IP address 192.168.x.x (1 < x < 255)
    - Network mask 255.255.255.0

Installation of Oracle server software:

- Install as a user with local administrator rights.
- Choose directories (recommend using the default, on local drive)

3.5.1.2 SunGuide Database Creation

The SunGuide database must be created first, and then it must be prepared for data loading.

3.5.1.3 Create the database container

The SunGuide database container must be created and prepared for the import of data from a starter database.

Oracle database configuration assistant:

- Create a new database
- Choose appropriate storage mechanisms and locations
- Database name needs to be chosen (D1SG, D2SG, …MDXSG,…) limited to 8 characters not case sensitive
- Select "floridad0t" for password to "SYSTEM" and "SYS" users
- Suggested resource assignments for the database:
    - (11G) Set the memory resource slider to approximately 50%
    - Set Processes parameter to at least 300
    - Set Open_Cursors parameter to at least 1000
    - Set Sga_max_size parameter to 264241152
    - Set Shared_pool_size parameter to 167772160

Oracle network configuration assistant:

- Configure a TCP listener on port 1521 (default)
- Configure local names
    - Database name
    - Host name or IP address or "localhost" or loopback address
    - Test it using the "SYSTEM" user ID and its password

3.5.1.4 Create the SunGuide tablespaces

SunGuide requires named tablespaces for both of the SunGuide schemas: FDOT_OWN and FDOT_ODS. The following tablespaces should be created:

FDOT_OWN
- SUNGUIDE
- SUNGUIDE_IDX

FDOT_ODS
- ODS
- ODSRWIS
- ODSRWISIDX
- ODSIDX
- ODSTRD
- ODSTRDIDX
- ODSTLPD
- ODSTLPDIDX
- ODSTTI
- ODSTTIIDX
- ODSTAGS
- ODSTAGSIDX

IDB
- IDB
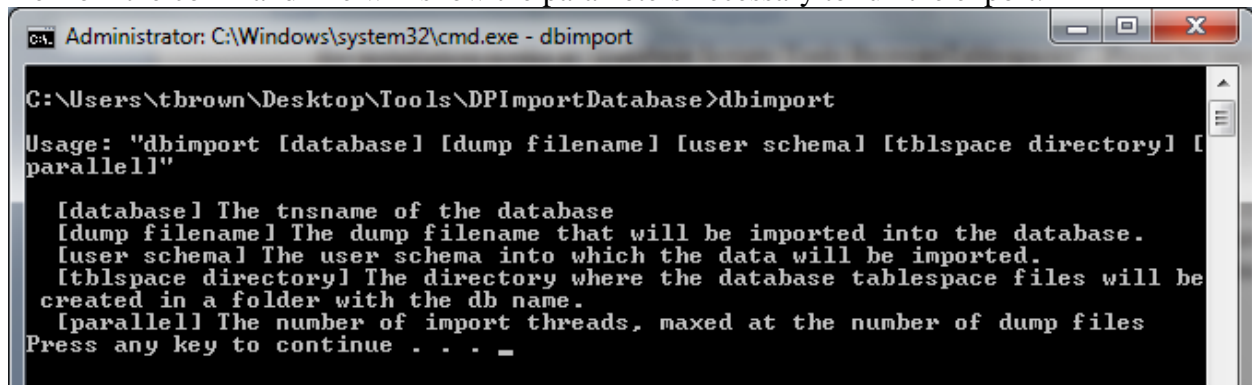
A callable batch file and SQL scripts for creating the tablespaces appropriately may be found on the installation media at "Database Scripts\Tools\RecreateTablespaces". Please be sure to check the log file for errors after use.

3.5.1.5 SunGuide Data Importing/Exporting

Once the SunGuide container is created, it must be loaded with the appropriate data. This data is usually loaded using one of the Oracle import tools. The database tools are located on the installation media in the folder "DB Tools". The following sections describes each scripts purpose and how it is to be used.

3.5.1.6 DataPump Import

Within the DPImportDatabase folder there a batch file called "dbimport.bat". Running the bat file from the command line will show the parameters necessary to run the export.

Parameters:

- database: the tnsname of the database
- dump filename: The dump filename that will be imported into the database
- use schema: The user schema into which the data will be imported (FDOT_OWN, FDOT_CVS, or FDOT_ODS)
- tblspace directory : The directory where the database tablespace files will be created in a folder with the database name
- parallel: number of import threads, maxed at the number of dump files

Once the correct parameters are entered, the script will import the dump files into the Oracle database. If prompted with a "SQL>" prompt, type "exit" and the script will continue with the next steps. Also note that the import script calls the Recreate Synonyms, Rebuild Indexes, and Recreate Tablespaces scripts defined below.

3.5.1.6.1 **DataPump Export**

Within the DPExportDatabase folder there a batch file called "dbExport.bat". Running the bat file from the command line will show the parameters necessary to run the export.

Parameters:

- database: the tnsname of the database
- schema: Schema to export (FDOT_OWN, FDOT_CVS, or FDOT_ODS)
- directory : folder location on the file system where the export should be written.If spaces are present in the file path, the entire file path must be quoted.
- Number_of_files (optional): number of files to break the export into

Once the correct parameters are entered, the script will export the Oracle database into dump files. If prompted with a "SQL>" prompt, type "exit" and the script will continue with the next steps.

3.5.1.7 SunGuide Blank Database

Once the SunGuide container is created, instead of importing a populated database, the database may be populated using the minimum data set required to run SunGuide. To populate the blank database, locate the oracle_sg_scripts.ddl file from the installation media in the Models\Creation Scripts\Oracle folder.

Open a sqlplus prompt, connect to the database as the SYSTEM user, and run the DDL file from above. The script will prompt for locations where the tablespaces should be created. Ensure the locations provided exist on the database server.

Once the scripts has completed, check the output log to ensure no errors have occurred.

3.5.2 SQL Server 2012 Installation

This section does not replace the detailed instructions published by Microsoft for the installation of SQL Server 2012. These instructions only describe the highlights and are intended for persons experienced with installing SQL Server products. It is helpful if all previous SQL Server installations are removed. Remove empty SQL Server directories from previous installations.

3.5.2.1 Install SQL Server Software

The SQL Server software should be installed on every server that will host the SunGuide database. It is recommended that SQL Server 2012 be installed however SQL Server 2008 is supported.

For a standard installation select "New SQL Server stand-alone installation" seen in the picture below.
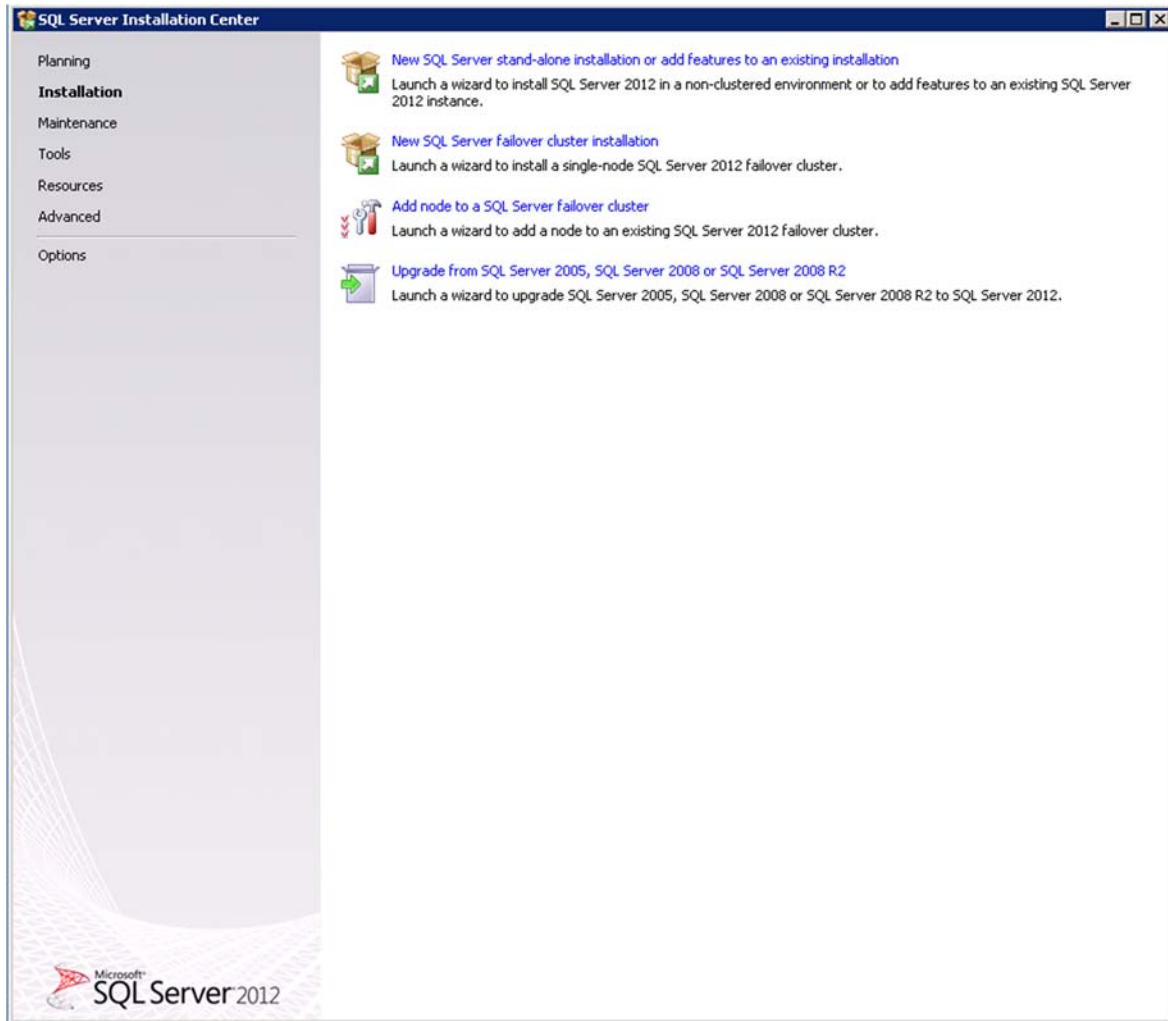
Select OK.

Enter the product key. Press next. Agree to license terms and select Next.

After checking for updates and creating the setup files, select Install.

Select the SQL Server Feature Installation as seen below.
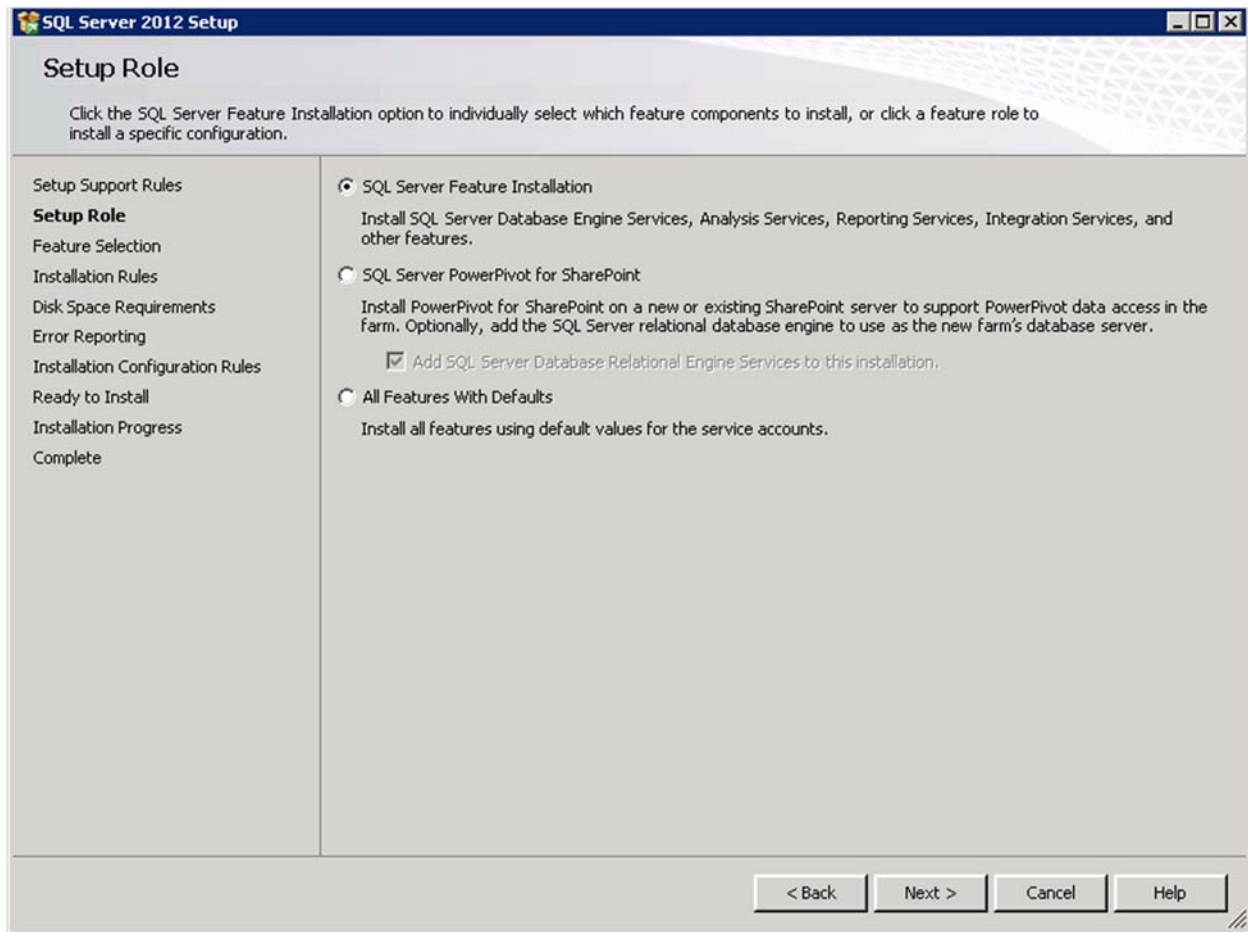
Select Next.

Select the following options seen in the picture below for installation. The shared feature directories may be changed but the stock directories are acceptable.
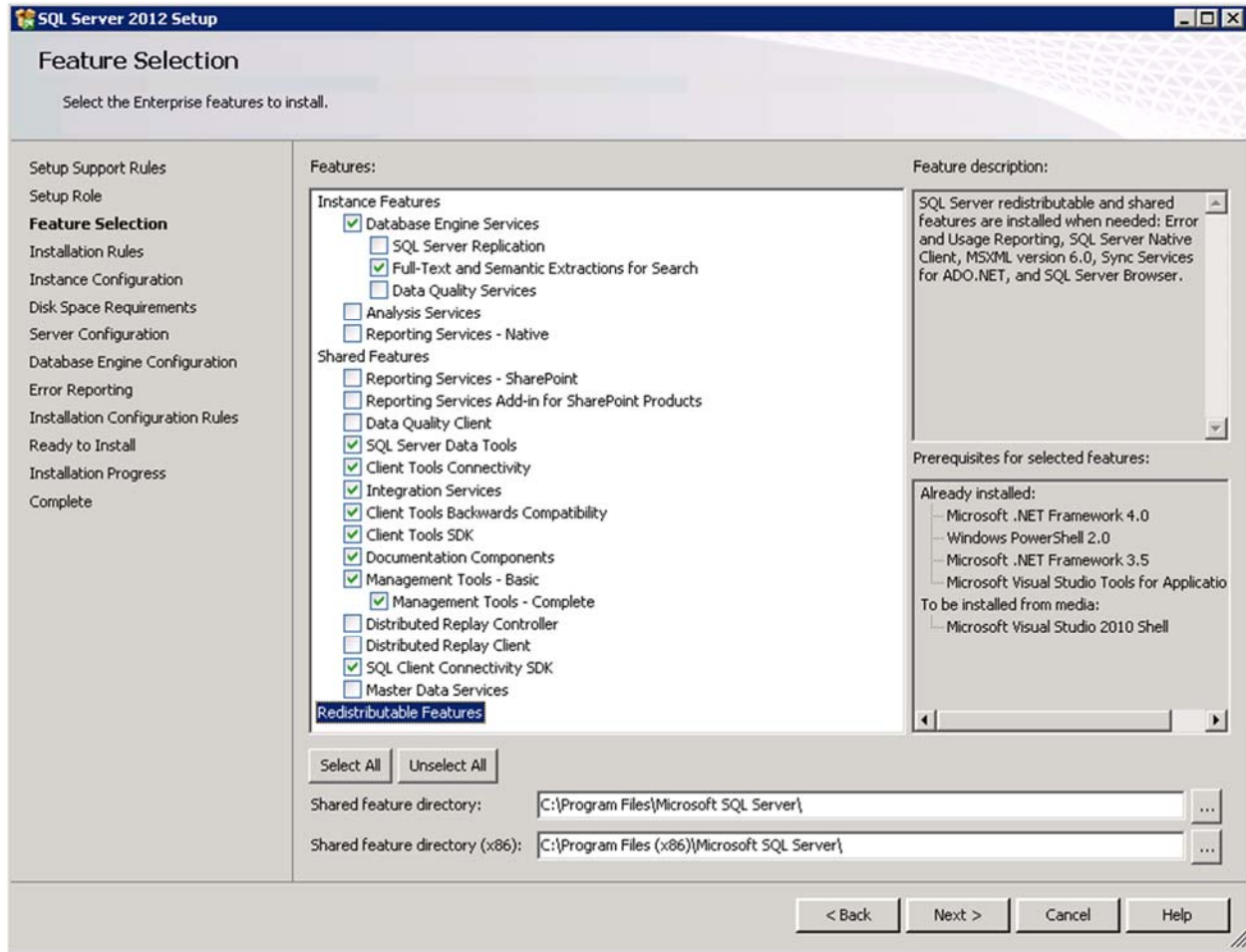
Select Next and after checking installation rules, select Next.

On the dialog below, set the instance name and set the root directory for the instance. The default is acceptable.
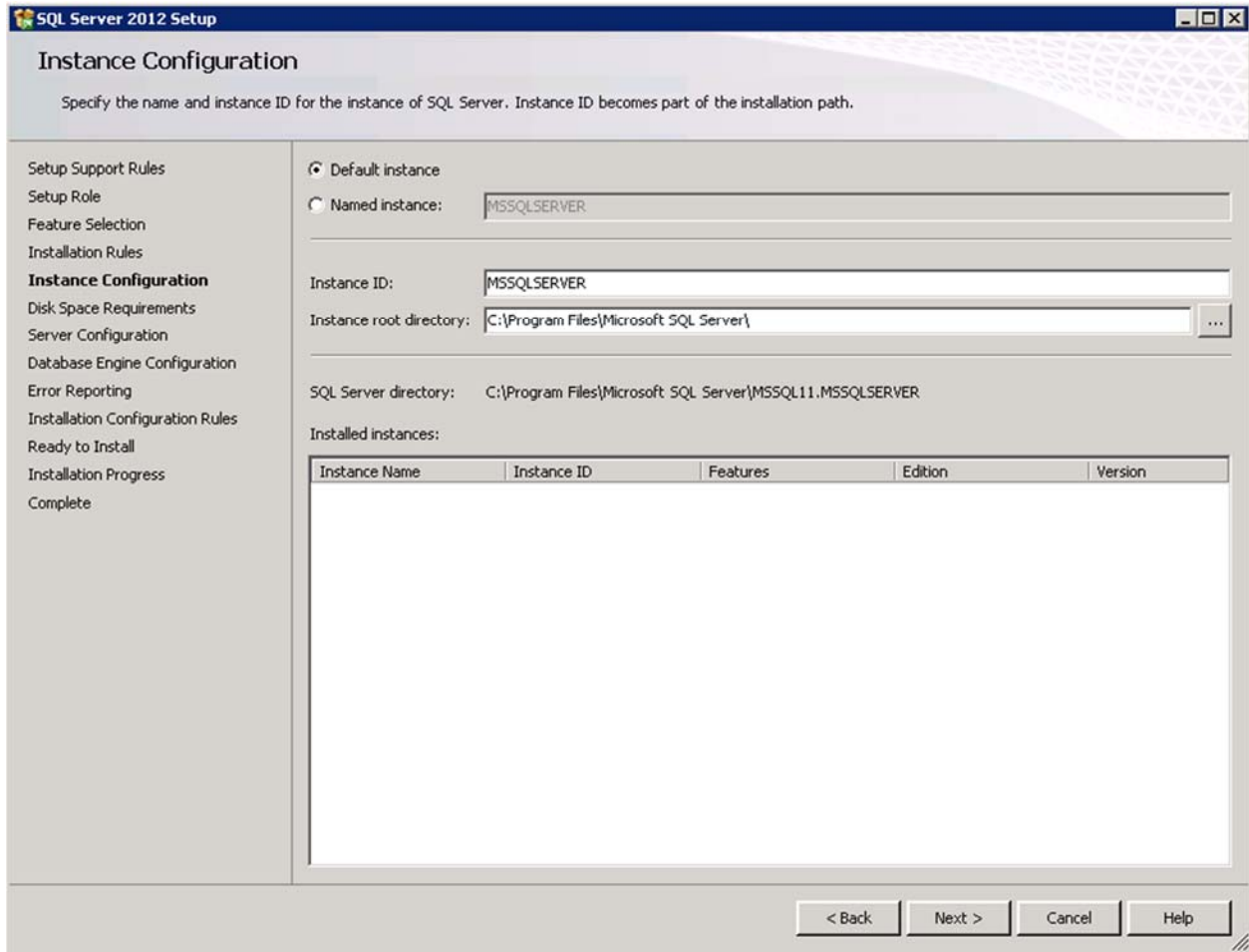
Select Next.

Confirm there is enough disk space and select Next.

On the following dialog, confirm the service accounts and passwords changing them if desired. Defaults are acceptable.
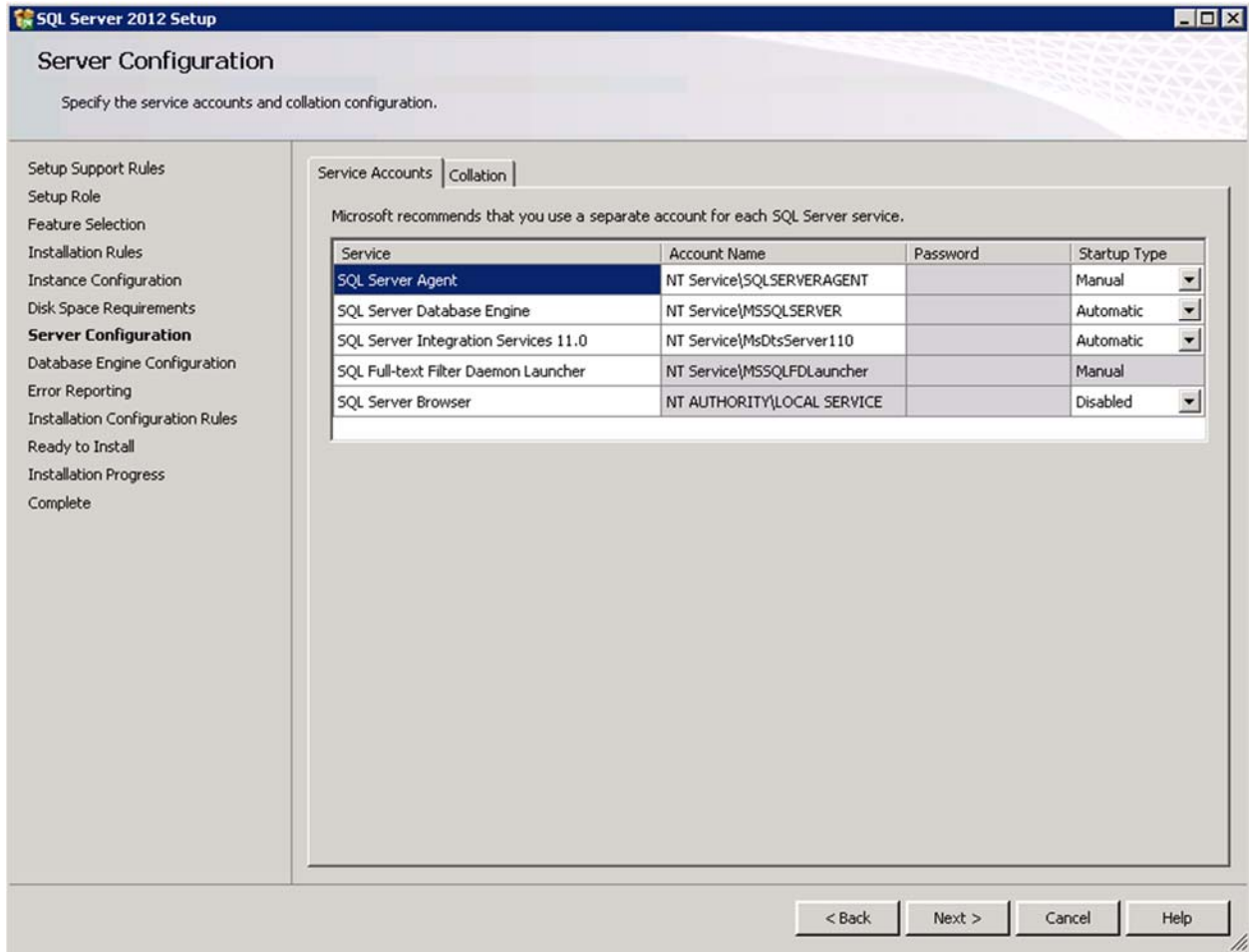
On the following dialog, set the Authentication mode to Mixed Mode. Set a password, and add possible administrators or groups for administration of the SQL Server Instance.
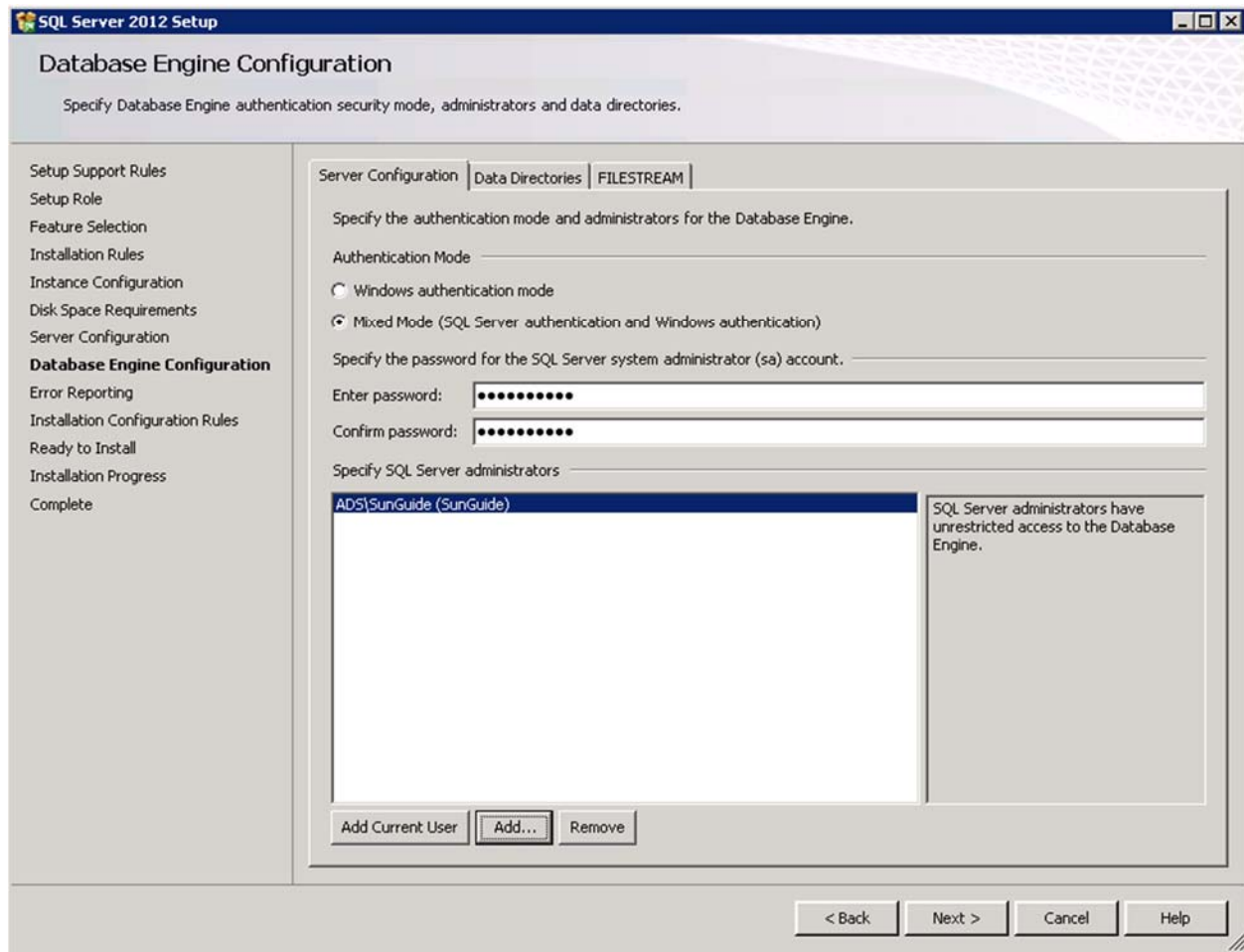
Select Next.

When Error Reporting has completed, select Next.

When Installation Configuration Rules have completed, select Next.

Review the summary and select Install.

Once the installation has completed, review installed features to make sure they installed, and select Close.

3.5.2.2 SunGuide Database Creation

The SunGuide database must be created first, and then it must be prepared for data loading.

3.5.2.3 Create a blank database

Once a SQL Server instance is installed, locate the "createSqlServerDb.bat" script located on the installation media in the Upgrade Scripts folder. Copy the file to the local file system along with

the "create_sunguide_sqlserver.ddl" file. The DDL file contains the information needed to create a blank database.

Run the "createSqlServerDb.bat" file. You will be prompted for the following information.
- Database Server Name — Name of the server on which the database is being installed
- Username – This should be a user that is authorized to modify the SQL Server Instance and configured in the previous SQL Server setup. If using the SQL Server Authentication, the username is configurable.
- Password – The Windows Authentication Password or SQL Server Authentication Password. Please make sure to remember this password.
- Name of the database – Name to give the created database
- Location for storing the database files – The location on the local file system where the database should store its data.

Once the file has completed, a blank database should be created.If you are done with the sqlplus session, type "exit" and press enter.

3.5.2.4 SunGuide Data Loading

This section covers how to convert an Oracle database into a SQL Server database using SQL Server Migration Assistant for Oracle.
Prerequisites:A current database that has been check to make sure it complies with the current SunGuide release's database model. Access to active Windows Live account as this account will be used to retrieve SQL Server Migration Assistant for Oracle license.
1. Create base SQL Server database
   a. Create SQL Server file directory on the database server running SQL Server, C:\SqlServerFiles\Databasename
      i.e.
      C:\SqlServerFiles\SGDB
   b. Run createSQLServerDB.bat scripts located on the distribution media.
   c. Enter the DatabaseServer name or IP
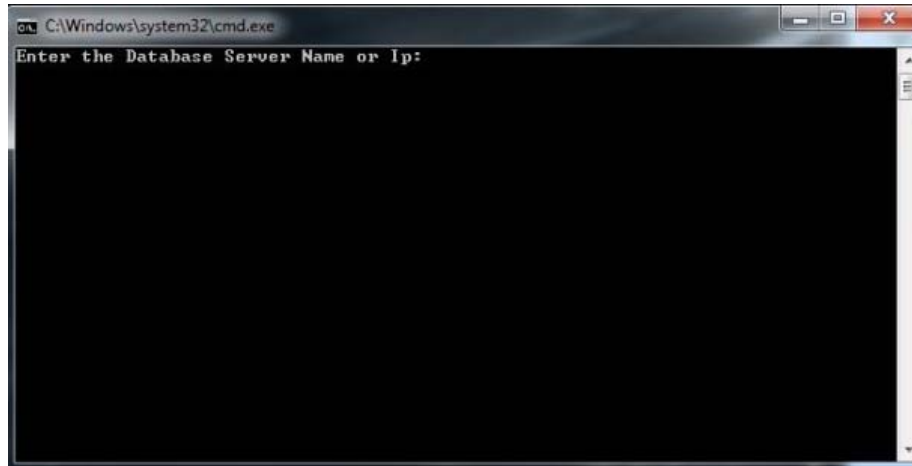
d. Enter User name
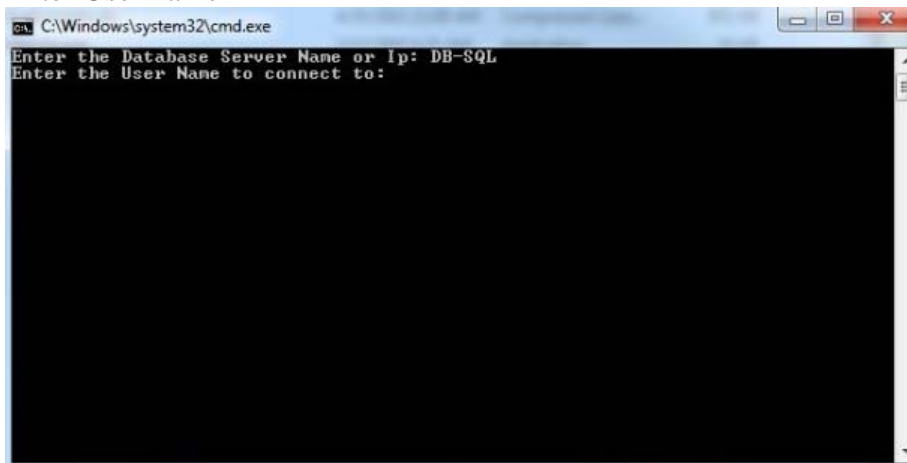
e. Enter the Password for User entered
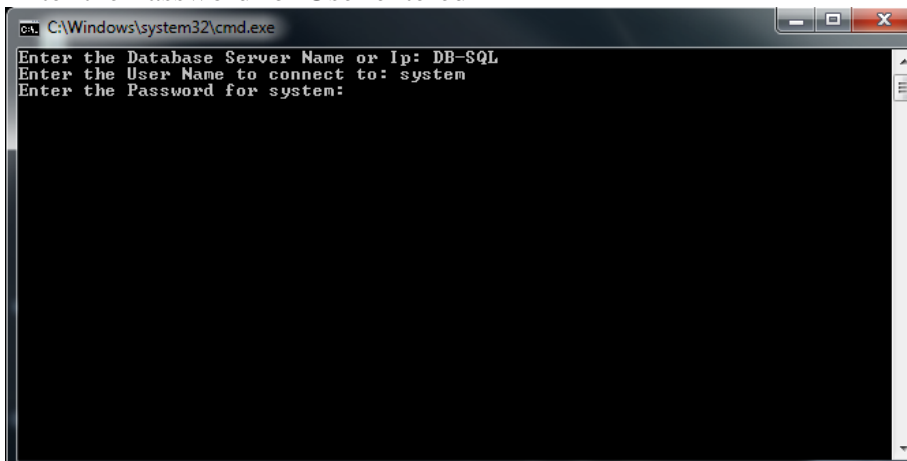
f. Enter name of database to create
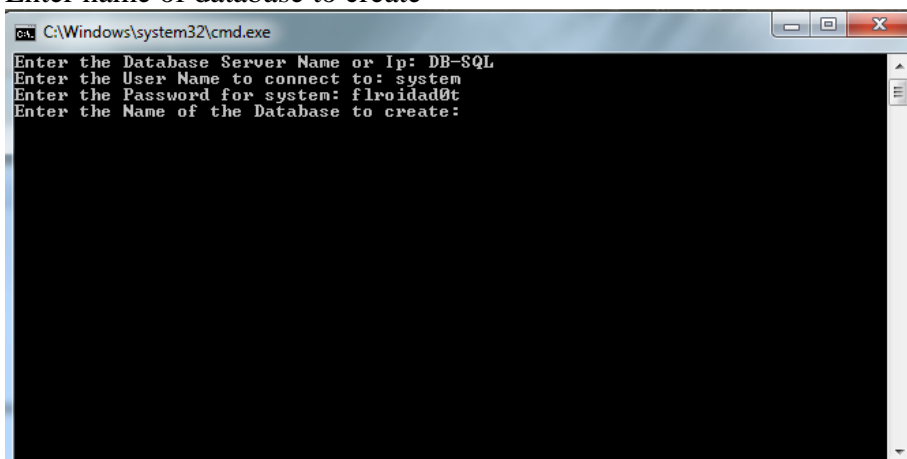
g. Enter the location to place the Database files created in step a.
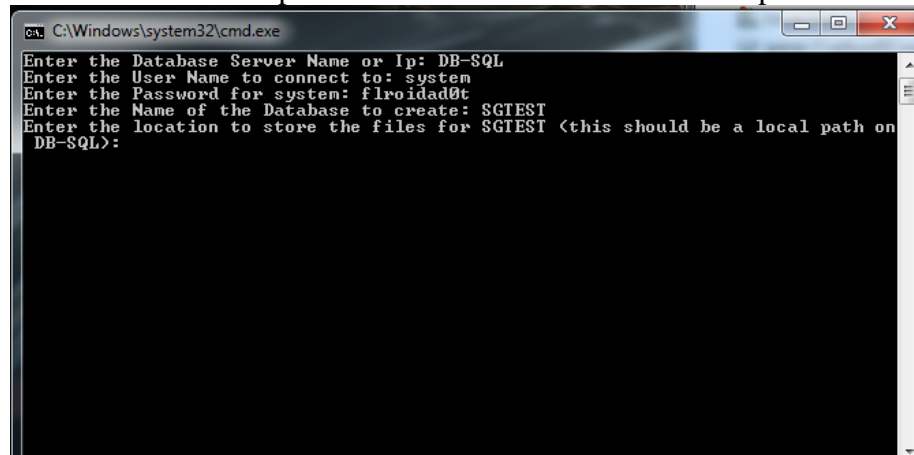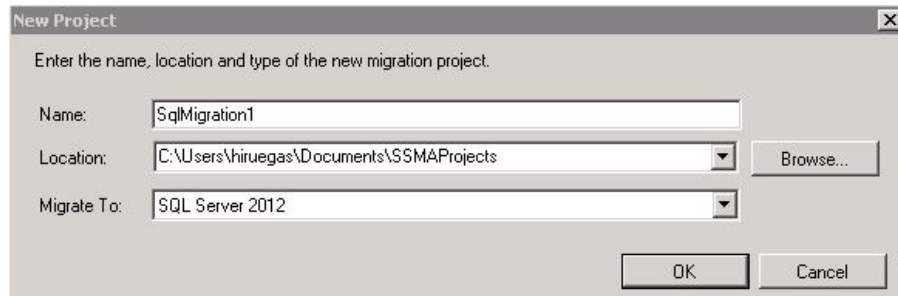
2. Install SQL Server Migration Assistant (SSMA) for Oracle
    a. This must be run from a server with the Oracle client installed. Copy SSMA for Oracle5.2.zip file, located on the distribution media under "Misc", to a local directory
    b. Follow the instructions located at http://msdn.microsoft.com/en-us/library/hh313197.aspx to install and license SQL Server Migration Assistant.
3. Using SQL Server Migration Assistant to migrate database

a. Click on the "New Project" button
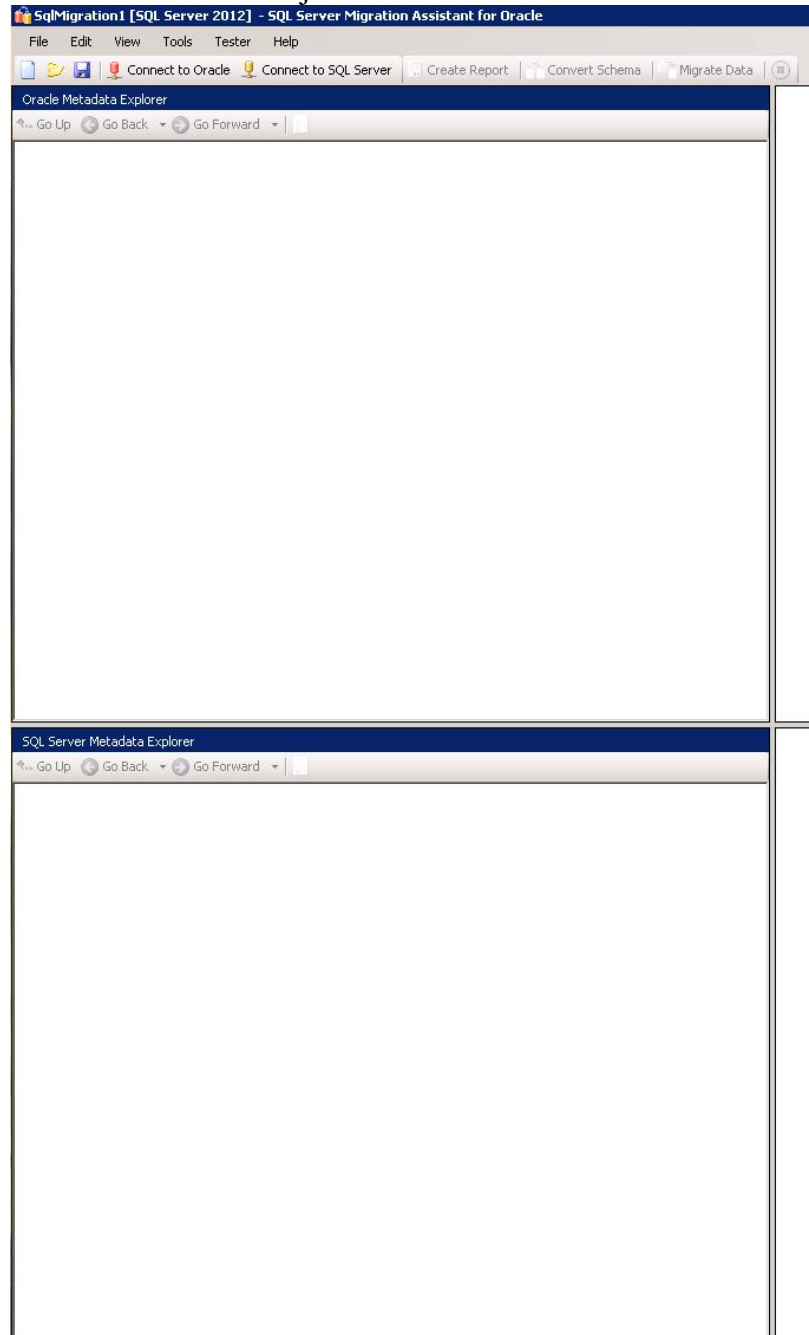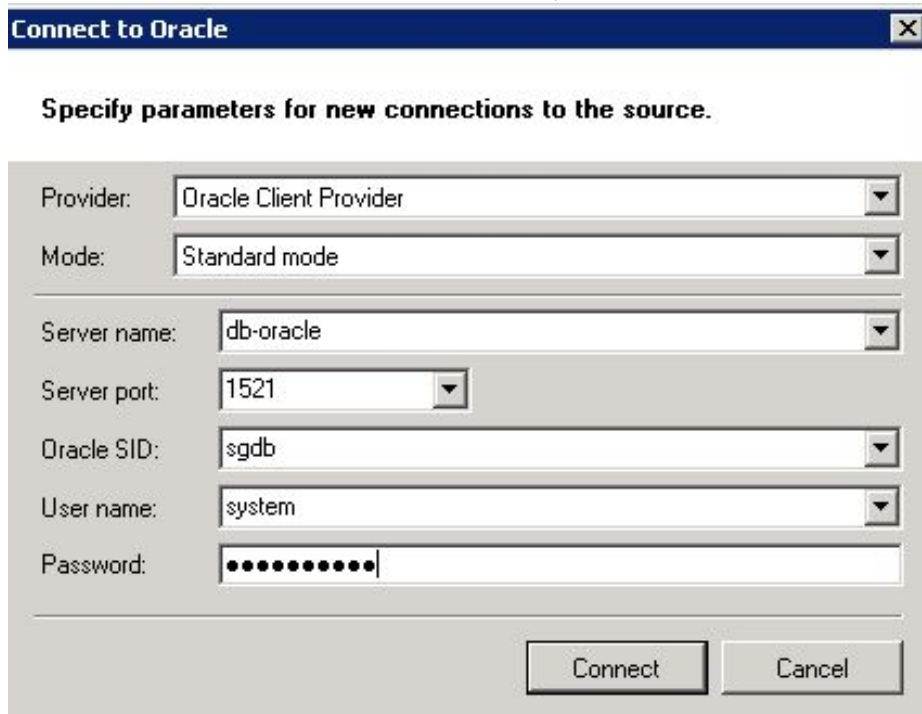
b. The following window will display. Fill in the dialog with a Name, Location, and the version of SQL Server to migrate to. Once done, click the "OK" button.

c. Click the "Connect to Oracle" button and fill in with the proper parameters to connect to the Oracle database. Once done, click the "Connect" button.

d. Click the "Connect to SQL Server" button and fill in with the proper parameters to connect to the SQL Server database. Once done, click the "Connect" button.

e. The following window may appear, if so simply click the "Continue" button.
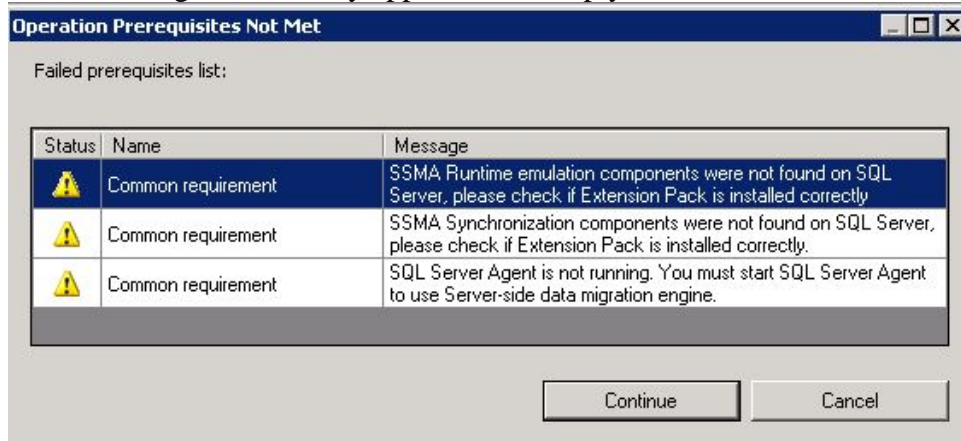
f. Select the FDOT_ODS schema in the "Schema Mapping" tab and click on the "Modify" button, then click on the "…" button.
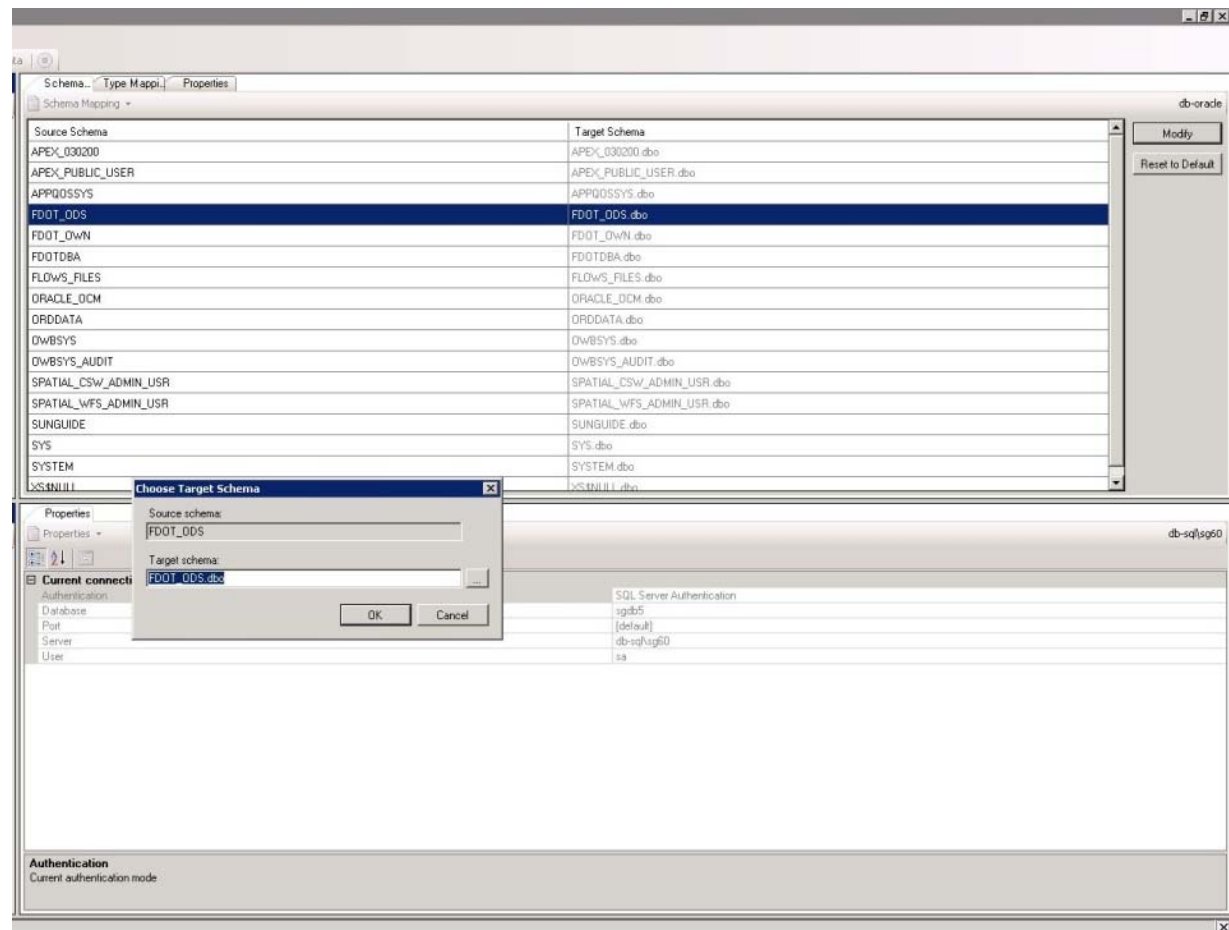
g. Select the FDOT_ODS schema in SQL Server Database being migrated to and click the "Select" button and on the next window click the "OK" button.
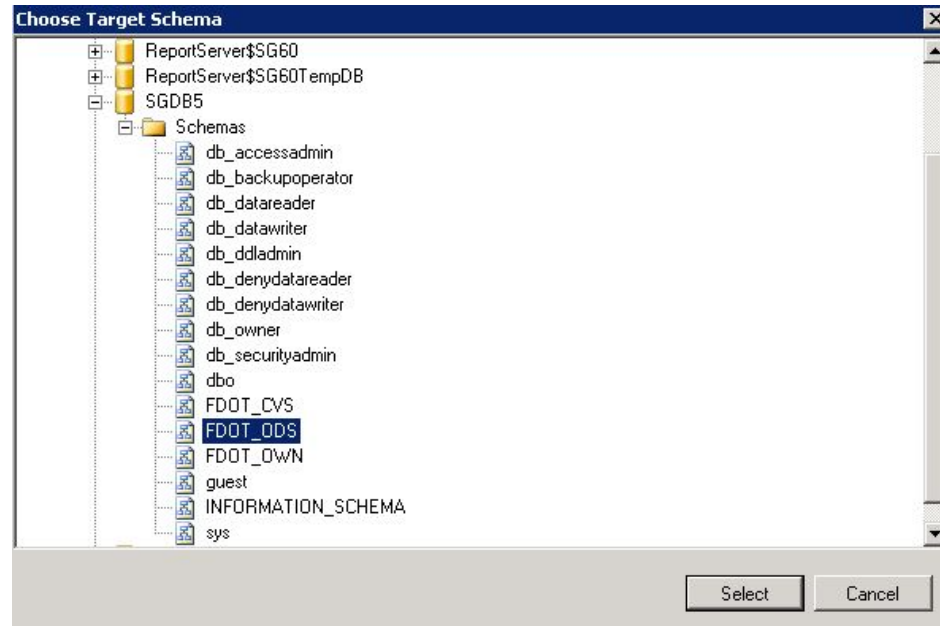
h. Perform Steps (f) and (g) for every Schema being migrated.

i. Click the checkbox for every Oracle Schema being migrated to SQL Server
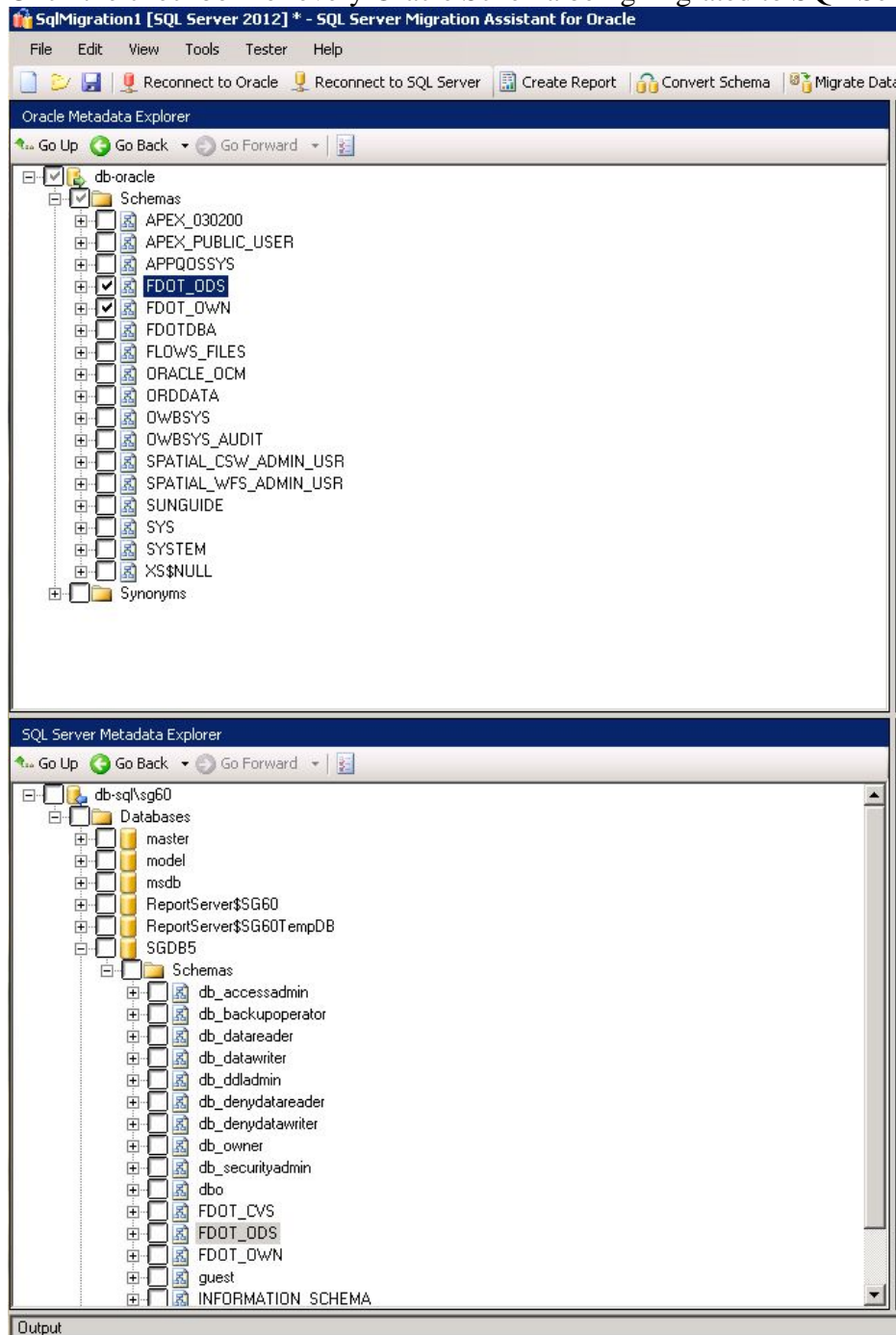
j. Select the "Schemas" item in the dropdown list and click the "Migrate Data" button.
k. Reconnect to Oracle and SQL Server windows may appear. Provide the same log in information for each and click the "Connect" button.
l. Once the migration is about to start the following window may appear, simply click the "Continue" button.
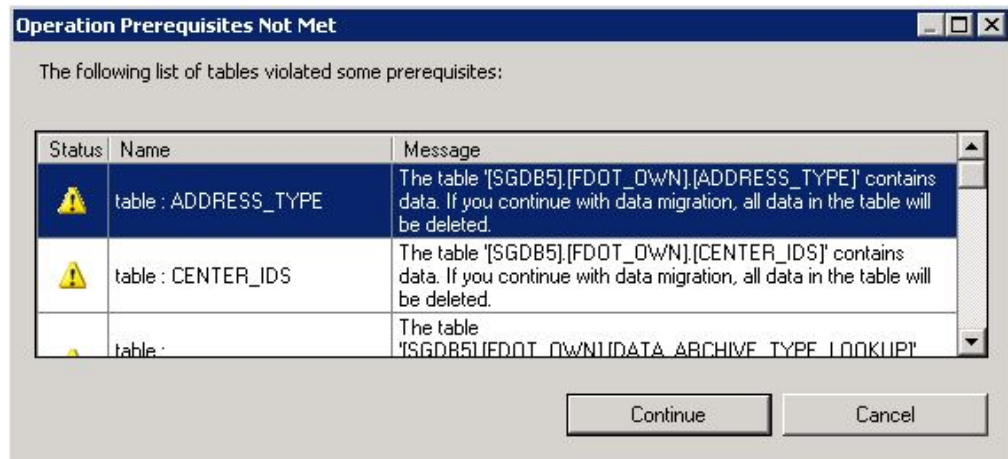
        m. Confirm all tables have been migrated successfully.

3.6 Status Logger Database Setup

During development of SunGuide 6.2, changes to Status Logger were incorporated into SunGuide that allow Status Log Service to write to a database container for logging performance improvements.

Status Logger Notes:

- The existing SunGuide database container may be utilized for convenience, or an alternate database may be used. It is recommended that an alternate database be used, due to backups and exports that are routinely performed on the primary database.

- Status Logger creates it own tables so, beyond the instructions below, there is no additional database configuration needed.

Recommended instructions for installing and configuring a new database instance for Oracle or SQL Server are provided below.

If using Oracle:

1. Create and configure Oracle database
   a. If you need to install a new instance of the Oracle database software, please reference section 3.5.1 in the VDD. Whether in a new Oracle instance, or adding a new database container to your existing instance, please run the following steps.
2. Create the database container
   a. Create a new database
   b. Choose appropriate storage mechanisms and locations
   c. Database name needs to be chosen (SLDB, …)
   d. Select "floridad0t" for password to "SYSTEM" and "SYS" users
   e. Suggested resource assignments for the database:
      i. (11G) Set the memory resource slider to approximately 50%
      ii. Set Processes parameter to at least 300
      iii. Set Open_Cursors parameter to at least 1000
      iv. Set Sga_max_size parameter to 264241152
      v. Set Shared_pool_size parameter to 167772160
3. TCP Listener

      a. Oracle network configuration assistant:

          i. If you have installed a new Oracle instance, configure a TCP listener on port 1521 (the default) that points to the new Status Logger container.

          ii. If you have an existing instance and listener, update the configuration of your listener to point to the new Status Logger container.

If using SQL Server:

1. Create SQL Server database
   a. If you need to install a new instance of the SQL Server database software, please reference section 3.5.2 in the VDD. Whether in a new SQL Server instance, or adding a new database container to your existing instance, please run the following steps.
2. Create a new database for Status Logger
   a. Open SQL Server Management Studio.
   b. Log into the database instance you just created as a system administrator.
   c. Right click on the Database item in the tree and select the context menu action for "New Database".
      i. Database name needs to be chosen (SLDB, …)
      ii. Choose appropriate storage mechanisms and locations for the default data files
      iii. If this is a standalone instance not being used with Always On, it is recommend to set the Recovery Model to "Simple"

3.7 Crystal Reports Run-time Installation

The Crystal Reports run-time support needed by the SunGuide Reporting subsystem is installed automatically by the SunGuide Installer if needed.

3.8 Application Installation

The setup program is started by running **setup.exe**from either the *Setup/x86*or the *Setup/x64*directory on the distribution CD, as appropriate for the architecture of the machine. If the.NET4.0 Framework is notpresentwhenrunning the SunGuide installer, it will automatically be installed. When SunGuideInstallVxxxx.exe is run, the first dialog displayed is the one shown in Figure 3-1. This dialog is displayed while the Windows Installer is being configured in preparation for the SunGuide software installation process.

Beginning with SunGuide Release 4.2.0, the setup program includes a special application designed to interface with the Florida Highway Patrol (FHP) Computer Aided Dispatch (CAD) system. This application is intended to be installed once in a central location and provide FHPincident data to all SunGuide deployments. It is included in the SunGuide installer because it makes use of some of the SunGuide core components. The application checkbox, located at *Detection Systems/Incident Detection Subsystem/FHP Interface Server* in the feature tree, is unchecked by default. Configuration instructions for the FHP Interface Server are located in Section 5.9.
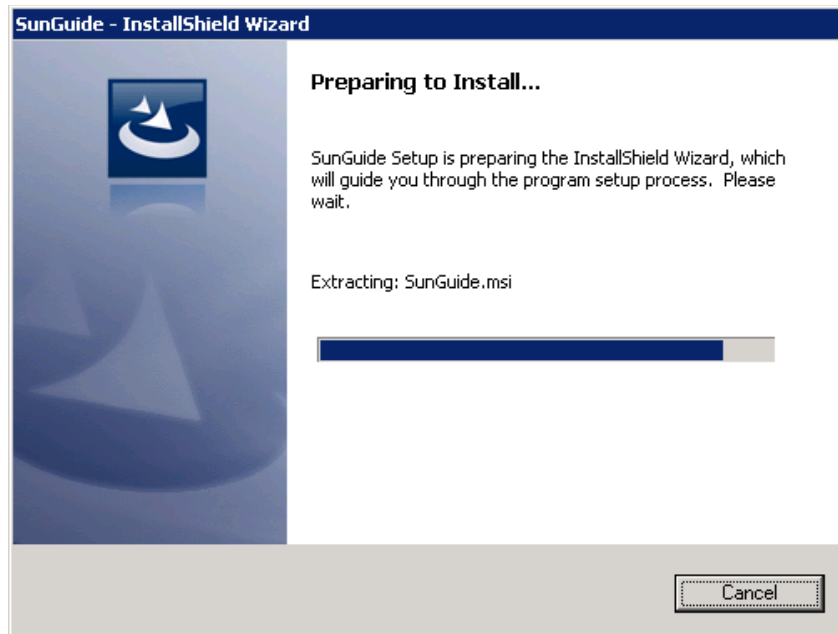
**Figure 3-1— Windows Installer Dialog**

3.8.1 Initial Installation

On the first installation of the SunGuide software on the target workstation, the first dialog displayed after the **Preparing to Install…** dialog is the **Welcome** dialog shown in Figure 3-2. The only action required from this dialog is to either select **Next** to continue installation or **Cancel** to exit the installation.
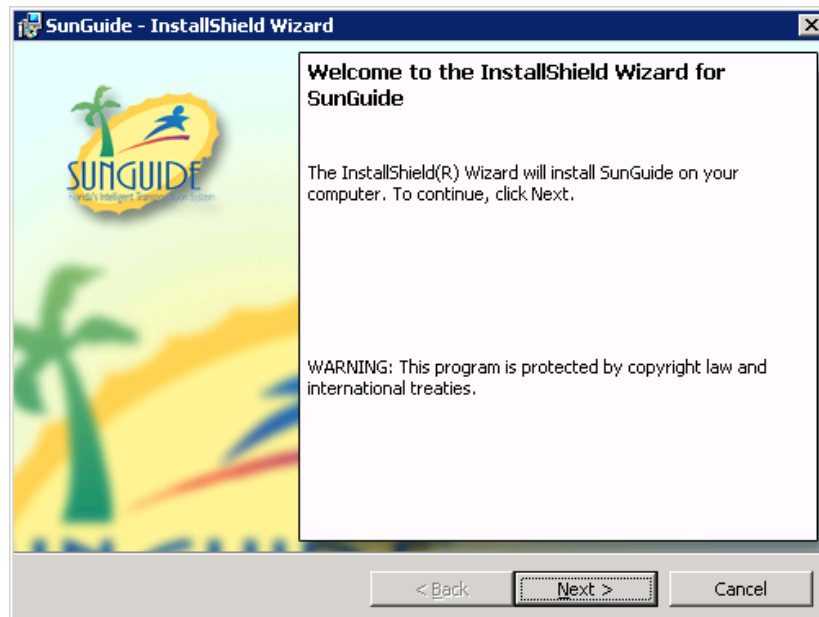
**Figure 3-2—SunGuide Setup Welcome Dialog**

The next dialog displayed is the **Destination Location** dialog shown in Figure 3-3. This dialog is used to specify the destination folder for the components to be installed. It is recommended to

keep the default selection, but the **Change…**button can be used to select an alternate location for the installed files. Select a destination folder and press the **Next** button; or, press the **Back** button to return to the previous dialog; or, press the **Cancel** button to exit the installation.
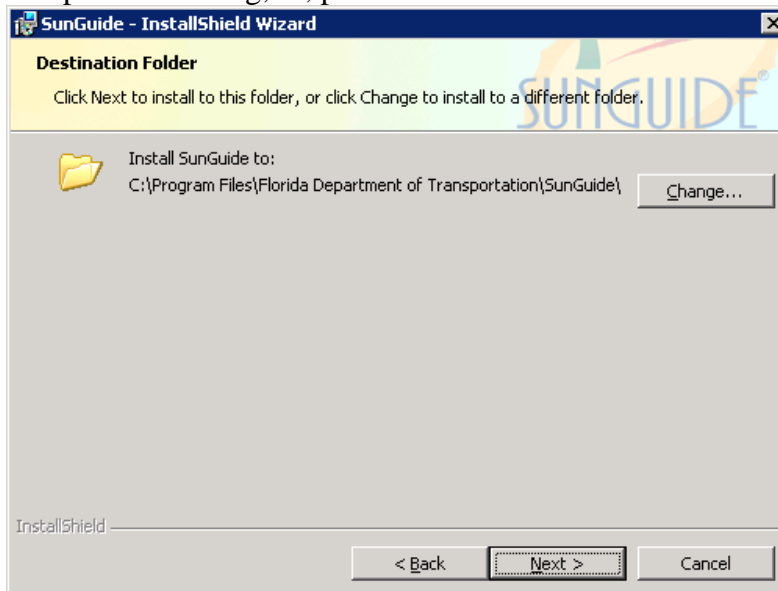

Figure 3-3—SunGuide Setup Destination Location Dialog

The next dialog displayed is the **Select Config File** dialog shown in **Error! Reference source not found.**. This dialog is used to select the SunGuide configuration file (config.xml) that should be used for the 92nstallation. Enter the location of the config file and press the **Next** button to continue, or press the **Back** button to return to the previous dialog, or press the **Cancel** button to exit the installation. If the configuration file is not valid for the version of SunGuide being installed, a dialog will allow the Configuration File Editor to be launched so the file may be corrected. Without a valid configuration file, the installation process cannot continue.
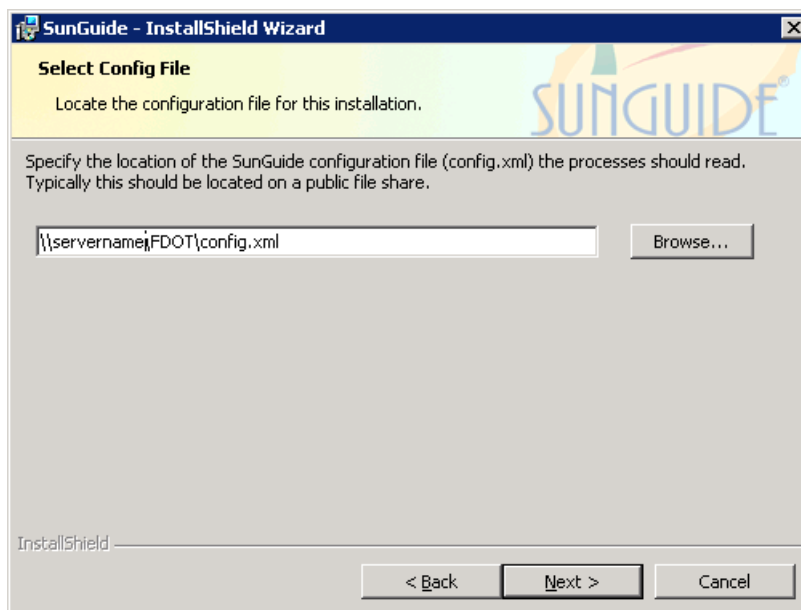
Figure 3-4—SunGuide Setup Select Config File Dialog

The next dialog displayed is the **Select Features** dialog shown in **Error! Reference source not found.**. This dialog is used to select the software components to be installed. Select the components to be installed and press the **Next** button to continue, or press the **Back** button to return to the previous dialog, or press the **Cancel** button to exit the installation. The location of individual components may be modified using the **Change…** button, but typically should be left in the default location.
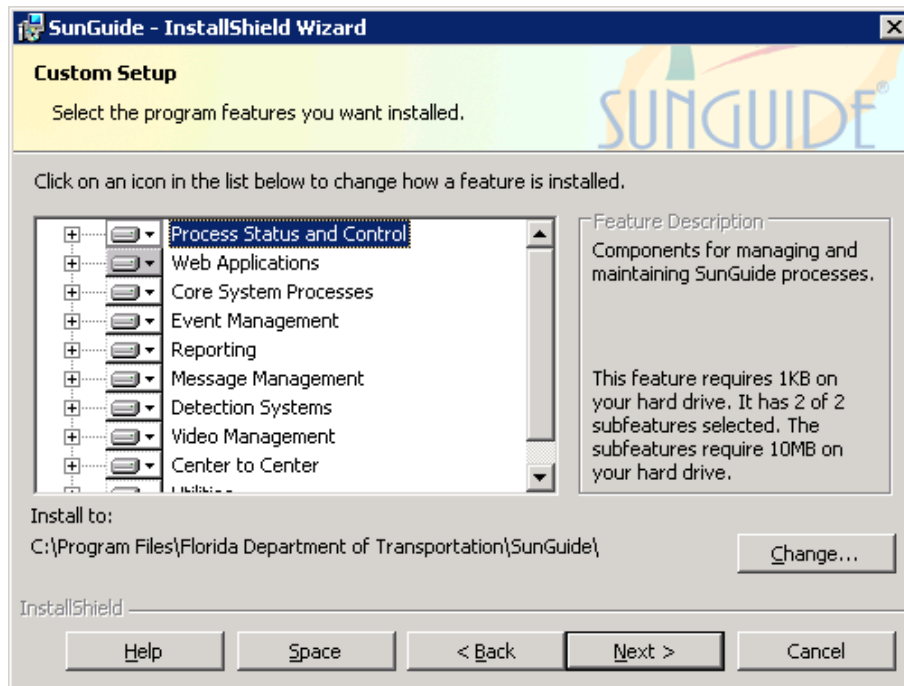

Figure 3-5—SunGuide Setup Select Features Dialog

Note that the Map Tiles option will require significant installation time, and may not be needed on all servers, depending on the configuration of the system. If the Map Tiles component is selected, this warning will be displayed.

If IIS is not installed on the machine, certain web applications will not be available for installation. A warning will be displayed in this case.

The next dialog displayed is the **Service LogonInformation** dialog (Figure 3-6). One of the default system accounts (Local Service, Network Service, or Local System) can be selected, or a named account can be selected. The privileges and network credentials associated with the system accounts are displayed in the dialog. For a named account, enter the account name (with domain, if appropriate) and password in the *User Name* and *Password* fields. Press the **Next** button to keep these selections and proceed with the installation; or, press the **Back** button to return to the previous dialogs to modify the selections; or, press the **Cancel** button to exit the installation.
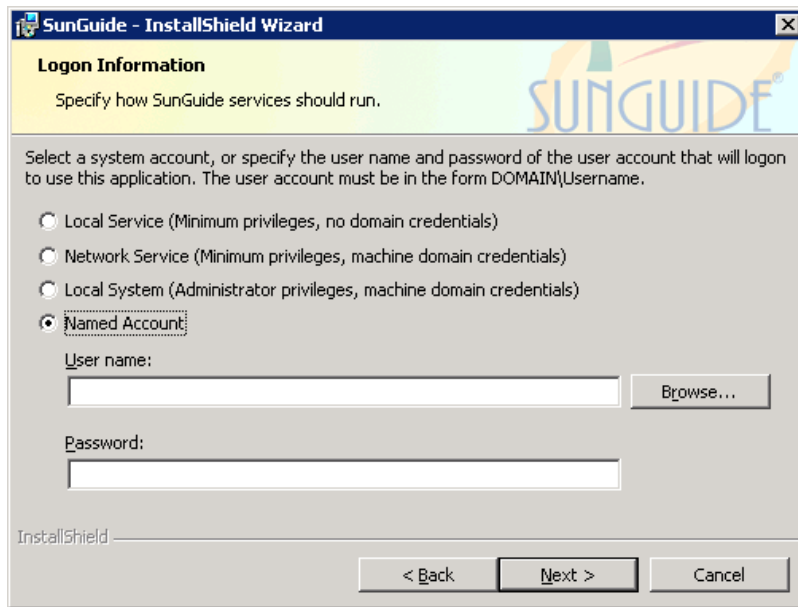
Figure 3-6—SunGuideService Logon Information Dialog

The final dialog displayed before the setup program actually begins installation is the **Ready to Install the Program** dialog shown inFigure 3-7. Press the **Install** button to proceed with the installation; or, press the **Back** button to return to the previous dialogs to modify the selections; or, press the **Cancel** button to exit the installation.
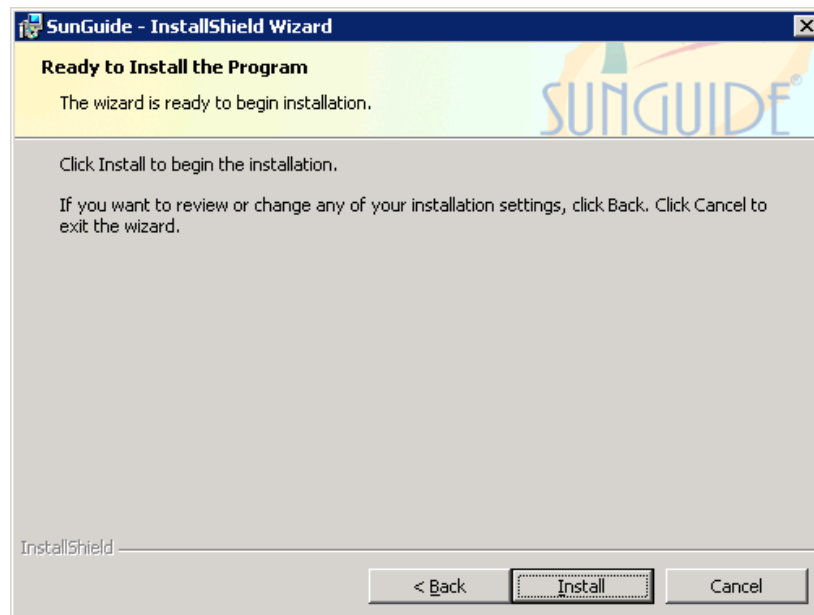

Figure 3-7—SunGuide Setup Ready To Install Dialog

While the setup program is installing files, the **Setup Status** dialog shown in Figure 3-8 is displayed. This dialog shows the progress of the installation. Additional supplementary dialogs may also be displayed as required third party components are installed and configured.
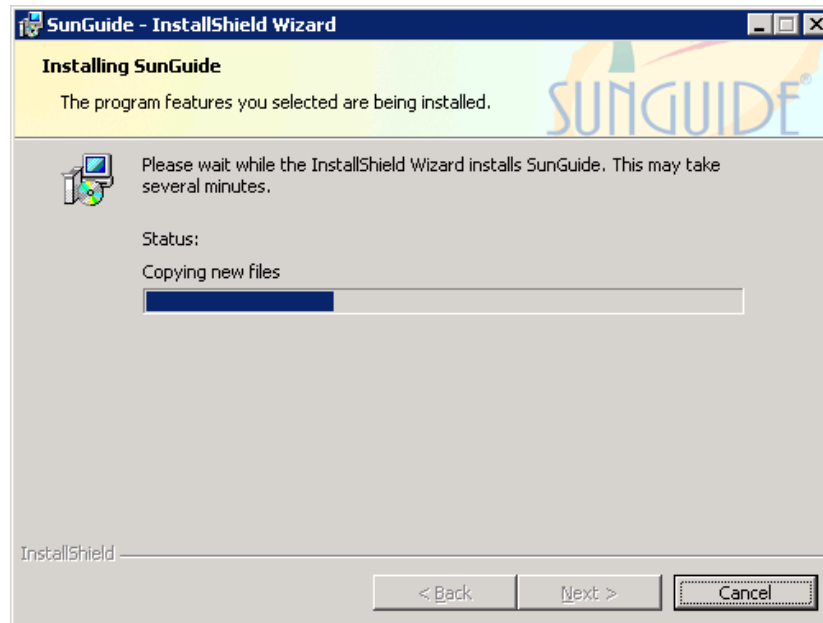
Figure 3-8—SunGuide Setup Status Dialog

When the files have been installed, the **InstallShield Wizard Complete** dialog shown in Figure 3-9is displayed. Press the **Finish** button to complete installation and exit setup.
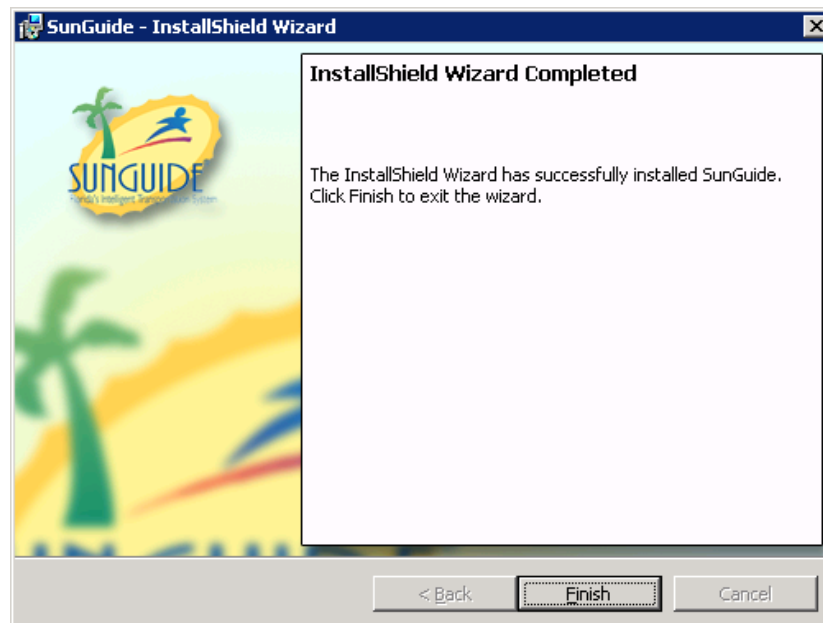

Figure 3-9—SunGuide Setup InstallShield Wizard Complete Dialog

3.8.2 Maintenance Installation

The SunGuide setup program can also be used to modify an existing installation. This allows for repairing installed components, installing or removing components, or completely removing the installed SunGuide components.

If the setup program detects that one or more SunGuide components are currently installed, the first dialog displayed is the **SunGuide Maintenance** dialog shown inFigure 3-10. This dialog is used to select the desired setup maintenance operation. *Remove* removes the currently installed SunGuide components. *Repair* reinstalls the currently installed SunGuide components. *Modify* allows for individually adding or removing SunGuide components.
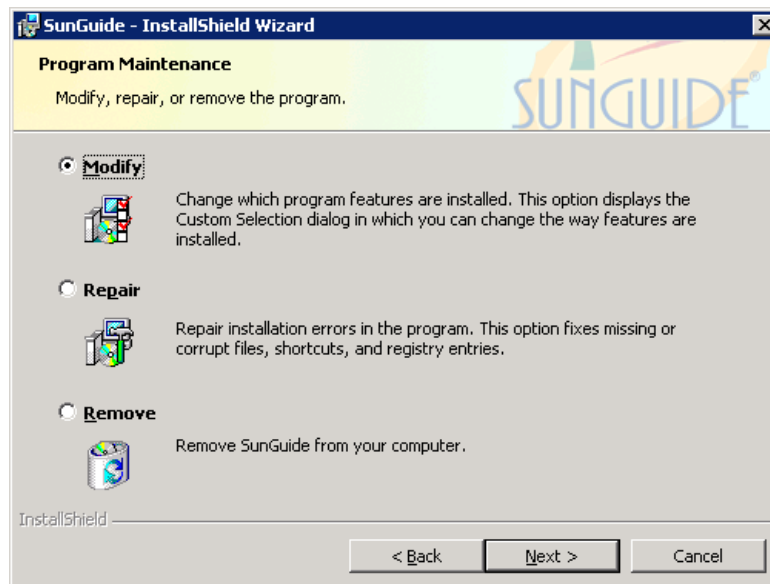
Figure 3-10—SunGuide Setup Maintenance Dialog

If the *Remove* option is selected from the **SunGuide Maintenance** dialog, the next dialog displayed is the **Confirm Uninstall** dialog shown inFigure 3-11. To proceed with removing the installed SunGuide components, press **Remove**. To cancel removing the components and return to the previous dialog, press **Back**.
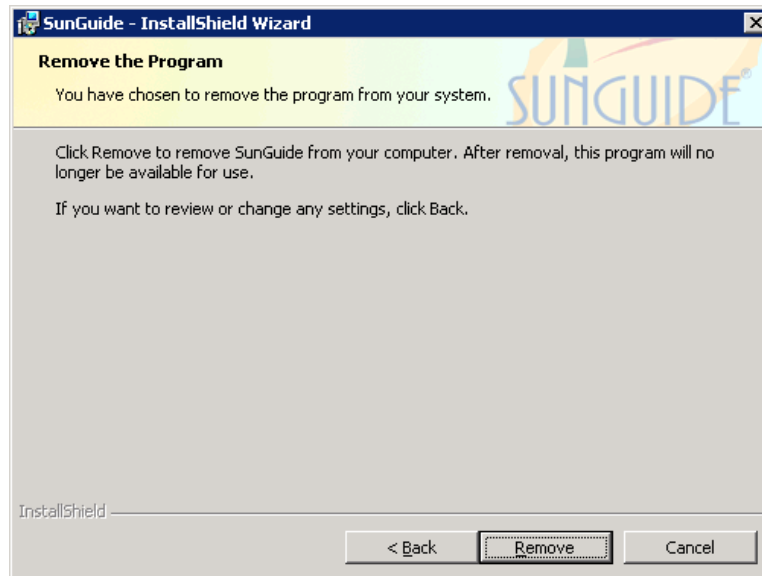
Figure 3-11— SunGuide Setup Confirm Uninstall Dialog

If the removal of the components is confirmed, the setup program displays a **Setup Status** dialog similar to that shown inFigure 3-8, followed by a **Maintenance Complete** dialog similar to that shown inFigure 3-9.

If the *Repair* option is selected from the **SunGuide Maintenance** dialog, the setup program begins reinstalling the currently installed components. While the components are being reinstalled, the setup program displays a **Setup Status** dialog similar to that shown inFigure 3-8, followed by a **Maintenance Complete** dialog similar to that shown inFigure 3-9.

If the Modify option is selected from the **SunGuide Maintenance** dialog, the setup program allows the current installation to be modified by adding or removing components. The setup program displays the **Select Features** dialog shown in Figure 3-5and proceeds from that point in the same fashion as an initial install. For a maintenance operation, the check boxes next to the components in this dialog indicate the components that are currently installed, and those that are not checked are not currently installed. During maintenance, to keep an installed component leave it checked. To remove an installed component, uncheck it. To add a component that is not currently installed, check it. To keep a component uninstalled, leave it unchecked.

3.9 Center-to-Center Installation and Setup

Windows Internet Information Services (IIS) is used to host the Center-to-Center (C2C) Infrastructure applications. It is assumed that IIS is installed and enabled on the server selected for C2C Infrastructure installation.

3.9.1 Internet Information Services Preparation

- The C2C Infrastructure web services are ASP.NET 4.0 applications. ASP.NET 4.0 must be installed and enabled in IIS for the applications to operate.
- A new application pool should be created for use by the C2C web services. Any application pool used the C2C web services must have its recycling disabled and be started.

- The Status Website uses the Microsoft ASP.NET 4.0 AJAX Extensions 1.0 for visualization. These extensions must be installed on the hosting computer if the Status Website feature is installed. A copy of the AJAX Extensions installer is included with the C2C Infrastructure installer in the Installation Package.

Note: If IIS 7.0 on Windows Server 2008 will be used to host the C2C web services, the IIS 6 Management Compatibility role must be installed to allow operation of the C2C Infrastructure installer.

3.9.2 Infrastructure Installation

The C2C setup program is started by running **Setup-C2CI-Vxxx.exe**(where **xxx** is the current version of the software being installed) from the *Misc* directory on the distribution CD. When setup program is run, the first dialog displayed is the Welcome Dialog shown in Figure3-12. The only action required from this dialog is to either select **Next** to continue installation or **Cancel** to exit the installation.

Figure3-12 Welcome Dialog

The next dialog displayed is the Select Features Dialog shown in Figure 3-13. This dialog is used to specify the software components to be installed. Select the components to be installed and press the Next button to continue, or press the Back button to return to the previous dialog, or press the Cancel button to exit the installation.
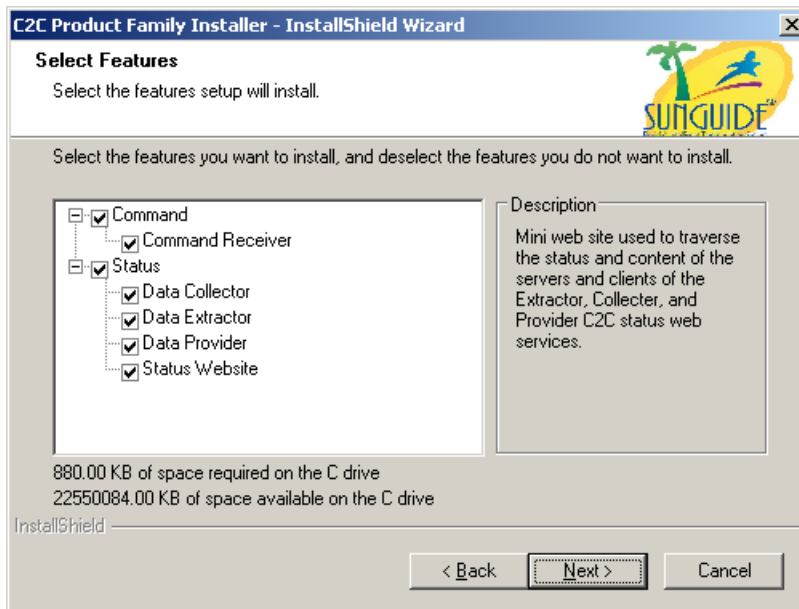
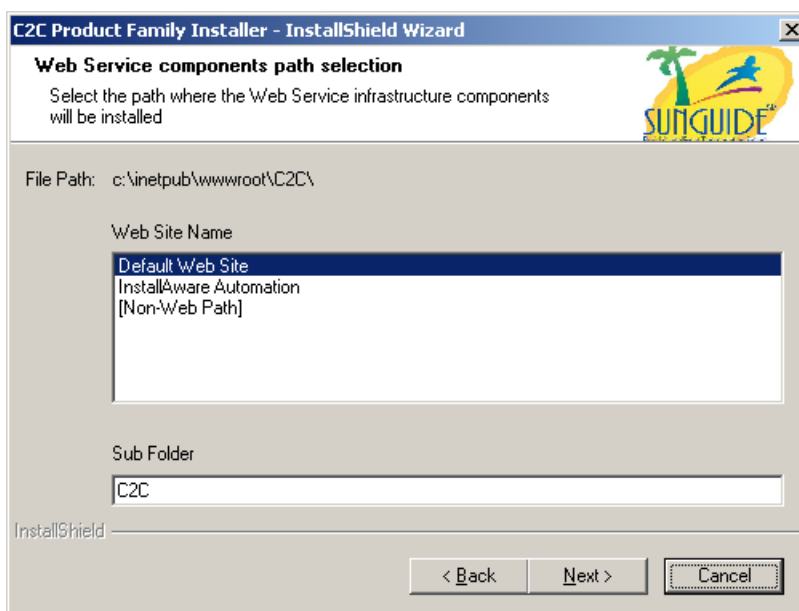**Figure 3-13 Select Features Dialog**

The next dialog displayed is the Web Service Path Selection Dialog shown in Figure 3-14. This dialog is used to specify the folder and web path for the web service components. The web service components include the Command Receiver, the Data Collector, the Data Extractor, and the Data Provider. For the web site name, if an existing website [e.g. Default Web Site] is selected, then Internet Information Services (IIS) will automatically be configured when the service is installed. Also, the sub folder will be created in the root directory for the selected site, and the program files will be installed to this location. If Non-Web Path is chosen, then the user must configure IIS after installation and enter the entire installation file path in the Sub Folder text box. Select the web site name and the destination sub-folder and press the Next button; or, press the Back button to return to the previous dialog; or, press the Cancel button to exit the installation.
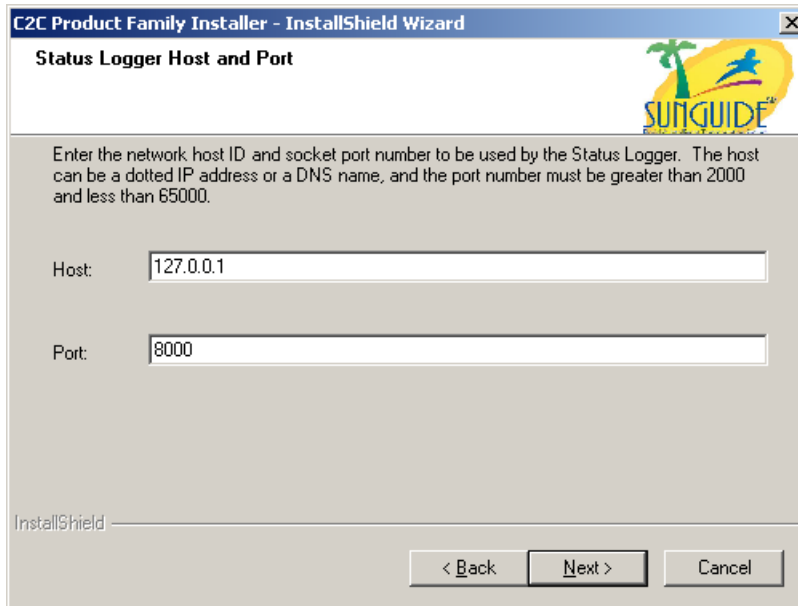
Figure 3-14 Web Service Path SelectionDialog

The next dialog displayed is the Status Logger Host and Port Dialog shown in Figure 3-15. This dialog is used to specify Internet Protocol (IP) address and port number for communicating to the Status Logger. Each of the software components communicates to the Status Logger to log status messages during execution. The Status Logger is delivered as a separate product with its own setup program. Refer to the Status Logger Software Users Manual for installation and usage of the Status Logger. Enter the IP address and port number for the Status Logger service and press the Next button; or, press the Back button to return to the previous dialog; or, press the Cancel button to exit the installation.

Figure 3-15 Status Logger Host and Port Dialog

The next dialog displayedis the Data Provider Configuration Dialog shown in Figure 3-16. This dialog is used to specify the name for the provider which will be the process name displayed in Status Logger for messages logged by the provider. Enter a name for the Data Provider and press the **Next** button; or, press the **Back** button to return to the previous dialog; or, press the **Cancel** button to exit the installation.
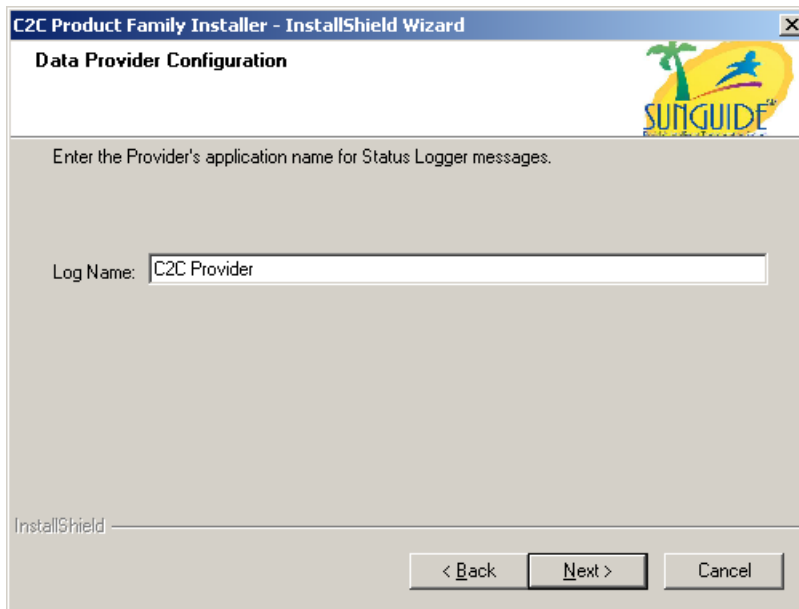
Figure 3-16 Data Provider Configuration Dialog

The next dialog displayed is the Data Provider Data Type Selection dialog shown in Figure 3-17. This dialog is used to select a list of data types that the Provider will subscribe for. Check any data types which the Provider should request from the TMC. Leave undesired data types unchecked. Then press the **Next** button to continue; or, press the **Back** button to return to the previous dialog; or, press the **Cancel** button to exit the installation.

Figure 3-17 Data Provider Data Type Selection Dialog

The next dialog displayed is the Data Collector Configuration Dialog shown in Figure 3-18. This dialog is used to identify the Collector and the Providers that it will receive datafrom. Enter the Collector's application name for Status Logger messages, the Uniform Resource Identifier (URI) for the Collector's update web service and a space delimited list of URIs for the Data

Providers that the Collector will log into and receive data from. Then press the Next button to continue; or, press the Back button to return to the previous dialog; or, press the Cancel button to exit the installation.
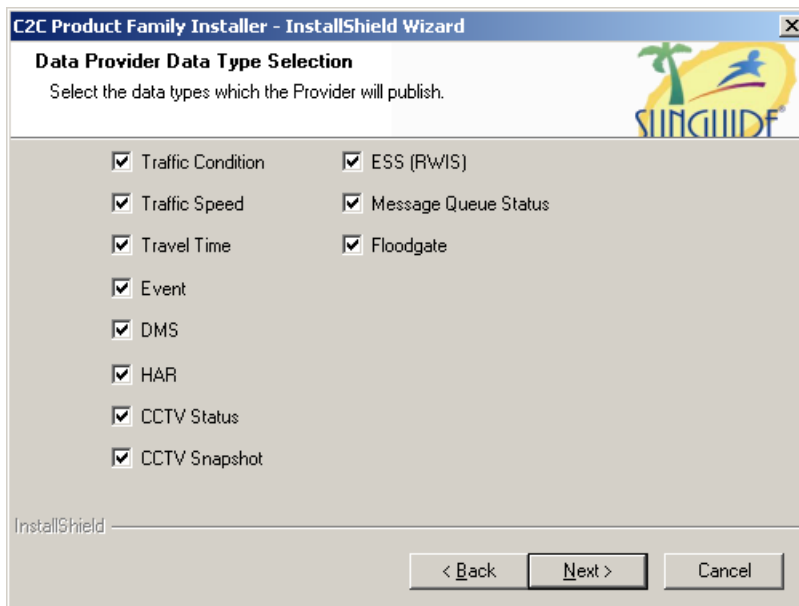

Figure 3-18 Data Collector Configuration Dialog

The next dialog displayed is the Data Collector Data Type Selection dialog shown in Figure 3-19. This dialog is used to select a list of data types that the Collector will subscribe for. Check any data types which the Collector should request from the TMC. Leave undesired data types unchecked. Then press the Next button to continue; or, press the Back button to return to the previous dialog; or, press the Cancel button to exit the installation.

Figure 3-19 Data Collector Data Type Selection Dialog

The next dialog displayed is the Data Extractor Configuration Dialog shown in Figure 3-20. This dialog is used to identify the Extractor and the Collector or Provider server from which it

will receive data. Specify the Extractor's application name for Status Logger messages, the URI for the Extractor's update web service and the URI for the Data Collector or Data Provider from which the Extractor will receive data. Then press the Next button to continue; or, press the Back button to return to the previous dialog; or, press the Cancel button to exit the installation.
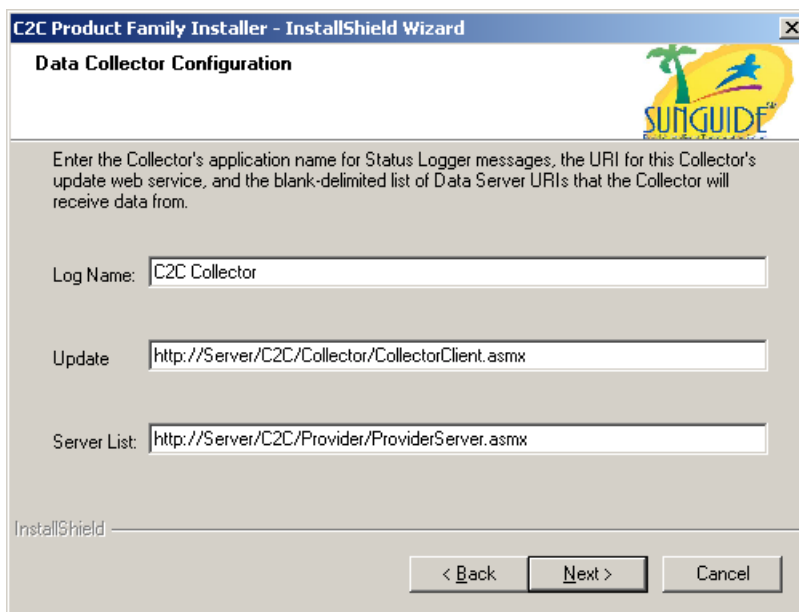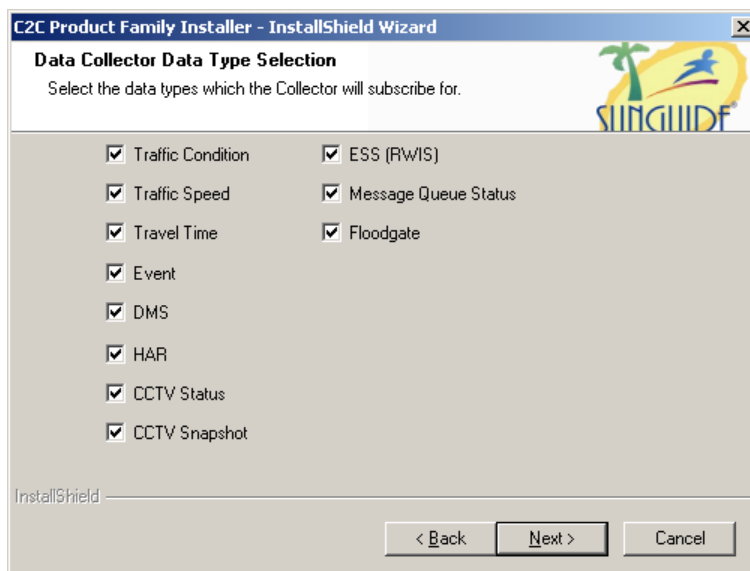

Figure 3-20 Data Extractor Configuration Dialog

The next dialog displayed is the Command Receiver Configuration Dialog shown in Figure 3-21. This dialog is used to specify the location of the TMC XML Server to which the Command Receiver will connect when issuing a command request to the TMC. Enter the network host ID and socket port number to be used by the Command Receiver. Also enter the log name used to identify the Command Receiver in Status Logger. Then press the **Next** button; or, press the **Back** button to return to the previous dialog; or, press the **Cancel** button to exit the installation.
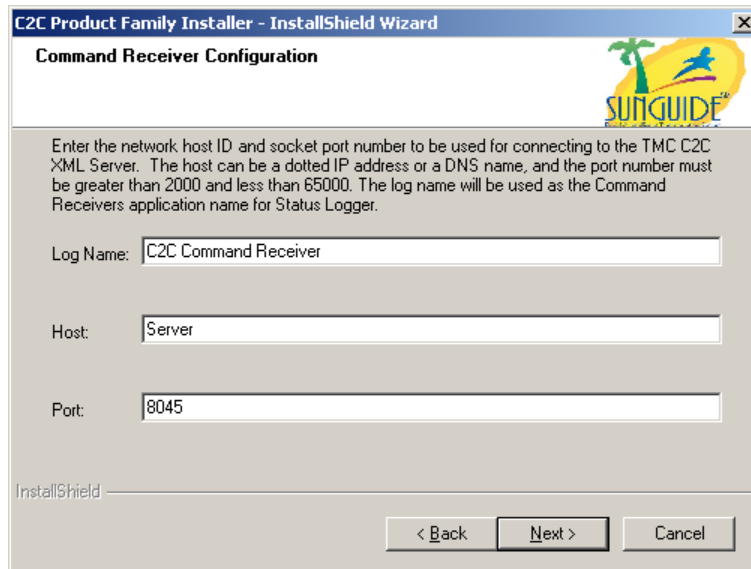
Figure 3-21 Command Receiver Configuration Dialog

The next dialog displayed is the Start Copying Files Dialog shown in Figure 3-22. This dialog is used to show a summary of the features which will be installed, and the paths they will be installed to. If the selections are correct, press the **Next** button to begin copying the files; or, press the **Back** button to return to the previous dialog; or, press the **Cancel** button to exit the installation.
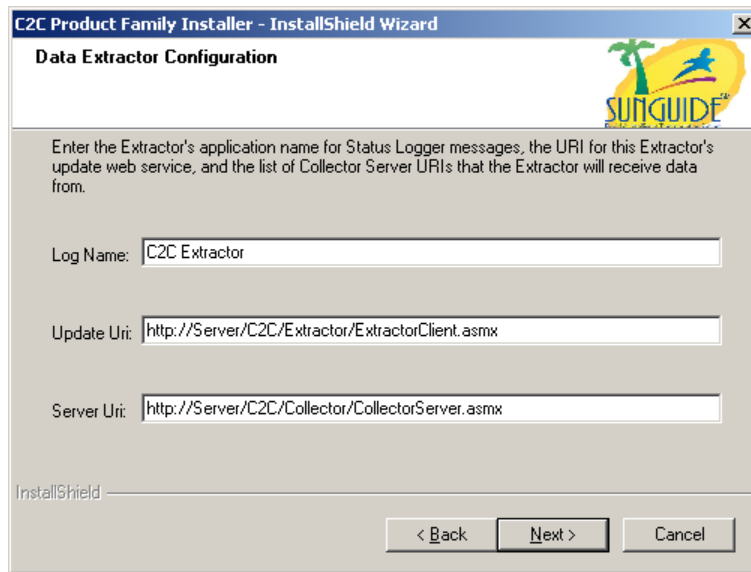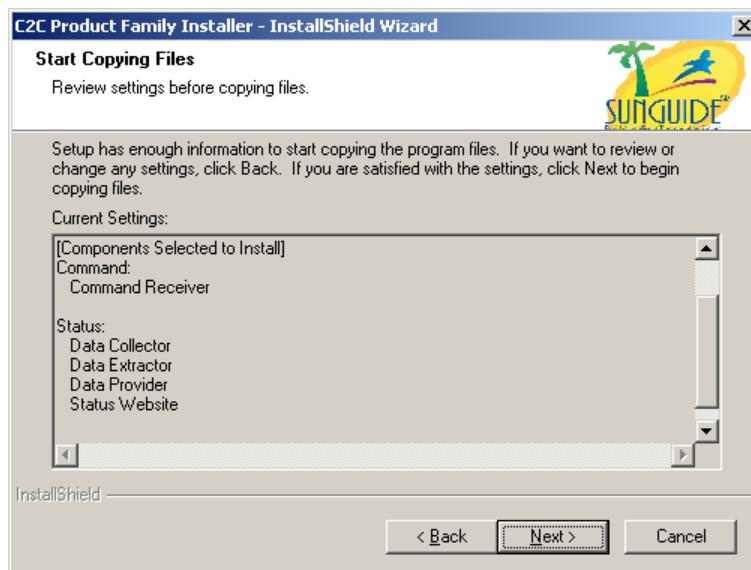

Figure 3-22 Start Copying Files Dialog

The next dialog displayed is the Setup Status Dialog shown in Figure 3-23. This dialog is used to track the progress of the installation process. No user input is necessary, but the **Cancel** button may be pressed at any time to stop the installation process and exit the installation.
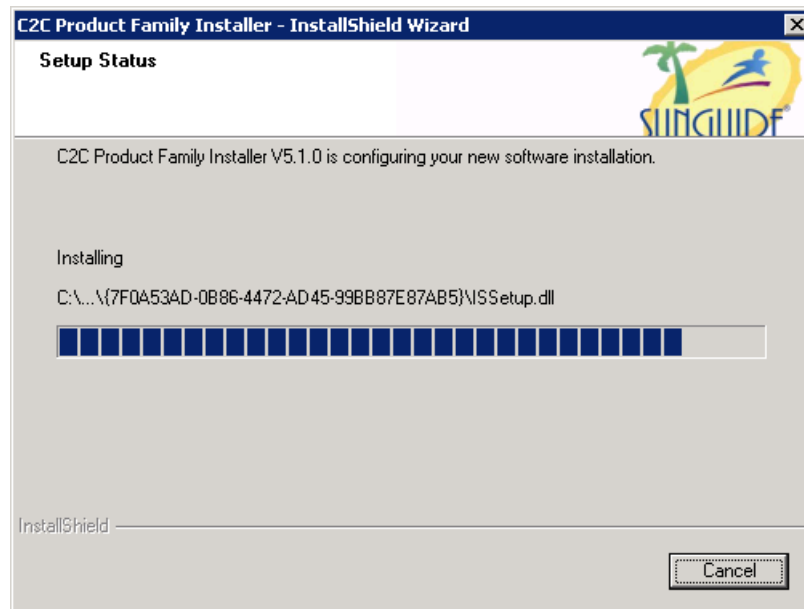
Figure 3-23 Setup Status Dialog

The next dialog displayed is the InstallShield Wizard Complete Dialog shown in Figure 3-24. This dialog is used to determine if the machine should be rebooted after installation is complete. Select one of the two restart options and press the **Finish** button; or, press the **Back** button to return to the previous dialog; or, press the **Cancel** button to exit the installation.

Figure 3-24InstallShield Wizard Complete Dialog

3.9.3 Initiating a Session

The C2C Infrastructure is implemented using web services. They can be controlled manually through the IIS.

3.9.4 Stopping and Suspending Work

The web services can be stopped using IIS. Note that web services continue to operate at some level until IIS is restarted or a dll or web.config file is updated. Pressing the Pause button in Internet Services Manager simply causes new HTTP sessions to be disallowed. All existing sessions will continue. Pressing the Stop button disallows all future incoming HTTP requests, even on the existing sessions, but still permits outgoing proxy calls to be made to other web services.

3.9.5 Configuration of the C2C Web Services

The C2C Web services include:
- Command Receiver
- Data Provider
- Data Collector
- Data Extractor

Each of these services uses a "web.config" file to configure the service. The "web.config" file is an ASCII XML data file which defines the configuration of the web service. For each "web.config" file, most of the content of the file is general information for web services. This document will only discuss those sections in the file that are specific to the C2C service.

The Data Provider and Data Collector Data Type Selection dialogs contain a set of checkboxes for selecting data types. The selected types are placed into the value attribute of the subscription data type add element in the corresponding "web.config" files described below. The following table identifies the data types supported by SunGuide. The "web.config" files can be editing after the install to the data types selections.

networkData	Parent data type of the nodeData, linkData, and tvtLinkData network data types
localeData	Parent data type of the locationData and roadwayData location data types
eventData	Event data type supports planned and unplanned events
incidentData	Depracated unplanned event data type
closureData	Depracated planned event data type
dmsData	Dynamic message sign status data
harData	Highway advisory radio status data
essData	Environmental status sensor status data, based on SunGuide RWIS data
cctvStatusData	Closed circuit TV status data
cctvSnapshotData	CCTV video snapshot data
trafficCondData	Traffic speed, volume and occupancy status data from the SunGuide TSS data
trafficSpeedData	Traffic speed data from the SunGuide TSS data, published in bulk at a configurable interval
tvtStatusData	Travel time data from the SunGuide TVT data

remoteMsgData	Queued DMS and HAR messages from the SunGuide MAS subsystem
floodgateData	Floodgate data from the FL-ATIS system
rawPvdmData	Raw Probe data from RSE devices
rawTamData	Traveler Advisory Messages
graphicData	Configured DMS Graphics
fontData	Configured DMS Fonts
eventTypeData	Configured Event Types from SunGuide's EM system
truckParkingFacilityData	Truck Parking Facility status

For the Command Receiver, the C2C configuration information is shown in Table 3.1 below.

Table 3.1— Command Receiver web.config Settings

```
<appSettings>
<!—Flag indicates if XML validation is required 
    <addkey="validateXml"value="False"/>

<!—Host IP/name of the TMC C2C XML Server 
    <addkey="xmlServerHost"value="127.0.0.1"/>
<!—IP Port of the TMC C2C XML Server 
    <addkey="xmlServerPort"value="8045"/>

<!—Status Logger variables 
    <addkey="processName"value="C2C Command Receiver"/>
    <addkey="statusLoggerHost"value="127.0.0.1"/>
    <addkey="statusLoggerPort"value="8000"/>
    <addkey="StatusLoggerLevel"value="slDebug"/>

<!—Process Status variables 
<!—
    <add key="processUpdateInterval"value="15"/>
    
<!—XML dump file 
<!—
    <add key="xmlDumpFile"value="e:\Tmp\CmdRecvXml.txt"/>
    
    </appSettings>
```

The parameters for configuring the Command Receiver are:

validateXml **xmlServerHost**	Enables validation of the XML messages. The messages are validated against the schema and errors are logged for invalid messages. Due to performance considerations, this is intended primarily for debugging. Host IP/name of the TMC's C2C XML Server.
xmlServerPort	IP Port of the TMC's C2C XML Server.
processName	A name which uniquely identifies this Command Receiver to the StatusLogger service.
statusLoggerHost	The name of the computer hosting the Status Logger service.

statusLoggerPort   The port for communicating to the Status Logger service.

statusLoggerLevel   Set the logging level to be used by the web service. Choices include *slError*, *slWarn*, *slInfo*, *slDebug*, and *slDetail*

xmlDumpFile   If uncommented, the file specified will be used to store the XML-formatted responses for the TMC server.

For the Data Provider, the C2C configuration information is shown in Table 3.2below.

Table 3.2—Data Provider web.config Settings

```
<appSettings>

<!—the XML data types for the Subscribe web method →
    <addkey="subscriptionDataTypes"value="networkData localeData
trafficCondDatatrafficSpeedData tvtStatusData eventData dmsData cctvStatusData
cctvSnapshotData harDataessData remoteMsgData floodgateData rawProbeData
rawTamData"/>

<!—the interval at which keepAlive messages are to be delivered →
    <addkey="keepAliveIntervalSeconds"value="30"/>

<!—the process name to be recorded by the StatusLogger service →
    <addkey="processName"value="C2C Provider"/>

<!—the host machine for the StatusLogger service →
    <addkey="statusLoggerHost"value="localhost"/>

<!—the socket listener port for the StatusLogger service →
    <addkey="statusLoggerPort"value="8000"/>

<!—the StatusLogger logging level →
    <addkey="StatusLoggerLevel"value="slDebug"/>

</appSettings>
```

The parameters for configuring the Data Provider are:

subscriptionDataTypes   A space-delimited list of the data types that the Provider will accept and maintain. The data type names correspond to the element names found in the schema defining the C2C data.

keepAliveIntervalSeconds The time interval, specified in seconds, at which a keep-alive message will be sent to the Provider's client update sessions. This value must be less than the session timeout specified by the Provider clients' web services. The minimum session timeout allowed by IIS is 1 minute, so a 30-second keep-alive should prevent the session from timing out.

processName   A name which uniquely identifies this Data Provider to the StatusLogger service.

statusLoggerHost   The name of the computer hosting the Status Logger service.

statusLoggerPort   The port for communicating to the Status Logger service.

statusLoggerLevel   Set the logging level to be used by the web service. Choices include *slError*, *slWarn*, *slInfo*, *slDebug*, and *slDetail*

For the Data Collector, the C2C configuration information is shown in Table 3.3below.

Table 3.3—Data Collector web.config Settings

```
    <appSettings>

    <!—the XML data types for the Subscribe web method →
        <addkey="subscriptionDataTypes"value="networkData localeData trafficCondData
trafficSpeedData tvtStatusData eventData dmsData cctvStatusData cctvSnapshotData
harData essData remoteMsgData floodgateDatagraphicData fontData eventTypeData"/>

    <!—the interval at which keepAlive messages are to be delivered →
        <addkey="keepAliveIntervalSeconds"value="30"/>

    <!—the allowed time in milliseconds for the web method calls to the
                   clients to complete  →
        <addkey="clientWebMethodTimeout"value="15000"/>

    <!—the allowed time in milliseconds for the web method calls to the
                   servers to complete  →
        <addkey="serverWebMethodTimeout"value="15000"/>

    <!—the interval at which the Collector should attempt a login to the
                   servers →
        <addkey="serverConnectIntervalSeconds"value="10"/>

    <!—the blank-delimited list of data servers that will be providing data to the
Collector →
        <addkey="serverList"
value="http://machine_name/C2C/Provider/ProviderServer.asmx
http://other_machine/C2C/Collector/CollectorServer.axmx"/>

    <!—the URI of the Collec'or's client side Web Service. Sent to the
                   data providers when logging in to them →
        <addkey="updatesURI"
value="http://machine_name/C2C/Collector/CollectorClient.asmx"/>

    <!—the process name to be recorded by the StatusLogger service →
        <addkey="processName"value="C2C Provider"/>

    <!—the host machine for the StatusLogger service →
        <addkey="statusLoggerHost"value="localhost"/>

    <!—the socket listener port for the StatusLogger service →
        <addkey="statusLoggerPort"value="8000"/>

    <!—the StatusLogger logging level →
        <addkey="StatusLoggerLevel"value="slDebug"/>

    </appSettings>
```

The parameters for configuring the Data Collector are:

subscriptionDataTypes	A space-delimited list of the data types that the Collector will accept and maintain. The data type names correspond to the element names found in the schema defining the C2C data.
keepAliveIntervalSeconds	The time interval, specified in seconds, at which a keep-alive message will be sent to the Collector's server login sessions and client update sessions. This value must be less than the session timeout specified by the remote web services. The minimum session timeout allowed by IIS is 1 minute, so a 30-second keep-alive should prevent the session from timing out.
clientWebMethodTimeout	The time interval, specified in milliseconds, allowed for a response to a web method call to a client update session. This value should only be set long enough to provide stable operation under normal data loads. A greater depth of chained infrastructure services will require a longer timeout interval.
serverWebMethodTimeout	The time interval, specified in milliseconds, allowed for a response to a web method call to a server login session. This value should only be set long enough to provide stable operation under normal data loads.
serverConnectIntervalSeconds	The interval at which the Collector should attempt a login to the servers.
serverList	The space-delimited list of data servers (URIs) that will be providing data to the Collector.
updatesURI	The URI of the Collec'tor's client side Web Service. Sent to the data providers when logging in to them.
processName	A name which uniquely identifies this Data Collector to the StatusLogger service.
statusLoggerHost	The name of the computer hosting the Status Logger service.
statusLoggerPort	The port for communicating to the Status Logger service.
statusLoggerLevel	Set the logging level to be used by the web service. Choices include *slError*, *slWarn*, *slInfo*, *slDebug*, and *slDetail*

For the Data Extractor, the C2C configuration information is shown in Table 3.4 below.

Table 3.4—Data Extractor web.config Settings

```
<appSettings>
<!—Status Logger variables →
    <addkey="processName"value="C2C Extractor"/>
    <addkey="statusLoggerHost"value="127.0.0.1"/>
    <addkey="statusLoggerPort"value="8000"/>
    <addkey="statusLoggerLevel"value="slDebug"/>
    <addkey="keepAliveIntervalSeconds"value="30"/>
```

```
    <addkey="updatesURI"value="http://machine_name/C2C/Extractor/ExtractorClient.asmx"
/>

    <addkey="serverList"value="http://machine_name/StatewideCollector/CollectorServer.
asmx[DAL,FTW]"/>

    <!—the XML data types for the Subscribe web method 
        <addkey="subscriptionDataTypes"value="networkData localeData trafficCondData
tvtStatusData eventData dmsData cctvStatusData cctvSnapshotData harData essData
remoteMsgData floodgateData"/>
</appSettings>
```

The parameters for configuring the Data Extractor are:

processName	A name which uniquely identifies this Data Extractor to the StatusLogger service.
statusLoggerHost	The name of the computer hosting the Status Logger service.
statusLoggerPort	The port for communicating to the Status Logger service.
statusLoggerLevel	Set the logging level to be used by the web service. Choices include *slError*, *slWarn*, *slInfo*, *slDebug*, and *slDetail*
keepAliveIntervalSeconds	The time interval, specified in seconds, at which a keep-alive message will be sent to the Extractor's server. This value must be less than the session timeout specified by the Extractor server's web service. The minimum session timeout allowed by IIS is 1 minute, so a 30-second keep-alive should prevent the session from timing out.
updatesURI	The URI of the Extractor's client side Web Service.
serverList	The URI of the web service that will be serving XML data to the Extractor.
subscriptionDataTypes	A delimited list of the data types that the Extractor will use when logging into the web service named in the "serverList" parameter. The Extractor will log into the server web service and subscribe for data for use by the **RequestNets** web method to retrieve current data. The data type names correspond to the element names found in the schema defining the C2C data. Note that the keyword "all" can be used instead of the data type list to receive all data types. This has the advantage of eliminating filtering of data by type.

A default IIS installation will limit the size of messages between the C2C web services to 4 MB. A district with a large number of devices and events can generate C2C messages in excess of this limit. The allowable message size can increased with the addition of an override element in the "web.config" file of each C2C web service that would need to handle messages greater 4 MB. An example of the override element is shown in the XML fragment in Table 3.5.

Table 3.5— Override Message Size web.config Settings

```
<system.web>
<!—Change the default maximum request length with this element. The value is
```

```
in KB.-->
<httpRuntimemaxRequestLength="50000" />
</system.web>
```

3.10 Configuration

The SunGuide software has a number of configurable parameters that are used to establish communication between SunGuide processes as well as to alter the behavior of the SunGuide applications. The following sections describe the configuration parameters available – these values should not be changed unless the impact of the change is well understood.

3.10.1 IP Port Usage

The table below shows IP port usage by the various subsystems and drivers of the SunGuide software.

Table3.6–Port Assignments

SunGuide Component	IP Port Used
AVL/RR Subsystem	41300
Beacon Management Subsystem	45678
BlueToad Publisher Subsystem	23402
BMS Web Relay Driver	45679
C2C Publisher Plug-in	34852
C2C Subscriber Plug-in client connections	40051
C2C Subscriber Plug-in Extractor connection	20001
CCTV American Dynamics Driver	12167
CCTV Cohu Driver	12166
CCTV NTCIP 1205 Driver	12164
CCTV ONVIF Driver	12165
CCTV Subsystem	40015
Connected Vehicle Subsystem (CVS)	40014
Connected Vehicle Driver	40142
Data Archive	5890
Data Archive RITIS	38946
Databus	8009
DMS	40001
DMS driver port	10350
Event Management Subsystem (EM)	41400
Executive Handler Server client connections	8001
Executive Handler Server for EH viewer connections	8002
HAR DR2000 Driver	40107
Highway Advisory Radio Subsystem (HAR)	40017
Incident Detection Subsystem (IDS)	40008
IDS TSS Alarm Driver	44444
IDS VisioPaD Driver	40089
IDS Weather Alert Driver	43159

SunGuide Component	IP Port Used
IDS External Event Driver	38569
IDS FHP Incident Driver	38521
IDS FHP Incident Provider	42124
IDS RWIS Driver	44445
IDS Safety Barrier Driver	38590
IDS Waze Driver	44447
IDS Wrong Way Detection Driver	44446
INRIX Publisher	38943
Inventory Maintenance Subsystem (IMS)	40018
Managed Lanes Subsystem	38960
MCP Manager	40007
Message Arbitration Subsystem (MAS)	38900
MLS NTCIP Driver	38961
Naztec Driver	38951
Nokia Publisher	38945
Notify Manager	8004
Oracle 11g	1521
Pricing Subsystem	40878
Ramp Meter Subsystem (RMS)	40003
Reporting Subsystem (RS)	40013
RMS BiTran-170 Driver	9001
Road Ranger XML Driver	41301
Road Weather Information System Subsystem (RWIS)	40077
RWIS Driver	40078
Safety Barrier Driver (SB)	40088
Safety Barrier Subsystem	40011
Scheduled Actions Subsystem	40712
SPARR Driver	41302
SQL Server	1433
Status Logger	8000
System Administration Application (SAA)	29100
Traffic Control Subsystem	38950
Transportation Sensor Subsystem (TSS)	40004
Travel Time Subsystem (TVT)	40012
Truck Parking Subsystem	40016
TSS Bitrans Driver	12888
TSS Probe Fusion Driver	48888
TSS RTMS Driver	40005
TSS WsDOT Driver	8091
TSS CvTssDriver	40020
Video Switch Subsystem (VS)	40022
Video Wall Subsystem (VW)	40027
VisioPaD Subsystem	40097
VS IP Video Switch Driver	40010

SunGuide Component	IP Port Used
Variable Speed Limit Subsystem (VSL)	40048
VW Activu Wall Driver	29207
VW Barco Wall Driver	40037
VW Jupiter Wall Driver	40038
VW Jupiter Wall Canvas Driver	40039

3.10.2 IIS Configuration (Restrict Access to Admin Editor)

To restrict access to the SunGuide Administrative Editor to a particular group of Windows users, log in to the machine hosting the Administrative Editor and create a Windows user group named SunGuideAdmin. Add any users who should have access to this group. Note that all members of the Administrators group will also have access to the page, by the design of Windows:

- Open the IIS Manager application:

  o In the left pane, open the item for the server (local computer), then open Web Sites, then open Default Web Site.
  o Right click on the SunGuideAdmin entry and select Properties.
  o Open the Directory Security tab, then under Authentication and access control, press the Edit button.
  o Clear the "Enable anonymous access"checkbox, and make sure "Integrated Windows authentication" is checked.
  o Press OK to dismiss both open dialogs.

- Using Windows Explorer:

  o Browse to the root directory of the web server (C:\Inetpub\wwwroot). Right click on SunGuideAdmin and select Properties.
  o Open the Security tab and click the Advanced button, then clear the "Allow inheritable permissions" checkbox and choose Copy.
  o Remove all permission entries except for those given to INTERACTIVE, NETWORK, NETWORK SERVICE, and SYSTEM.
  o Press the Add button and add the SunGuideAdmin group (hostname\SunGuideAdmin), then press OK.
  o Give SunGuideAdmin Full Control, then press OK. Select OK on the Advanced Security dialog, then select OK on the SunGuideAdmin Properties dialog.

- Browse to the Default.htm file in the SunGuideAdmin directory, and set up permissions the same was as was done for the directory itself, but remove all permissions for ALL users except the SunGuideAdmin group.

- Restart IIS to apply all the changes.

3.10.3 Executive Handler Configuration

- Run Executive Handler Editor, and add processes using the settings in Table 3.7 below (note that which process will be configured will vary based on the information contained in the deployment specific *Implementation Plan*):

Table 3.7–SunGuide Application Configuration

What	Type	Windows Service	Display Name	Arguments	Subsystem
Notify Manager	Service	NotifyManagerSvc	SG Notify Manager	[configFile] notifyMgr	GUI
Event Management	Service	EmService	SG Event Manager	[configFile] em	EM
AVL/RR Subsystem	Service	AvlService	SG AVL Subsystem	[configFile] avlrr	AVL/RR
AVL/RR XML Driver	Service	RRXMLDriverService	SG AVL Road Ranger Driver	RRXMLDriver [configFile] avlrr	AVL/RR
AVL/RR SPARR Driver	Service	SPARRDriverService	SG AVL SPARR Driver	SPARRDriver \\awd-app\FDOT\config.xml avlrr	AVL/RR
BlueToad Publisher Subsystem	Service	BlueToadService	SG BlueTOAD Publisher	[configFile] bluetoad	BlueToad
DMS Subsystem	Service	DmsXmlInterface	SG DMS XML Interface	*None*	DMS
DMS Driver	Service	DmsStatewideDriver	SG DMS Statewide Driver	*None*	DMS
HAR Subsystem	Service	HarService	SG HAR Subsystem	[configFile] har	HAR
HAR Driver	Service	HarDR2000Svc	SG HAR DR2000 Driver	DR2000 [configFile] har	HAR
Travel Times Subsystem	Service	TvtService	SG TVT Subsystem	[configFile] tvt	TVT
Message Arbitration Subsystem	Service	MasService	SG Message Arbitration Subsystem	[configFile] mas	MAS
Variable Speed Limit Subsystem	Service	VslService	SG VSL Subsystem	[configFile] vsl	VSL
Pricing Subsystem	Service	PsService	SG Pricing Subsystem	[configFile] ps	EL
Reporting Subsystem	Service	RsService	SG Reporting Subsystem	[configFile] rs	EM
Inventory & Maintenance Subsystem	Service	ImsService	SG Inventory Maint Subsystem	[configFile] ims	IMS
Data Archive Subsystem	Service	DataArchiveService	SG Data Archive Subsystem	[configFile] DataArchive	Archive

What	Type	Windows Service	Display Name	Arguments	Subsystem
Data Archive RITIS Subsystem	Service	DarService	SG Data Archive RITIS Subsystem	[configFile] dar	Archive
Incident Detection Subsystem	Service	IdsService	SG IDS Subsystem	[configFile] ids	IDS
IDS VisioPaD Driver	Service	VisioPadDriver	SG IDS VisioPad Driver	VisioPadDriver [configFile] ids	IDS
IDS TSS Driver	Service	TssAlarmService	SG IDS TSS Alarm Driver	TssAlarmDriver [configFile] ids	IDS
IDS Safety Barrier Driver	Service	SbAlarmService	SG IDS SB Alarm Driver	SbAlarmDriver [configFile] ids	IDS
IDS Weather Driver	Service	WeatherAlertService	SG IDS Weather Alert Driver	WeatherAlertDriver [configFile] ids	IDS
IDS External Event Driver	Service	ExternalEventService	SG IDS External Event	ExternalEventDriver [configFile] ids	IDS
IDS FHP Driver	Service	FhpIncidentService	SG IDS FHP Incident Driver	FhpIncidentDriver [configFile] ids	IDS
IDS RWIS Driver	Service	RwisAlarmService	SG RWIS Alarm Driver	RwisAlarmDriver [configFile] ids	IDS
IDS WAZE Driver	Service	WazeEventService	SG Waze Event Driver	WazeEventDriver [configFile] ids	IDS
Ramp Meter Subsystem	Service	RmsService	SG Ramp Meter Subsystem	*None*	RMS
Ramp Meter 170 Driver	Service	Rms170DriverSvc	SG RMS 170 Driver Svc	Bitran-170 [configFile] rms	RMS
RWIS Subsystem	Service	RwisService	SG RWIS Subsystem	[configFile] rwis	RWIS
RWIS Driver	Service	RwisDriverSvc	SG RWIS Driver Service	RwisDriver [configFile] rwis	RWIS
TSS Subsystem	Service	TssService	SG TSS Subsystem	[configFile] tss	TSS
TSS RTMS Driver	Service	RtmsDriverSvc	SG RTMS Driver Service	RtmsDriver [configFile] tss	TSS
TSS BiTran Driver	Service	BiTran238Driver	SG TSS BiTran238 Driver	*None*	TSS
TSS 170 Driver	Service	WsDOTDriverSvc	SG WsDOT 170 Driver Service	[configFile] WsDotTss	TSS
TSS Probe Fusion Driver	Service	ProbeFusionDriverSvc	SG TSS Probe Fusion Driver Service	ProbeFusionDriver [configFile] tss	TSS

What	Type	Windows Service	Display Name	Arguments	Subsystem
TSS Connected Vehicle Driver	Service	CvTssDriverSvc	SG TSS Connected Vehicle Driver Service	CvTssDriver [configFile] tss	TSS
Safety Barrier Subsystem	Service	SbService	SG Safety Barrier Subsystem	[configFile] sb	SB
Safety Barrier Driver	Service	SbDriverSvc	SG Safety Barrier Driver	SBDriver [configFile] sb	SB
Connected Vehicle Subsystem	Service	CvsService	SG Connected Vehicle Subsystem	[configFile] cvs	CVS
CVS J2735 Driver	Service	J2735DriverSvc	SG J2735 Connected Vehicle Driver	J2735Driver [configFile] cvs	CVS
CCTV Subsystem	Service	CctvService	SG CCTV Subsystem	[configFile] cctv	CCTV
CCTV NTCIP Driver	Service	NtcipCctvDriver	SG CCTV NTCIP Driver	*None*	CCTV
CCTV American Dynamics Driver	Service	AD_SD_Driver	SG CCTV AD Driver	AD_SD_Driver [configFile] cctv	CCTV
CCTV ONVIF Driver	Service	OnvifCctvDriver	SG CCTV ONVIF Driver	ONVIF_Driver [configFile] cctv	CCTV
Video Switching Subsystem	Service	VsService	SG Video Switching Subsystem	[configFile] vs	VS
VS IP Switch Driver	Service	IpVideoSwitchSvc	SG IP Video Switch Driver	IpVideoSwitch [configFile] vs	VS
Video Wall Subsystem	Service	VwsService	SG Video Wall Subsystem	[configFile] VideoWallSystem	VW
VW Barco Driver	Service	BarcoDriverSvc	SG VWS Barco Driver	BarcoWall [configFile] VideoWallSystem	VW
VW Jupiter Driver	Service	JupiterDriverSvc	SG VWS Jupiter Driver	JupiterVideoWall [configFile] VideoWallSystem	VW
VW Jupiter Canvas Driver	Service	JupiterCanvasDriverSvc	SG VWS Jupiter Canvas Driver	JupiterCanvas [configFile] VideoWallSystem	VW
VW Activu Driver	Service	ActivuWallSvc	SG Activu Driver Service	ActivuWall [configFile] VideoWallSystem	VW
MCP Manager	Service	McpManagerSvc	SG MCP Manager	[configFile] McpManager	GUI

What	Type	Windows Service	Display Name	Arguments	Subsystem
Scheduled Actions Subsystem	Service	SasService	SG Scheduled Actions Subsystem	[configFile] sas	SAS
Center to Center Publisher	Service	C2cServerService	SG C2C Publisher	[configFile] C2cPublisher	C2C
Center to Center Subscriber	Service	C2cClientService	SG C2C Subscriber	[configFile] C2cSubscriber	C2C
INRIX C2C Publisher	Service	InrixService	SG INRIX Publisher	[configFile] inrix	C2C
Nokia C2C Publisher	Service	NokiaService	SG NOKIA Publisher	[configFile] nokia	C2C
Beacon Management Subsystem	Service	BmsService	SG Beacon Management Subsystem	[configFile] bms	BMS
BMS Web Relay Driver	Service	BmsWebRelayDriver	SG WebRelay Driver	WebRelayDriver [configFile] bms	BMS
Data Bus	Service	DataBusService	SG Data Bus Subsystem	[configFile] databus	Data Bus
System Administration Application	Service	SaaService	SG SAA - System Administration Application	[configFile] saa	SAA
FHP CAD Interface Server	Service	FhpInterfaceService	SG IDS FHP Interface	[configFile] fhp	IDS
Manged Lanes Subsystem	Service	MlsService	SG MLS Subsystem – Managed Lanes	[configFile] mls	MLS
Manged Lanes NTCIP Driver	Service	MlsNtcipDriver	SG MLS NTCIP Driver	MlsNtcipDriver [configFile] mls	MLS
Traffic Control Subsystem	Service	TcsService	SG TCS Subsystem – Traffic Signal Control	[configFile] tcs	TCS
Traffic Control Naztec Driver	Service	NaztecDriverSvc	SG TCS Naztec Driver	NaztecDriver [configFile] tcs	TCS
Truck Parking Subsystem	Service	TpsService	SG TPS Subsystem – Truck Parking Subsystem	[configFile] tps	TPS

3.10.4 Configurable Parameters

The following sections detail the configuration parameters that the SunGuide subsystems have available at startup of the subsystem. Where applicable, the default value is noted in XML notation for each configuration parameter, for example:

                  <maxConnections>20</maxConnections>

indicates that the value of "20" is the default for the parameter "maxConnections".

There are several top-level parameters used by many applications that do not belong to a group:

- <schemaLocation>\\129.162.101.115\FDOT\XML\Schemas</schemaLocation> The network location of the XML schema files that will be used if validation is enabled.
- <debugMode>true</debugMode> Whether to generate extra debug messages when enabled (true, false).
- <compressionSize>20000000</compressionSize> Maximum size of a message before compression is applied. Not currently used.
- <compressionMode>None</compressionMode> Compression mode to use. Currently 'None' is only only supported value.
- <centerId>District 6</centerId> The identifier of the FDOT TMC using the configuration.
- <mapPath>//Server1/Navteq</mapPath> Location of the Navteq shape files to be used for county, roadway and street name lookups
- <smtpServer> Host and port of the SMTP server used by PS and EM
  - <host>smtp.servername.com</host>
  - <port>25</port>
  - <emailFrom>XXXXX@servername.com</emailFrom>
  - <enableSSL>false</enableSSL>
  - <username></username> Leave credentials empty if not needed
  - <password></password>

3.10.4.1 Status Logger

The Status Logger<StatusLogger> subsystem has the following configuration parameters:

- <host>localhost</host> The name of the computer on which the Status Logger Server is running (DNS name, qualified as necessary, or the IP address).
- <port>8000</port> The TCP/IP port on which the Status Logger Server is listening for client connections.
- <statusLogDatabase>
  - <type>The type of database used for Status Logger. Valid values are 'oracle' or 'sqlserver'.
  - <host>The host where the database instance is running.
  - <databaseName>The name of the database that Status Logger should use to store log entries.
  - <user>The username needed for Status Logger to log into the database. This should have DBA privileges
  - <password>The plaintext password of the database user used to log into the database.
  - <authenticationType>The authentication type to be used to log into the database.
  - <dataFileFolder>The folder where Status Logger should place newly created data files on the databaseserver.

3.10.4.2 Executive Handler

The Executive Handler <ExecutiveHandler> has the following configuration parameters:

- <ClientPort>8001</ClientPort> The TCP/IP port on which the Executive Handler Server is listening for client process connections.
- <MgrPort>8002</MgrPort> The TCP/IP port on which the Executive Handler Server is listening for EH Viewer manager connections.
- <BatchStartInterval>10</BatchStartInterval> The time in milliseconds to wait between starts when starting a list of processes.
- <ConnTimeout>60</ConnTimeout> The time in seconds after which a client process is considered non-responsive.
- <RestartLimit>5</RestartLimit> The number of times a process will be automatically restarted.
- <RestartTimer>5</RestartTimer> The number of minutes within which the restart limit being reached will prevent further automatic restarts.
- <KillProcessesOnExit>false</KillProcessesOnExit> Whether Executive Handler should attempt to end processes under its control when Executive Handler itself is stopping.
- <logLevel>The log level to be used by this process on start up.

3.10.4.3 Database

The database<Database>has the following configuration parameters:

- <type>oracle</type>: Acceptable values are oracle and sqlserver
- <host>dbServer</host>: This is the IP Address or DNS Name of the Machine running the database
- <port>1521</port>: Port the Database is listening for incoming connections. Oracle default port is 1521. SQLServer default port is 1433
- <databaseName>sgdb</databaseName>: Name of the database on the actual server
- <user>sunguide</user>: user account established for internal system use.
- <password>floridad0t</password>: established password for internal account.

3.10.4.4 Notify Manager

The Notify Manager <notifyMgr> has the following configuration parameters:

- <host>localhost</host> The name of the computer on which the Notify Manager Server is running (DNS name, qualified as necessary, or the IP address).
- <port>8004</port> The TCP/IP port on which the Notify Manager Server is listening for client connections.
- <icdVersion>The ICD version supported by this process. Currently the only version supported by SunGuide isversion 1.0
- <logLevel>The log level to be used by this process on start up.
- <maxConnections>The maximum number of incoming connections to accept at any given time.
- <validation>Whether to validate all incoming and outgoing XML. This should be set to false for aproduction environment

- <providerType>The provider type of this data provider
- <commTolerance>The number of failed poll cycles before transitioning the op status of a device
- <canSendDeviceStatusMsgs>A flag that determines if the process should send device status messages to Data Archive
- <enabled>A boolean flag that determines if databus should connect to this process or not. Set thisvalue to false only if this subsystem is currently unused. It will require a restart ofdatabus in order to pick up the change
- <maximumOutgoingMinutes>The number of minutes to wait before disconnecting a client that is not reading data offthe socket in a timely manner
- <hostList>The list of host machines running Executive Handler that Notify Manager should talk to
  - <host>Add an entry for each machine running Executive Handler

3.10.4.5 Data Bus

The Data Bus<databus> has the following configuration parameters:

- <host>pascal</host>   The name of the computer on which the Data Bus should be running (DNS name, qualified as necessary, or the IP address).
- <port>8009</port> The port on which the Data Bus is listening for client connections.
- <icdVersion>1.0</icdVersion> The ICD version for this system, this is appended to the schema location in the general section of config data. (Should be the version corresponding to the location of schemas for this system.)
- <logLevel>slDetail</logLevel> The level of status logging for this system; this can also be changed via the EH. (slError, slWarning, slInfo, slDebug, slDetail).
- <maxConnections>20</maxConnections>Maximum number of client connections to allow (1-20).
- <validation>false</validation> Whether XML validation is on, this should be false when in a production environment. If validation is set to true, the subsystem performance will be slower (true, false).
- <providerType>databus</providerType> The provider type of this subsystem, used in XML to uniquely identify elements.
- <saaUsername>databus</saaUsername>The username as specified in the database that is used when the Data Bus authenticates and retrieves data from each data provider.
- <saaPassword>X03MO1qnZdYdgyfeuILPmQ==</saaPassword>The password as specified in the database, in its encrypted value. This is used when the Data Bus authenticates and retrieves data from each data provider.

3.10.4.6 MCP Manager

The MCP Manager component has the following configuration parameters:

- <host>localhost</host> The hostname or IP address of the machine which the MCP Manager will connect to for Databus status data and command submission (DNS name, qualified as necessary, or the IP address).
- <port>40035</port> The port number which the Databus is listening on.

- <icdVersion>1.0</icdVersion> The ICD version attribute that will be set in requests, responses and messages formulated by the MCP Manager subsystem.
- <logLevel>slInfo</logLevel> Initial log level to be used when logging messages to status logger (Valid values: slError, slWarn, slInfo, slDebug, slDetail).
- <maxConnections>20</maxConnections>Maximum number of client connections to allow (1-20).
- <validation>false</validation> Flag indicating if the MCP Manager should validate all XML messages.
- <providerType>mcp</providerType> The provider type of this subsystem, used in XML to uniquely identify elements.
- <commTolerance>0</commTolerance> Not used by this process.
- <saaUsername>mcpManager</saaUsername>The username as specified in the database that is used when the process authenticates to SAA for user data.
- <saaPassword>X03MO1qnZdYdgyfeuILPmQ==</saaPassword>The password as specified in the database, in its encrypted value. This is used when the process authenticates to SAA for user data.
- <focusSpeed>50</focusSpeed> Speed expressed as percentage of full scale for keyboard focus adjustments.
- <irisSpeed>50</irisSpeed> Speed expressed as percentage of full scale for keyboard iris adjustments.
- <zoomSpeed>50</zoomSpeed> Speed expressed as percentage of full scale for keyboard zoom adjustments.
- <panTiltSpeedFactor>50</panTiltSpeedFactor> Scaling factor for limiting PTZ speed to a fraction of the actual speed received from the keyboard.
- <firstPreset>10</firstPreset> Identifier of first preset in list of camera presets.
- <lastPreset>19</lastPreset> Identifier of last preset in list of camera presets.
- <connectRetries>5</connectRetries> Number of times the application attempts to connect to the keyboard device before an error is reported. Set to -1 for unlimited retries.
- <connectDelay>250</connectDelay> Delay in milliseconds between connection attempts.
- <autoReconnect>true</autoReconnect> Flag enables automatic reconnection in the event of a disconnect.
- <keyboards> The containing element that lists the keyboards to be hosted by the MCP Manager subsystem.
  - <keyboard> The containing element for a single keyboard instance.
    - <identifier>MCP1</identifier> The unique identifier of the keyboard instance
    - <resourceType>AD2088</resourceType> The keyboard type of the instance.
    - <username>bfarmer</username> The user ID that will be used by the keyboard instance for authentication with the subsystems.
    - <password>28JoogEaxYLx13CWpWcLXA==</password> The password that will be used for authentication with the subsystems.
    - <host>129.162.101.192</host> The DNS name of IP address of the socket terminal server.
    - <port>4001</port> The port on which the socket terminal server will be listening.

```
        </keyboard>
    </keyboards>
```

3.10.4.7 C2C Publisher

The C2C Publisher Plug-in has the following configuration parameters:

- <host>laplace</host> The name of the computer where the plug-in will attempt connection to the Data Bus.
- <port>8009</port> The socket port used for the Data Bus connection.
- <icdVersion>1.0</icdVersion> The ICD version for this system, this is appended to the schema location in the general section of config data. (Should be the version corresponding to the location of schemas for this system.)
- <logLevel>slDetail</logLevel> The level of status logging for this system; this can also be changed via the EH (slError, slWarning, slInfo, slDebug, slDetail).
- <maxConnections>20</maxConnections>Maximum number of client connections to allow (1-20).
- <validation>false</validation> Whether XML validation is on, this should be false when in a production environment. If validation is set to true, the subsystem performance will be slower (true, false).
- <providerType>c2c</providerType> The provider type of the plug-in.
- <saaUsername>c2cStatus</username> The User ID used for requesting status data from the subsystems where status data originates.
- <saaUassword>HqTAo7KC0u36Tik3WRvZNg==</password> Password to be used with the User ID.
- <center>centerId</center> Optional; may be used to broadcast a name other than the primary center ID.
- <c2cProviderHost>localhost</c2cProviderHost> Host name of computer where the C2C Provider web service to be used is located.
- <c2cProviderWebSvc>c2c/Provider</c2cProviderWebSvc> Web service name of C2C Provider; this is where SunGuide status data will be published.
- <c2cCommandPort>8045</c2cCommandPort> Socket port used by local C2C Command Receiver to deliver remote control requests to the plug-in.
- <dmsMsgPriority>254</dmsMsgPriority> Message priority to be used when submitting DMS message control requests from remote systems.
- <harMsgPriority>254</harMsgPriority> Message priority to be used when submitting HAR message control requests from remote systems.
- <speedPublishInterval>60</speedPublishInterval> The interval in seconds between publications of all traffic speed data in single update messages.
- <useShortName>true</useShortName>Optional flag that will cause short names to be used for location cross streets instead of the recommended long names.
- <statusList> This section defines the subsystem names that will be used to gather SunGuide status data for C2C publication.
  o <status><providerName>name</providerName><providerType>type</providerType></status> Each of these entries specifies a specific subsystem. Typically, the provider name and provider type are the same.

- ▪ mas: The MAS subsystem; it will provide queue message data used to generate and publish C2C remote messages.
- ▪ cctv: The CCTV subsystem; it will provide CCTV status data.
- ▪ dms: The DMS subsystem; it will provide DMS status data.
- ▪ tvt: The TVT subsystem; it will provide travel time data.
- ▪ vs: The Video Switching subsystem; it will provide snapshot data.
- ▪ tss: The TSS subsystem; it will provide traffic link speed data.
- ▪ rwis: The RWIS subsystem; it will provide roadside weather status data.
- ▪ em: The Event Management subsystem; it will provide event status data.
- ▪ har: The HAR subsystem; it will provide HAR status data.
- ▪ cvs: The CVS subsystem; it will provide raw TAM and raw PVDM data
- ▪ tps: The Truck Parking Subsystem; it will provide truck parking facility availability data

- • <commandList> This section defines the subsystems that will be used to submit device control requests from remote centers.
  - o <command><providerName>name</providerName><providerType>type</providerType></command> Each of these entries specifies a specific subsystem. Typically, the provider name and provider type are the same.
    - ▪ cctv: The CCTV subsystem handles camera control requests.
    - ▪ mas: The MAS subsystem handles DMS and HAR control requests.

3.10.4.8 Administrative Editor

The administrative editor has the following configuration parameters:

- • <logLevel>slDetail</logLevel> Set by all subsystems, and indicates the default logging level. Valid values are: slDetail, slDebug, slInfo, slWarning, or slError.
- • <defaultTimeout>15</defaultTimeout>The value in seconds that the Admin editor will wait for a response after issuing a request before reporting a timeout error.
- • <username>Admin</username>The username as specified in the database that is used when the Administrative Editor authenticates, retrieves data, and pushes equipment updates to each data provider.
- • <password>X03MO1qnZdYdgyfeuILPmQ==</password>The password as specified in the database, in its encrypted value. This is used when the Administrative Editor authenticates, retrieves data, and pushes equipment updates to each data provider.

3.10.4.9 Data Providers

<dataProviders></dataProviders> The Data Bus attempts to connect with the data providers listed within this tag. Within each data provider tag, a <subsystemType></subsystemType> tag may be included to indicate the type of subsystem (e.g., dms, cctv, tss, etc).   If this tag is not defined by the data provider, the Data Bus uses the provider name for the subsystem type value.

All subsystems contain the following options tags first. Subsystem-specific configuration options are detailed in the appropriate sections.
- • <host>laplace</host> The name of the computer on which the DMS Subsystem should be running (DNS name, qualified as necessary, or the IP address).

- <port></port> The port on which the DMS Subsystem is listening for client connections. The default port number is specified in Table3.6–Port Assignments.
- <icdVersion>1.0</icdVersion> The ICD version for this system, this is appended to the schema location in the general section of config data. (Should be the version corresponding to the location of schemas for this system.)
- <logLevel>slDetail</logLevel> The level of status logging for this system; this can also be changed via the EH (slError, slWarning, slInfo, slDebug, slDetail).
- <maxConnections>20</maxConnections>Maximum number of client connections to allow (1-20).
- <validation>false</validation> Whether XML validation is on, this should be false when in a production environment. If validation is set to true, the subsystem performance will be slower (true, false).
- <providerType></providerType> The type of provider. This is typically the same as the default provider name.
- <commTolerance>3</commTolerance> Number of failed poll attempts before moving to the failed state
- <canSendDeviceStatusMsgs></canSendDeviceStatusMsgs> Optional; if present and true, the subsystem sends device status messages that can be parsed by Data Archive.
- <enabled>true</enabled> Whether the subsystem should be enabled within SunGuide.
- <maximumOutgoingMinutes>15</MaximumOutgoingMinutes> Number of minutes after which a client which is not retrieving messages will be forcibly disconnected.
- <saaUsername>databus</saaUsername>The username as specified in the database that is used when the Data Bus authenticates and retrieves data from other data providers.
- <saaPassword>X03MO1qnZdYdgyfeuILPmQ==</saaPassword>The password as specified in the database, in its encrypted value. This is used when the Data Bus authenticates and retrieves data from other data providers.
- <dataConnection></dataConnection> For subsystems which require data from other subsystems, these elements may be specified. Subsystems which typically have this configured will be noted in the following sections.
    - <tagName>databus</tagName> The connection to use when connecting to other providers.
    - <username></username> The username the subsystem should use for logging in to other providers.
    - <password></password> The password for the given user, formatted as it is stored in the database.
    - <dataProviders></dataProviders> Collection of providers to connect to.
        - <dataProvider></dataProvider> One of these entries is present for each provider to connect to.
            - <providerName></providerName> The name of the provider to connect to.
            - <providerType></providerType> The type of the provider to connect to.
            - <resendRate>30</resendRate> Optional; if specified, the number of seconds a request may wait for a response before a resend is attempted.

- <maxResend>5</masResend> Optional; if specified, the
maximum number of resends allowed.

Additionally, all data providers will have a <drivers></drivers> section at the end of their configuration parameters. This tag must be present whether or not any drivers are defined for the subsystem. All drivers are specified in a <driver></driver> tag within this one, and will contain the following settings; additional settings may be defined, which will be described in the appropriate sections.

- <identifier>driverName</identifier> The name of the driver.
- <host>localhost</host> The hostname or IP address of the machine which the MCP Manager will connect to for Databus status data and command submission (DNS name, qualified as necessary, or the IP address).
- <port>40035</port> The port number which the Databus is listening on.
- <icdVersion>1.0</icdVersion> The ICD version attribute that will be set in requests, responses and messages formulated by the MCP Manager subsystem.
- <logLevel>slInfo</logLevel> Initial log level to be used when logging messages to status logger (Valid values: slError, slWarn, slInfo, slDebug, slDetail).
- <maxConnections>20</maxConnections>Maximum number of client connections to allow (1-20).
- <validation>false</validation> Flag indicating if the MCP Manager should validate all XML messages.
- <packetTimeout></packetTimeout> Optional; if specified, the number of milliseconds to wait before assuming a command sent to a device has failed.
- <packetRetries></packetRetries> Optional; if specified, the number of times a command should be resent to a device on failure.

3.10.4.9.1 System Administration Application

The System Administration Application (SAA) has the following custom configuration parameters:
- <addToApprovedWords>true</addToApprovedWords> Specifies whether the SAA approved words list is editable. This setting is not used by SunGuide.
- <actionTimeout>600</actionTimeout> Timeout for any GUI actions. This setting is not used by SunGuide.

3.10.4.9.2 Scheduled Actions Subsystem

- <historyLogDays>180</historyLogDays> The length of time, in days, that SAS should store logs of schedule actions.

3.10.4.9.3 Video Wall

The Video Wall subsystem has the following custom configuration parameters:

- <sendConnRespForTour>false</sendConnRespForTour> Controls whether connection responses are sent to clients for video tours.

3.10.4.9.3.1**Barco Video Wall Driver**

The Barco Video Wall driver has the following custom configuration parameters:

- <apiURL>http://172.21.12.10/ApolloApi/</apiURL> The web location of the Barco Apollo SOAP API.
- <stringToReplaceSpaces>_</stringToReplaceSpaces> The string to replace all spaces when communicating with the Apollo API.

3.10.4.9.3.2**Jupiter Video Wall Driver**

The Jupiter Video Wall driver has the following custom configuration parameters:

- <jupiterIp>127.0.0.1</jupiterIp> The IP of the Jupiter video wall.
- <jupiterPort>25456</jupiterPort> The port the Jupiter video wall is listening on for incoming connections.

3.10.4.9.3.3**Jupiter Canvas Video Wall Driver**

The Jupiter Canvas Video Wall driver has the following custom configuration parameters:

- <jupiterIp>127.0.0.1</jupiterIp> The IP of the Jupiter video wall.
- <jupiterPort>25456</jupiterPort> The port the Jupiter video wall is listening on for incoming connections.
- <sourceId>sourceIdToConnectTo</sourceId> The sourceId assigned to the wall.
- <keepAliveThreshold>2000</keepAliveThreshold> The amount of time in milliseconds between keep-alive messages to the wall.

3.10.4.9.3.4**Activu Video Wall Driver**

The Activu Video Wall driver has the following custom configuration parameters:

- <AIS_Address>127.0.0.1</AIS_Address> The IPv4 address of the AIS.
- <AIS_Port>59306</AIS_Port> The port the AIS is listening on.
- <AIS_Compression>AsRequest</AIS_Compression> The compression style to use when communicating with the AIS. Valid options are Always, Never, and AsRequest.
- <AIS_Username>username</AIS_Username> The username used to log into the AIS.
- <AIS_Password>password</AIS_Password> The password used to log into the AIS.

3.10.4.9.4 **Message Arbitration**

The Message Arbitration subsystem has the following custom configuration parameters:

- <loadQueueListOnStartup>true</loadQueueListOnStartup> Optional; if this is set to true, on restart MAS will retain what is in the queue.

- <overrideSpellingConflicts>false</overrideSpellingConflicts> Optional; if this is set to true, messages sent through MAS will bypass all spelling or approved word conflicts.

3.10.4.9.5 **RWIS**

The RWIS subsystem has no custom configuration parameters.

3.10.4.9.5.1 **RWIS Driver**

The RWIS driver has the following custom configuration parameters:

- <pulseRate>25</pulseRate> Optional; the default rate (in seconds) in which the driver will poll each device.

3.10.4.10   **Dynamic Message Signs**

The Dynamic Message Sign subsystem has the following custom configuration parameters:

- <clockSyncMode>true</clockSyncMode> Optional; if set to true, the DMS subsystem will synchronize its time with those on the DMS controllers.
- <clearReadBuffer>true</clearReadBuffer> A flag to determine whether or not to clear the read buffer.
- <forceBlankOnFailure>A boolean flag that indicates when a DMS reaches a Failed state to report the messageon the sign as blank, unless overridden by the per-device setting

3.10.4.10.1.1 **DMS Driver**

The DMS driver does not use the standard driver configuration values, and instead provides the following configuration parameters:

- <identifier> DMSDriver</identifier> Name of the subsystem, this is used for the providerName in requests.
- <host>serverName</host> Name or IP address of computer where this driver is running.
- <port>40007</port> Port where this driver is listening for client connections.
- <defaultPageOnTime>3.0</defaultPageOnTime> The amount of time in seconds that the first phase should be displaying
- <defaultPageOffTime>0.0</defaultPageOffTime> The amount of time in seconds that the second phase should be displaying
- <slowPollMultiplier>10</slowPollMultiplier> Multiplier (based on poll cycle) that determines how often the dms should slow poll a device
- <commTolerance> Indicates how many times retransmission will occur after communication failure.
- <logLevel>slDetail</logLevel> The level of status logging for this system, can also be changed via the EH (slError, slWarning, slInfo, slDebug, slDetail).
- <colorTransparencyThreshold>254</colorTransparencyThreshold> sets the threshold where color is considered transparent or opaque

- <tryToReuseGraphics>true</tryToReuseGraphics> if true, the driver attempt to use the graphics that have already be uploaded and will not resend the graphic if it has already been uploaded to the sign
- <ignoreGraphicCrc>false</ignoreGraphicCrc> will ignore the check for the graphics CRC if true
- <forceDmsMaxGraphicMemory></forceDmsMaxGraphicMemory> Force the driver to use a custom value for the maximum graphics memory.

3.10.4.10.2 CCTV Control

The CCTV Control subsystem has the following custom configuration parameters:

- <lockTimeout>120</lockTimeout> Tells how long lock will be issued for each lock request (in seconds).
- <speedMultipliers> These sections specify multipliers to normal camera speeds across different manufacturers.
    - o <manufacturer>
        - ▪ <name>vicon</name>
        - ▪ <panMultiplier>1.5</panMultiplier> this value is the multiplier applied to the pan speed for a Vicon CCTV
        - ▪ <tiltMultiplier>2.0</tiltMultiplier> this value is the multiplier applied to the tilt speed for a Vicon CCTV
    - o </manufacturer>
    - o <manufacturer>
        - ▪ <name>pelco</name>
        - ▪ <panMultiplier>2.0</panMultiplier> this value is the multiplier applied to the pan speed for a Pelco CCTV
        - ▪ <tiltMultiplier>2.0</tiltMultiplier> this value is the multiplier applied to the tilt speed for a Pelco CCTV
    - o </manufacturer>
- </speedMultipliers>
- <highestProtectedPresetValue>0</highestProtectedPresetValue> Presets at or below this value can be modified only by users with the 'modifyLockedPresets' permission. 0 is the default value, indicating no presets are locked.

3.10.4.10.2.1 NTCIP 1205 Driver

The CCTV NTCIP 1205 driver has the following custom configuration parameters:

- <pulseRate>30</pulseRate> The number of seconds between communications to the device.
- <executiveHandlerPort>8001</executiveHandlerPort> Port on which the EH is listening.
- <executiveHandlerProcessName></executiveHandlerProcessName> The name to give the driver when connecting to Executive Handler
- <printToConsole>false</printToConsole> Optional; if true, the driver will log all messages to console as well as Status Logger.

- <ignoreCommandResponses>false</ignoreCommandResponses> Optional; if true, the driver will not wait for responses sent to cameras.

3.10.4.10.2.2 **American Dynamics CCTV Driver**

The American Dynamics (AD) CCTV driver has no custom configuration parameters.

3.10.4.10.2.3 **Cohu CCTV Driver**

The Cohu CCTV driver has no custom configuration parameters.

3.10.4.10.2.4 **ONVIF CCTV Driver**

The Open Network Video Interface Forum(ONVIF) CCTV driver has no custom configuration parameters.

3.10.4.10.3 **Video Switch**

The Video Switch subsystem has the following custom configuration parameters:

- <sendConnRespForTour>false</sendConnRespForTour> Controls whether connection responses are sent to clients for video tours.
- <approvalTimeout>180</approvalTimeout> Optional; if specified, the number of seconds to wait before a reminder is sent to all subscribers that a source/destination is still running in restricted mode.

3.10.4.10.3.1 **IP Video Switch Driver**

The IP Video Switch driver has the following custom configuration parameters:

- <commandFile>IpVideoDevices.xml</commandFile> Name of the file containing SNMP command information for the IP video decoders and encoders that can be controlled by the driver; the file will be located in working directory of driver.
- <snapshotConfigFile>SnapshotDevices.xml</snapshotConfigFile> Name of the file containing configuration information for the IP video decoders and video capture devices to be used for acquiring IP video encoder snapshots; the file will be located in working directory of driver.
- <snapshotDirectory>d:\Snapshots</snapshotDirectory> Directory where snapshots will be stored.
- <snapshotInterval>1</snapshotInterval> The number of minutes between scheduling of snapshots from IP Video encoder devices (1-60).
- <snapshotSettleTime>300</snapshotSettleTime> The number of milliseconds the video capture device is allowed to settle before retrieving a snapshot. This parameter is optional and defaults to 300.
- <useExternalFiles>false</useExternalFiles> This flag will cause the use of externally generated image files instead of captured files. This parameter is optional and defaults to false.

- <externalFilesType>JPG</externalFilesType> The external image file type used to specify image type in the C2C Snapshot message. This parameter is optional and defaults to "jpg".
- <staleSnapshotThresholdMinutes>30</staleSnapshotThresholdMinutes> The number of minutes before a snapshot is considered stale, causing an empty snapshot to sent to subscribers.
- <operatorMapHost>fermat</operatorMapHost> Name of computer where the OperatorMap is hosted; used as destination for posting snapshots.

The IP Video Switch Driver has an XML file that configures the snapshot devices. Each entry <snapshotDevice> describes a snapshot device and a decoder that is attached to the analog video input of the encoder.

- <snapshotDevice>
  - o <deviceId>snapshotDecoder1</deviceId> The name of the decoder attached to a snapshot card. The decoder produces an analog feed to the video capture card.
  - o <ipAddress>172.16.5.7</ipAddress> The ip address of the named decoder above.
  - o <ipPort>0</ipPort> The port number of the named decoder above.
  - o <cardNumber>2</cardNumber> The card number within the decoder named above.
  - o <manufacturer>vbrick</manufacturer> The manufacturer of the named decoder.
  - o <model>vb5200</model> The model number of the named decoder.
  - o <streamingType>transport</streamingType> The type of encoded MPEG-2 stream beind decoded.
  - o <captureDeviceName>Osprey-100 Video Device 1</captureDeviceName> The name of the video capture card.
  - o <captureDeviceResolution>320 by 240</captureDeviceResolution> Resolution of the snapshot to be taken.
  - o <captureDeviceColorFormat>RGB24</captureDeviceColorFormat> Color format of the snapshot.
  - o <captureDevicePort>1</captureDevicePort> Video capture card port into which the analog video from the MPEG-2 decoder is fed.
- </snapshotDevice>

3.10.4.10.4 Travel Time

The Travel Time subsystem has the following custom configuration parameters:

- <expireRate>120</expireRate> Stores the time (in seconds) for which TSS link data expires.
- <percentLanesWithData>100</percentLanesWithData> This is the percentage of lanes that must have data in order for travel time messages to be generated.
- <blankIfNotGenerated>true</blankIfNotGenerated> If true and no message is generated, the original travel time message will be removed from the queue.
- <msgIfNotGenerated>No travel time message.</msgIfNotGenerated> If blankIfNotGenerated is false, the message here will be used when no travel time message is generated.

- <useTimeRange>true</useTimeRange> If true, a range value is used for times > minTimeInMins. If false, single time value is displayed.
- <timeRangeInterval>2</timeRangeInterval> The range used for times > minTimeInMins and less than changeRangeInterval.
- <changeRangeInterval>6</changeRangeInterval> The time at which the largeTimeRangeInterval should be used.
- <largeTimeRangeInterval>3</largeTimeRangeInterval> The range used for times > changeRangeInterval and < maxTimeInMins.
- <lessThanText>under</lessThanText> Text used before time values that are < minTimeInMins.
- <greaterThanText>over</greaterThanText> Text used before time values that are > maxTimeInMins.
- <minTimeInMins>2</minTimeInMins> Minimum time displayed on time, times < than this are displayed with lessThanText preceding the minTimeInMins.
- <maxTimeInMins>20</maxTimeInMins> Maximum time displayed on time, times > than this are displayed with greaterThanText preceding the maxTimeInMins.
- <distUnits>MI</distUnits> Units to display for distances in messages (note: if no units are to be displayed then add an attribute to the units tag in TVT "xml:space = 'preserve'" (without the ") and change the units to a space).
- <spdUnits>MPH</spdUnits> Units to display for speeds in messages.
  - o Use value <spdUnits>NONE</spdunits> for TVT to not use units
- <minUnits>MIN</minUnits> Units to display for times in messages.
- <messageExpirationInterval>5</messageExpirationInterval> The interval (in minutes) at which travel times should expire when sent to a DMS
- <resourceConfiguration id="providerName"></resourceConfiguration> Multiple elements may be specified to customize the behavior of MAS when building messages for various providers.
  - o <type></type> One or more sets of configuration values for various resource types managed by the specified provider.
    - <name>resourceType</name> The resource type this configuration applies to.
    - <msgHeader></msgHeader> A header to add to the beginning of all messages generated for this resource type.
    - <pageHeader></pageHeader> A header to be added to the beginning of all message pages generated for this resource type.
    - <lineHeader></lineHeader> A header to be added to the beginning of all lines generated for this resource type.
    - <newLine></newLine> The character or tag to use for line breaks for this resource type.
    - <newPage></newPage> The character or tag to use for page breaks for this resource type.

3.10.4.10.5 **HAR**

The HAR subsystem has no custom configuration parameters.

3.10.4.10.5.1 **HAR DR2000 Driver**

The HAR DR2000 driver has the following custom configuration parameters:

- <sharedDirectory>\\dr2000\DR2000V54\SIMData</sharedDirectory> Location of the shared directory in which to place commands for the DR2000 Software Interface Module.
- <operatorMapURL>http://pascal/OperatorMap</operatorMapURL> URL at which the operator map can be accessed.
- <commandTimeout>10000</commandTimeout> Timeout (in milliseconds) when sending commands to the DR2000 shared directory.
- <voiceID>HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Speech\Voices\Tokens\MSSam</voiceID> ID specifying the Microsoft SAPI voice which should be used in Text-To-Speech operations.
- <voiceRate>0</voiceRate> Controls the rate that the Text-To-Speech voice speaks at (Ranges from -10 to 10).
- <voiceVolume>100</voiceVolume> Controls the volume that the Text-To-Speech voice speaks at (Ranges from 0 to 100).
- <availableMessageRange>101-110</availableMessageRange> Indicates the inclusive range of available message ID's in the DR2000 software. These message ID's should be reserved for use solely by the DR2000 driver. Must be formatted as lowerValue-upperValue.

3.10.4.10.6 **Transportation Sensor Subsystem**

The Transportation Sensor Subsystem (TSS) has the following customconfiguration parameters:

- <avgPeriod>90</avgPeriod> Number of seconds over which the detector updates should be averaged.
- <historicalDataPeriod>240</historicalDataPeriod> Number of minutes for which historical probe detector volume data is captured by the system and displayed on the map.
- <changeTolerance>3</changeTolerance> This percentage indicates the tolerance level accepted by the system.
- <enableEmailAlerts>false</enableEmailAlerts> IF true, enables tss to send detector alerts
- <systemWideFailedDetectorThreshold>30</systemWideFailedDetectorThreshold> Threshold to detmine what percentage of Failed detectors represent a systemwide failure.
- <systemWideFailedDetectorDelay>5</systemWideFailedDetectorDelay> Threshold, in minutes, for how long to wait before the systemwide threshold can be sent.
- <failedDetectorDelay>5</failedDetectorDelay> Threshold, in minutes, for how long to wait when a detector fails, before sending an email
- <invalidDetectorDelay>5</invalidDetectorDelay> Threshold, in minutes, for how long to wait when a detector reports invalid data, before sending an email

3.10.4.10.6.1 **BiTran Driver**

The TSS BiTran driver has the following custom configuration parameters:

- <pulseRate>30</pulseRate> The number of seconds between communications to the device.
- <executiveHandlerPort>8001</executiveHandlerPort> Port on which the EH is listening.
- <executiveHandlerProcessName>BiTran238Driver</executiveHandlerProcessName> Name of the process as added to the executive handler.
- <failedPollMultiplier>3</failedPollMultiplier> A multiplier for the poll cycle that determines the slow poll interval of failed detectors.

3.10.4.10.6.2 **TSS RTMS Driver**

The TSS RTMS driver has the following custom configuration parameters:

- <pulseRate>30</pulseRate> Stores the pulse interval (in seconds) for which the driver distributes detector update messages to connected clients.
- <failedPollMultiplier>3</failedPollMultiplier> A multiplier for the poll cycle that determines the slow poll interval of failed detectors.
- <timeSyncInterval>60</timeSyncInterval> The interval, in minutes, used to sync the time on the server with the device.

3.10.4.10.6.3 **TSS Probe Fusion Driver**

The TSS Probe Fusion driver has the following custom configuration parameters:

- <pulseRate>2000</pulseRate> Stores the pulse interval (in seconds) for which the driver distributes detector update messages to connected clients.
- <failedPollMultiplier>3</failedPollMultiplier> A multiplier for the poll cycle that determines the slow poll interval of failed detectors.
- <pollCylceAlertTolerance>2000</pollCylceAlertTolerance> Stores the number of poll cylces to wait before generating and sending alerts to the operator when data is not received by devices during this time.
- <allegroUdpListenPort>399</allegroUdpListenPort> Stores the port number for which the driver opens a UDP listen port for Allegro devices.
- <siritFlexCommandPort>25002</siritFlexCommandPort> The port on which to send commands to any Sirit Flex 510X device.
- <ttiAwamUdpListenPort>25003</ttiAwamUdpListenPort> The UDP Port to listen for TTI AWAM detector data.
- <ttiAwamTimestampsAreUtc>false</ttiAwamTimestampsAreUtc> A flag which determines if the ProbeFusionDriver should interpret date/times from TTI AWAM devices as UTC.
- <blueMacListenPort>25005</blueMacListenPort> Stores the port number for which the driver opens a UDP listen port for BlueMac middleware devices.

3.10.4.10.6.4 **TSS Connected Vehicle Driver**

The TSS Connected Vehicle driver has the following custom configuration parameters:

- <pulseRate>2000</pulseRate> Stores the pulse interval (in seconds) for which the driver distributes detector update messages to connected clients.
- <username>CvTssDriver</username> The username the driver should use when connecting to CVS.
- <password>X03MO1qnZdYdgyfeuILPmQ==</password> The encoded password the driver should use when connecting to CVS.

3.10.4.10.6.5 **TSS WsDOT Driver**

The TSS WsDOT driver has the following custom configuration parameters:

- <pulseRate>2000</pulseRate> Stores the pulse interval (in seconds) for which the driver distributes detector update messages to connected clients.
- <rmsDriver>
  - o <identifier>WsDOTDriver</identifier> WsDOT Ramp Metering driver identifier
  - o <host>fatsrv</host> host where WsDOT Ramp Metering driver is running
  - o <port>8009</port> port where WsDOT Ramp Metering driver is listening

3.10.4.10.7**Ramp Metering**

The Ramp Metering subsystem has the following custom configuration parameters:

- <requestTimeoutMillis>600000</requestTimeoutMillis> Number of milliseconds to wait for a response from the device driver to a request.
- <downloadIntervalInSeconds>60</downloadIntervalInSeconds> Interval for downloading the metering rate to the ramp meter controller in seconds.
- <maxNumberOfCentralAlgorithmTasksInEachTimer>10</maxNumberOfCentralAlgorithmTasksInEachTimer> Maximum number of central algorithm tasks allocated by a single timer.

3.10.4.10.7.1 **Ramp Metering Driver**

The Ramp Metering driver has the following custom configuration parameters:

- <pulseRate>20</pulseRate> The number of seconds between communications to the device.
- <clockSyncInterval>1440</clockSyncInterval> Stores the clock synchronization interval (in minutes) for which the driver synchronizes device time with the local system time.
- <protocol>Bitran-170</protocol>The protocol the driver will use.

3.10.4.10.8**Inventory and Maintenance Subsystem**

The IMS subsystem has no custom configuration parameters.

3.10.4.10.9**Safety Barrier**

The Safety Barrier subsystem has no custom configuration parameters.

3.10.4.10.9.1 **Safety Barrier Driver**

The Safety Barrier driver has the following configuration parameters:

- <pulseRate>30</pulseRate> Stores the pulse interval (in seconds) for which the driver sends status request messages to connected devices.

3.10.4.10.10 **C2C Subscriber**

The C2C Subscriber has the following configuration parameters:

- <localApproval>true</localApproval> A flag that determines if an operator at the local center must approve placement of DMS or HAR messages from remote centers.
- <FLATISFloodgateDataLocation>\\severname\FDOT\FL-ATIS_FloodGate_Data.xml</FLATISFloodgateDataLocation> Location of the FLATIS floodgate data file
- <dataExtractor> This section defines the parameters of the single C2C Extractor web service to be used.
  - ○ <host>localhost</host> Host name of computer where the web service is located.
  - ○ <webService>c2c/Extractor</webService> Web service name.
  - ○ <updatePort>20001</updatePort> Socket port used by Extractor to deliver status data to Plug-in.
  - ○ <subscribe>networkData localeData eventData dmsData cctvStatusData harData essData trafficCondData remoteMsgData floodgateData</subscribe> The C2C data types that will be subscribed for from the Extractor.
- <cmdReceivers> This section defines one or more C2C Command Receiver web services to be used; each entry must have a unique center ID.
  - ○ <remote> The section defines the parameters for an individual C2C Command Receiver web service.
    - ▪ <centerId>District 6</centerId> The C2C Network ID of the remote center.
    - ▪ <host>localhost</host> Host name of computer where the web service is located.
    - ▪ <webService>c2c/CommandReceiver</webService> Web service name.
    - ▪ <username>User1</username> The User ID passed when command requests originate from a subsystem.
    - ▪ <password>HqTAo7KC0u36Tik3WRvZNg==</password> Password to be used with the User ID.
  - ○ </remote>
  - ○ <flatis> The section defines the parameters for C2C Command Receiver web service to receive floodgate and event command requests.
    - ▪ <centerId>FLATIS</centerId> The C2C Network ID of the remote center.
    - ▪ <host>localhost</host> Host name of computer where the web service is located.
    - ▪ <webService>c2c/CommandReceiver</webService> Web service name.
    - ▪ <username>User1</username> The User ID passed in floodgate command requests.

- ▪ <password>HqTAo7KC0u36Tik3WRvZNg==</password> Password to be used with the User ID.
  - o </flatis>

3.10.4.10.11 **Data Archive**

The Data Archive subsystem has the following custom configuration parameters:

- <centersToArchive> A list of centers whose data should be archived. If a center is not in this list, DA will not store the data for the center.
  - o <centerId>District 5</centerId>
  - o <centerId>OOCEA</centerId>
- </centersToArchive>
- <tagReadPurgeInDays>30</tagReadPurgeInDays> Specifies the number of days in which archived tag read data will be purged from the database.
- <rawDataPurgeInDays>90</rawDataPurgeInDays> Days after which TSS raw data is purged.
- <processedDataPurgeInDays>1095</processedDataPurgeInDays> Days after which rolled up TSS data, 511, DMS message, and travel time data are purged.
- <emailRecipients> list of recipients to send purge and rollup completions
  - o <emailTo>emailAddress</emailTo> individual email addresses
  </emailRecipients>
- <ehConnectionPort>8002</ehConnectionPort> The port to which DA will connect to each host name in the config file to listen for process status updates.

3.10.4.10.12 **Incident Detection Subsystem**

The Incident Detection Subsystem (IDS) has the following custom configuration parameters:

- <liveImagePath>\\citius-ad04\jpeg</liveImagePath> Location of live image files.
- <liveImagePrefix>camera_</liveImagePrefix> Prefix of live image file names.
- <liveImageType>jpeg</liveImageType>The file extension of images generated by the Citilog camera server
- <incidentImagePath>\\citius-ad04\jpeg</incidentImagePath> Location of incident image files.
- <incidentImagePrefix>camera_alarm_</incidentImagePrefix> Prefix of incident image file names.
- <incidentImageType>bmp</incidentImageType> Incident image raster type; currently only "bmp" and "jpeg" supported.
- <disabledCameraMsgInterval>1</disabledCameraMsgInterval> The interval in minutes between operator notification when VisioPad cameras are disabled.
- <locationProximity>200</locationProximity> The proximity in feet for which external events are associated as local events to new incident alarms.
- <roadwayNodeProximity>500</roadwayNodeProximity>The proximity between a roadway link end node and start node to determine if the links are contiguous segments
- <userDefinedResolveActions> Optional list of actions that can be listed as reasons for a false alarm

---

- o <action>Test Action 1</action> Action that cold be used as a reason for a false alarm
- </userDefinedResolveActions>
- <autoSuggestBeacons>true</autoSuggestBeacons> Flag to determine if Beacons should be included in an automatically generated response plan.

3.10.4.10.12.1 **CitiLog Driver**

The CitiLog driver has the following custom configuration parameters:

- o <citilogServerHost>pascal</citilogServerHost> The name of the computer on which the Citilog server is running,
- o <citilogServerPort>33000</citilogServerPort> The port on which the Citilog server is communicating.
- o <pulseRate>20</pulseRate> The number of seconds between communications to the device.

3.10.4.10.12.2 **TSS Alarm Driver**

The IDS TSS Alarm driver has the following custom configuration parameters:

- <username>IdsTssDriver</username> User name for driver to log into this subsystem.
- <password>X03MO1qnZdYdgyfeuILPmQ==</password> Encrypted password for the username.
- <settlingTime>0</settlingTime> The number of seconds to wait for a detector to settle before trigerring any alarms.
- <minVolumeForAlert>0</minVolumeForAlert> The minimum volume needed for an alert to be sent, if one should.

3.10.4.10.12.3 **Weather Alert Driver**

The IDS Weather Alert driver has the following custom configuration parameters:

- <weatherContact> Contains information about the external weather alert source.
  - o <serverLocation> URL of the weather alert web service and method.</serverLocation>
  - o <agency>DTN</agency> Agency passed to EM when creating event from weather alert. Value must exist in EM Agency DB.
  - o <contact>DTN</contact> Contact passed to EM when creating event from weather alert. Value must exist in EM Contact DB.
- </weatherContact>
- <pollingTime>15</pollingTime> The time in seconds between DTN web service accesses.
- <commentType>Data</commentType>Value for a required Operator Map field supplied with alerts.
- <counties> List of counties for which weather alerts should be provided; sent to DTN web service as a parameter.

- o <county>Indian River</county>
  - o <county>St Lucie</county>
  - o <county>Martin</county>
  - o <county>Palm Beach</county>
  - o <county>Broward</county>
  - o <county>Baker</county>
- </counties>
- <alerts> Weather alert types published by DTN; used by driver to filter what alert types are send to subsystem as new alerts.
  - o <alert>Tornado warning</alert>
  - o <alert>Tornado watch</alert>
  - o <alert>Tornado</alert>
  - o <alert>Severe thunderstorm warning</alert>
  - o <alert>Severe thunderstorm watch</alert>
  - o <alert>Severe thunderstorm</alert>
  - o <alert>Flash flood warning</alert>
  - o <alert>Flood warning</alert>
  - o <alert>Flood watch</alert>
  - o <alert>Flood advisory</alert>
  - o <alert>Freezing precipitation advisory</alert>
  - o <alert>Fog advisory</alert>
  - o <alert>Fog</alert>
  - o <alert>Wind advisory</alert>
  - o <alert>High wind warning</alert>
  - o <alert>Light snow</alert>
  - o <alert>Rain</alert>
  - o <alert>Light rain</alert>
  - o <alert>Heavy rain</alert>
  - o <alert>Freezing rain</alert>
  - o <alert>Mixed precipitation</alert>
  - o <alert>Strong wind</alert>
  - o <alert>Strong wind gusts</alert>
  - o <alert>Severe hail</alert>
  - o <alert>Hurricane</alert>
  - o <alert>Tropical storm</alert>
  - o <alert>Tropical depression</alert>
- </alerts>

3.10.4.10.12.4 External Event Driver

The IDS External Event driver has the following custom configuration parameters:

- o <extEventContact> Contains information about the external event source.
  - ▪ <serverLocation> URL of the external event web service and method.</serverLocation>
  - ▪ <agency>FHP</agency> Agency passed to EM when creating event from external source. Value must exist in EM Agency DB.

- <contact>FHP</contact> Contact passed to EM when creating event from external source.Value must exist in EM Contact DB.
  - o </extEventContact>
  - o <pollingTime>20</pollingTime> The frequency with which to check for updates.
  - o <commentType>Data</commentType> Value for a required Operator Map field supplied with alerts.

3.10.4.10.12.5 **FHP Incident Driver**

The IDS FHP Incident driver has the following custom configuration parameters:

- <commentType>Data</commentType>Value for a required Operator Map field supplied with alerts.
- <extEventContact> Contains information about the external event source.
  - o <agency>FHP</agency> Agency passed to EM when creating event from external source. Value must exist in EM Agency DB.
  - o <contact>FHP</contact> Contact passed to EM when creating event from external source.Value must exist in EM Contact DB.
- </extEventContact>
- <counties> List of counties for which FHP incidents should be provided; sent to FHP Incident server as a parameter.
  - o <county>Indian River</county>
  - o <county>St Lucie</county>
  - o <county>Martin</county>
  - o <county>Palm Beach</county>
  - o <county>Broward</county>
  - o <county>Baker</county>
- </counties>
- <roadways> Optional list of roadways for which FHP incidents should be provided; sent to FHP Incident server as a parameter.
  - o <roadway>SR9</roadway>
  - o <roadway>SR91</roadway>
  - o <roadway>I95</roadway>
- </roadways>
- <updates> An optional list of updates to subscribe to.
  - o <update>updateType</update>
- </updates>
- <providers> Contains a list of incident providers. The FHP Incident server is the only incident provider currently in use.
  - o <provider> Contains information about the provider to which the driver will connect.
    - <identifier>fhp</identifier> Required identifier.
    - <host>serverName</host> Name or IP address of computer where this provider is running.
    - <port>42124</port> Port this provider is listening for client connections.

- ▪ <providerType>fhp</providerType> Required value.
        - ▪ <username>District 4</username> User name for driver to log into this provider.
        - ▪ <password>X03MO1qnZdYdgyfeuILPmQ==</password> Encrypted password for the username.
    - o </provider>
- • </providers>

3.10.4.10.12.6 **Safety Barrier Alarm Driver**

The IDS SB Alarm driver has the following custom configuration parameters:

- • <sbEventContact> Contains information about the SB source
    - o <agency>Safety Barrier</agency> Agency to use when creating event based on SB alerts
    - o <contact>SB</contact> Contact first name at the agency from above
- • </sbEventContact>

3.10.4.10.12.7 **RWIS Alarm Driver**

The IDS RWIS Alarm driver has the following custom configuration parameters:

- • <username>idsSbDriver</username> username used by the SB Alar m Driver to authenticate to Safety Barrier Subsystem
- • <password>X03MO1qnZdYdgyfeuILPmQ==</password> password used the user from above

3.10.4.10.12.8 **WAZE Alarm Driver**

The IDS WAZE Alarm driver has the following custom configuration parameters:

- • <commentType>General</commentType>The comment type to use when logging alarm information to an event's chronology. This should reflect a comment type that is configured in your system.
- • <extEventContact>Contact information used when creating event's from the alarm information.
    - o <agency>WAZE</agency>The Waze agency's short name
    - o <contact>WAZE</contact>The Waze agency contact's first and last name
- • <feedUrl>The web service URL for the Waze feed
- • <district>Statewide</district>The district identifier used to filter data from the Waze feed
- • <alertOn>The different types of feed changes to create alerts for. Add each tag below where alerts should be created
    - o <type>New</type>
    - o <type>Update</type>
    - o <type>Closure</type>

3.10.4.10.12.9 **Wrong Way Detection Alarm Driver**

The IDS Wrong Way Detection Alarm driver has the following custom configuration parameters:

- <commentType>Data</commentType>The comment type to use when logging alarm information to an event's chronology. This should reflect a comment type that is configured in your system.

3.10.4.10.13 **IDS FHP Interface Server**

The IDS FHP Interface Server has the following custom configuration parameters:

- <retrieveInterval>30</retrieveInterval>Time in seconds between polls of the FHP FTP site for updated incident data.
- <staleAlertThreshold>12000</staleAlertThreshold>Time in seconds before lack of updates from the FTP site will generate an alert to connected clients.
- <staleAlertIntervalMultiplier>1</staleAlertIntervalMultiplier>Multiplier for consecutive failed retrieval attempts before an alert is sent to connected clients.
- <ftpServer> Parameters for accessing the FHP CAD FTP site.
  - <host>pythagoras</host>The name of the computer on which the FHP FTP server running (DNS name, qualified as necessary, or the IP address).
  - <port>21</port> Optional port on which the FTP site is listening (defaults to the standard value of "21".
  - <username>sunguide</username> The User ID used for logging into the FTP server.
  - <password>floridad0t</password> Password to be used with the User ID.
  - <localDir>c:\fdot\fhp</localDir> Local folder where downloaded FHP CAD data files are stored.
- <users>
  - <user>
    - <username>District 4</username> The User ID used for requesting FHP incidents from the server by a SunGuide deployment .
    - <password>HqTAo7KC0u36Tik3WRvZNg==</password> Password to be used with the User ID.
  - </user>

3.10.4.10.14 **Reporting Subsystem**

The Reporting subsystem has the following custom configuration parameters:

- <rptFilePath>archimedes\FDOT\RS\SunguideReportFiles</rptFilePath> Path for the template files provided by FDOT Central Office
- <customRptFilePath>archimedes\FDOT\RS\SunguideCustomReportFiles</customRptFilePath> Path for the template files created specifically for the local installation
- <reportExportFilePath>archimedes\FDOT\RS\SunguideExportReportFiles</reportExportFilePath> Path for the export of reports
- <chronologyReport></chronologyReport> The name of the chronology report.
- <vehicleLocationReport>Vehicle_GPS_Location_Report.rpt</vehicleLocationReport> The name of the vehicle GPS location report.

- <reportDatabase> Optional database connection information to specify an alternate database for report data. If not specified, the primary database will be used.
  - <type>sqlserver</type>The type of database used for Status Logger. Valid values are 'oracle' or 'sqlserver'.
  - <host>dbServer</host>: This is the IP Address or DNS Name of the Machine running the database
  - <port>1521</port>: Port the Database is listening for incoming connections. Oracle default port is 1521. SQL Server default port is 1433
  - <databaseName>sgdb</databaseName>: Name of the database on the actual server
  - <user>sunguide</user>: user account established for internal system use.
  - <password>floridad0t</password>: established password for internal account.
- </reportDatabase>
- <maxRunningReports>5</maxRunningReports> Maximum number of reports that can be generated simultaneously.
- <finishedReportLifespan>4</finishedReportLifespan> Maximum amount of time, in hours, that a finished report will remain in the report queue.
- <vehicleLocationReport>Vehicle_GPS_Location_Report.rpt</vehicleLocationReport> The name of the vehicle GPS location report

3.10.4.10.15   Event Management Subsystem

The Event Management subsystem has the following custom configuration parameters:
- <emailFrom>admin@somehost.com</emailFrom> Return email address to use on response plan emails
- <emailSubjects> A list of email subjects to be used allowed for use by email items in a response plan.
  - `<subject>Cleared</subject>` One of the allowed subjects.
- </emailSubjects>
- <noMatchTags>A list of involved vehicle tags that the system will not attempt to find matches for
  - <tag>Add an entry for each involved vehicle tag you would like to exclude
- <saeCodes>1494 205 203 … </saeCodes> List of FDOT-modified SAE event codes ordered by importance. NOTE: The codes and their ordering should be consistent with those in the current FDOT-modified SAE code spreadsheet, unless there is an explicit need to use a different order.
- <applyAbbreviations>true</applyAbbreviations> Flag indicating if abbreviations will be applied to suggested messages generated by EM (Default: true).
- <dmsSearchAlgorithmName>link-map</dmsSearchAlgorithmName>
- <limitMessagesToOnePhase>true</limitMessagesToOnePhase> Flag indicates whether or not formatted messages should truncate words before specified newlines when words do not fit on a row. When set, only single pages are allowed (Default: true).
- <useLongNameInEmail>false</useLongNameInEmail> If true, email generated in response plans will use the long name of the reference point and the description of the roadway as the pregenerated email message.

- <useCountyLongNameInEmail>false</useCountyLongNameInEmail> If true, email generated in response plans will use the long name of the county in the pregenerated email message.
- <allowUnconfirmedLaneBlockages>true</allowUnconfirmedLaneBlockages> Indicates whether or not unconfirmed lane blockages are allowed.
- <suggestedDMSMessageDurationSecs>3600</suggestedDMSMessageDurationSecs> The duration that will be given to DMS messages that are suggested by the RPG Subsystem.
- <suggestedHARMessageDurationSecs>3600</suggestedHARMessageDurationSecs> The duration that will be given to HAR messages that are suggested by the RPG Subsystem.
- <suggestedDMSMessagesUseBeacons>false</suggestedDMSMessagesUseBeacons> Flag indicating if the RPG Subsystem should enable beacons in its DMS suggestions.
- <suggestedHARMessagesUseBeacons>true</suggestedHARMessagesUseBeacons> Flag indicating if the RPG Subsystem should enable beacons in its HAR suggestions.
- <suggestedResponsePlanConfiguration> Indicates which response plan items may be suggested.
  - <email>true</email> True if email response plan items can be suggested.
  - <dms>true</dms> True if DMS response plan items can be suggested.
  - <har>true</har> True if HAR response plan items can be suggested.
  - <tam>true</tam> True if TAM response plan items can be suggested.
  - <beacon>true</beacon> True if Beacon response plan items can be suggested.
- </suggestedResponsePlanConfiguration>
- <toleranceAngle>60</toleranceAngle> The angle to use to determine the starting point when using the link-map algorithm.
- <toleranceRadius>0.1</toleranceRadius> The maximum distance a device may be from an event to be automatically selected as the starting point when using the link-map algorithm.
- <ATISSeverityConfig> The maximum blockage values for the ATIS event severity thresholds.
  - <minorThreshold>
    - <maxValue>25</maxValue>
  - <intermediateThreshold>
    - <maxValue>50</maxValue>
- <dmsProximityConfig> The number of miles to use when searching for DMS devices to include in a generated suggested response plan. The number of miles is defined per severity. Severity is determined by percentage of lanes blocked and presence of hazardous materials.
  - <severe>80</severe> The number of miles to use when searching for DMS devices for a severeevent.
  - <moderate>35</moderate> The number of miles to use when searching for DMS devices for amoderate event .
  - <minor>15</minor> The number of miles to use when searching for DMS devices for a minorevent.
- <harProximityConfig> The number of miles to use when searching for HAR devices to include in a generated suggested response plan. The number of miles is defined per

severity. Severity is determined by percentage of lanes blocked and presence of hazardous materials.
- o <severe>50</severe> The number of miles to use when searching for HAR devices for a severe event.
- o <moderate>25</moderate> The number of miles to use when searching for HAR devices for a moderate event.
- o <minor>10</minor> The number of miles to use when searching for HAR devices for a minor event.
- <tamProximityConfig> The number of miles to use when searching for Connected Vehicle RSE devices to broadcast a Traveler Advisory Message to in a generated suggested response plan. The number of miles is defined per severity. Severity is determined by percentage of lanes blocked and presence of hazardous materials.
  - o <severe>50</severe> The number of miles to use when searching for RSE devices for a severe event.
  - o <moderate>25</moderate> The number of miles to use when searching for RSE devices for a moderate event.
  - o <minor>10</minor> The number of miles to use when searching for RSE devices for a minor event.
- <eventSeverityConfig> Defines the percentage of lanes that must be blocked before an event is considered a particular severity. If the event is below the moderate threshold, then it will be considered minor. The calculation of percentage of lanes blocked considers only lanes with the same heading as the direction of the event.
  - o <severe>50</severe> The minimum percentage of blocked lanes for a severe event.
  - o <moderate>25</moderate> The minimum percentage of blocked lanes for a moderate event.
- <distanceSuffix> MI AHEAD</distanceSuffix> text to be displayed after the distance tag in a response plan template, assuming the distance is over 1 mile
- <distanceUnderOneText>UNDER 1 MI AHEAD</distanceUnderOneText> text to be displayed instead of the distance tag when the distance is less than 1 mile
- <presentationRegionOffset>1000</presentationRegionOffset> Width, in feet, of the presentation region automatically generated for response plans
- <presentationRegionAngleThreshold>60</presentationRegionAngleThreshold>Angle difference at which an automatically generated TAM will create a new presentation region
- <executiveNotification> handles parameters to for executive notification
  - o <commentType>Exec Notification</commentType> Comment Type that should trigger an automatic executive notification
  - o <emailList>execNotification@sample.com</emailList> Email where the executive notifications should be sent
  - o <emailTemplate> \\server\fdot\execNotificationTemplate.xml </emailTemplate> Format of the email to be sent
  - o <notificationInterval>120</notificationInterval> Minimum time between automatic notifications
  - o <fullClosureInterval>60</fullClosureInterval> Minimum amount if time an event should have "Closed" lane blockage before an email is sent

- </executiveNotification>

3.10.4.10.16   **AVL/RR Subsystem**

The AVL/RR subsystem has the following custom configuration parameters:

- <vehicleHistoryRetentionDays>7</vehicleHistoryRetentionDays> The number of days to retain vehicle history data in the database. If zero, the data will be retained indefinitely. Data is purged daily between midnight and 1 a.m.
- <roadwayProximity>300</roadwayProximity. The maximum distance in feet to use in roadway and street name lookups.

3.10.4.10.16.1 **Road Ranger XML Driver**

The Road Ranger XML driver has the following custom configuration parameters:

- <pulseRate>30</pulseRate> Stores the pulse interval (in seconds) for which the driver sends status request messages to connected devices.
- <proxyMode>true</proxyMode> If true, the district has a proxy server (addressed via 'proxyIp' and 'proxyPort') which acts as an intermediary between the driver and the devices. If false, the driver communicates directly with the devices, and 'proxyIp' and 'proxyPort' are not required.
- <proxyIp>129.162.101.129</proxyIp> The IP or URL of the proxy server, if required.
- <proxyPort>8010</proxyPort> The port on which the proxy server communicates, if required.

3.10.4.10.16.2 **SPARR Driver**

The AVL SPARR driver has the following configuration parameters:

- <username>avlrrsubsystem</username> The username used by the AVL/RR subsystem.
- <webServiceName>SparrWebService</webServiceName> The name of the Web Service to use in the Web Service URL.
- <webServicePort>41555</webServicePort>Port that the web service will be listening on.
- <useSSL>false</useSSL> Flag determining if the web service will use SSL.
- <sparrDatabaseConfiguration>SQLite Database configuration. Note that template and live databases shouldn't be in the same path unless the filenames are different.
    - <databaseConfiguration id="avlrr"> AVL/RR database
        - <templateDatabase>\\server\FDOT\sparr\db\template\sparr-avl.db</templateDatabase>
        - <liveDatabase>\\server\FDOT\sparr\db\live\sparr-avlrr.db</liveDatabase>
    - <databaseConfiguration id="em"> Event Management database
        - <templateDatabase>\\server\FDOT\sparr\db\template\sparr-em.db</templateDatabase>
        - <liveDatabase>\\server\FDOT\sparr\db\live\sparr-em.db</liveDatabase>
- <sparrConfiguration>

- o <contactList>Contacts that the Phone Application will be able to call.
  - ▪ <contact> A contact the Phone Application will be able to call. This item may be repeated multiple times.
    - • <name>Jenny</name> The name of a contact listing.
    - • <number>8675309</number> The number to call for that contact.
- o <dbUpdateDelay>100</dbUpdateDelay> How long, in milliseconds, the phone application should wait between noticing a database update has occurred and requesting the updated data. Setting this value to a higher number allows multiple changes to be made to AVL or EM configuration without requiring field devices to request updated databases after each change.
- o <positionUpdateFrequency>100</positionUpdateFrequency> How often, in milliseconds, the phone application should report its GPS position.
- o <updateFrequency>100</updateFrequency> How often, in milliseconds, the phone application should poll the driver to see if new data is available.

3.10.4.10.17 Pricing Subsystem

The Pricing subsystem has the following custom configuration parameters:
- • <tollAuthWebSvcUrl>http://10.100.14.62:18080/VRTMW/rateQuery</tollAuthWebSvcUrl> URL of the FTE Middleware web service.
- • <tollAuthRespAlertInterval>0:30</tollAuthRespAlertInterval> The elapsed time in minutes and seconds before a Middleware failure causes an alert to be generated; in effect the Middleware retry timer value.
- • <tollAuthHeartbeatInterval>0:30</tollAuthHeartbeatInterval> The time interval in minutes and seconds between Middleware communication attempts.
- • <numPreviousDaysRates>1</numPreviousDaysRates> The number of days of historical rate information to keep in local cache.
- • <numFutureDaysRates>1</numFutureDaysRates> The number of days to create upcoming rate information for.
- • <nonTODAlertInterval>90</nonTODAlertInterval> The time interval in seconds between non-TOD alerts being sent to the operator GUI.
- • <dailyLogTime>02:00:00</dailyLogTime>The time of day to generate the report logs and send the discrepancy e-mail of the previous days operation
- • <dailyLogDirectory>C:\TollPricingLogs</dailyLogDirectory>The directory to store the daily report logs.
- • <dailySynchronizationTime>02:00:00</dailySynchronizationTime> Daily time when a file is generated with rates that were not sent to Middleware.
- • <offlineSynchronizationDirectory>C:\TollSync</offlineSynchronizationDirectory> Folder where the synchronization files will be logged.
- • <emailContacts>List of contacts to send the discrepancy reports to.
  - o <contact>xxx@xxx.xxx</contact>

3.10.4.10.18 Connected Vehicle Subsystem

The Connected Vehicle subsystem has the following custom configuration parameters:
- • <archiveData>true</archiveData> If true, achive to BSM and Probe data

- <rseRadius>10</rseRadius> Number of miles an RSE can be away from a presentation region and still be included automatically

3.10.4.10.18.1 **Connected Vehicle Driver (J2735)**

The Connected Vehicle driver has the following custom configuration parameters:

- <snmpPollTimeMS>5000</snmpPollTimeMS>Snmp Poll time to RSE devices in milliseconds
- <snmpSlowPollTimeMS>30000</snmpSlowPollTimeMS> Snmp slow poll timein milliseconds
- <snmpTimeout>2000</snmpTimeout> Timeout value in milliseconds
- <viiPocBsmPort>40040</viiPocBsmPort> port to listen for BSM data for the VIIPOC Protocol
- <viiPocPvdPort>40041</viiPocPvdPort>port to listen for PVDM data for the VIIPOC Protocol
- <r200911BsmPort>40030</r200911BsmPort> port to listen for BSM data for the 2009-11 Protocol
- <r200911PvdPort>40031</r200911PvdPort>port to listen for PVDM data for the 2009-11 Protocol
- <snmpStatusPort>161</snmpStatusPort> Port to communicate status from the RSEs
- <snmpCommunityName>public</snmpCommunityName> Community Name used for TAMs
- <snmpStatusLogTimeMS>30000</snmpStatusLogTimeMS> Status log time for SNMP poll cycle in milliseconds
- <bsmFilterIntervalMS>500</bsmFilterIntervalMS> Interval at which the same BSM will be ignored in milliseconds
- <agencyId>10001</agencyId> Agency Id, used when sending data to an RSE
- <taCategory>12289</taCategory> TAM category
- <tamBroadcastIntervalMS>2000</tamBroadcastIntervalMS> Frequency to broadcast TAMs in milliseconds
- <logRawData>false</logRawData> Whether to log raw data received (PVD/BSM)
- <sdn>
  - <enabled>false</enabled> If true, forwards data to the SDN
  - <id>Oak Ridge</id> SDN Id
  - <X509PrivateKey>RootCATest.cer</X509PrivateKey> certificate name
  - <pdsEndpoint>http://12.172.124.74:8080/sdn/services/ManageProbeDataMessage Subscription</pdsEndpoint> location to forward probe data
  - <amdsEndpoint>http://12.172.124.74:8080/sdn/services/ManageAdvisoryMessag eDelivery</amdsEndpoint> location to forward TAMS
- <sdnProbeForward>
  - <enabled>false</enabled> If true, forward PVDM data
  - <ipAddress>12.168.58.73</ipAddress> UDP address to forward data
  - <port>2509</port> UDP port to send data

3.10.4.10.19 **Data Archive RITIS**

The DAR subsystem has the following custom configuration parameters:

- <ritisFtpHost>ritisFtpHost</ritisFtpHost> Host of the RITIS FTP
- <ritisFtpPort>21</ritisFtpPort> Port fot the RITIS FTP
- <ritisUsername>ritis_ftpuser</ritisUsername> FTP username
- <ritisPassword>password</ritisPassword> FTP Password
- <ritisXmlPath>C:\local_xml_temporary_storage</ritisXmlPath> Local folder on the file system to store updates until they can be zipped for delivery to the FTP
- <ritisZipPath>C:\local_zip_storage</ritisZipPath> Folder to store the undelivered zip files in case the FTP is inaccessible
- <pollIntervalSeconds>60</pollIntervalSeconds> Seconds to wait until the locally stored files should be sipped and sent to the FTP
- <ftpAlertThreshold>60</ftpAlertThreshold> The number of minutes before DAR will begin sending emails warning that the connection to the remote FTP is down.
- <ftpAlertInterval>60</ftpAlertInterval>The interval (in minutes) of how frequently DAR should notify that the connection to the FTP has been lost.
- <notificationList> The list of email addresses that should receive notifications when the FTP site connection is down for longer than the alert threshold.
  - o <email>address@server.com</email> A valid email address that should receive email alerts.
- </notificationList>

3.10.4.10.20 **Variable Speed Limit Subsystem**

The Variable Speed Limit subsystem has no custom configuration parameters.

3.10.4.10.21 **INRIX Publisher**

The INRIX Publisher has the following custom configuration parameters:
- <updateSeconds>120</updateSeconds> Period between data fetch from INRIX web service.
- <c2cProviderHost>Server1</c2cProviderHost> C2C Provider host address.
- <c2cProviderPath>Inrix/Provider</c2cProviderPath> C2C Provider path and web service.
- <primaryPath>http://na.api.inrix.com/V3/Traffic/Inrix.ashx</primaryPath> URL of the INRIX web service.
- <vendorId>743011617</vendorId> INRIX-provided vendor ID.
- <consumerId>2d80f7c2-28d8-49bb-be64-5a44f2f8474b</consumerId> INRIX-provided consumer ID.
- <inrixNetworkId>District 4 Inrix</inrixNetworkId> C2C Network ID that will be used for published data. Should be local Center ID with "INRIX" appended.
- <inrixNetworkName>District 4 Inrix</inrixNetworkName>C2C Network Name that will be used for published data.
- <tmcSetIds> A list of TMC set IDs to provide to the Inrix web service in order to retrieve a specific set of data.

- o <tmcSetId>1782242642</tmcSetId> A TMC set ID that represents a group of TMC codes to retrieve data for.
- </tmcSetIds>
- <counties> List of counties used to filter INRIX links.
  - o <county>Hernando</county>
  - o <county>Sumter</county>
- <tmcPathFile>c:/navteq/I95TmcLocation.dat</tmcPathFile> Full path file name of INRIX-provided TMC Location file.
- <minVertexLength>35</minVertexLength> Minimum distance, in feet, between added adjacent midpoints.
- <confidenceThreshold>20</confidenceThreshold> Minimum confidence value of INRIX speed data to be published.
- <cachedLinksFile>\\server\fdot\cachedLinks.dat</cachedLinksFile> The full path of the cached links file.

3.10.4.10.22 Beacon Management Subsystem

The Beacon Management Subsystem has the following custom configuration parameters:
- <usageHistoryDays>5</usageHistoryDays> Number of days to keep beacon usage data in the database.

3.10.4.10.23 BlueToad Publisher

The BlueToad Publisher has the following custom configuration parameters:
- <historicalDataUpdates> The number of historical data udates to cache.
- <maxWaypoints> The maximum number of waypoints to use per link
- <updateSeconds> The number of seconds between each request for data
- <c2cProvider> The host machine where the C2C Provider web service is running
- <c2cProviderPath> The path on the host machine to find the C2C Provider service at
- <bluetoadService> BlueToad web service configuration parameters
  - o <username>The username to use when logging into an external process (Subsystem, API, Database, etc.).
  - o <password>The password to use when logging into an external process (Subsystem, API, Database, etc.).
  - o <schema>The HTTP protocol to use.
  - o <domain>The domain where the BlueToad service is located.
  - o <loginPath>The path to the BlueToad login service.
  - o <pairingPath>The path to the BlueToad pairing web service.
  - o <devicesPath>The path to the BlueToad devices web service.
  - o <travelDataPath>The path to the BlueToad travel data web service.
  - o <odPairConfig>The path to the OD pair configuration web service.
  - o <odPairStatus>The path to the OD pair status web service.
- <linkConfigFile>The path to the BlueToad configuration file to use.
- <bluetoadNetworkId>The ID of the BlueToad network.
- <bluetoadNetworkName>The name of the BlueToad network.

3.10.4.10.24 **Nokia Publisher Subsystem**

The Nokia Publisher has the following custom configuration parameters:
- <updateSeconds>120</updateSeconds> Period between data fetch from Nokia web service.
- <c2cProviderHost>Server1</c2cProviderHost> C2C Provider host address.
- <c2cProviderPath>Inrix/Provider</c2cProviderPath> C2C Provider path and web service.
- <feedLocation>url</feedLocation> URL of the Nokia web service.
- <feedUsername>username</feedUsername> Nokia-provided username.
- <feedPassword>password</feedPassword> Nokia-provided consumer ID.
- <nokiaNetworkId>District 4 Nokia</nokiaNetworkId> C2C Network ID that will be used for published data. Should be local Center ID with "Nokia" appended.
- <nokiaNetworkName>District 4 Nokia</nokiaNetworkName>C2C Network Name that will be used for published data.
- <counties> List of counties used to filter Nokia links.
  - <county>Hernando</county>
  - <county>Sumter</county>
- <tmcPathFile>c:/navteq/I95TmcLocation.dat</tmcPathFile> Full path file name of INRIX-provided TMC Location file.
- <cachedLinksFile>path</cachedLinksFile> The full path of the cached links file.
- <minVertexLength>35</minVertexLength> Minimum distance, in feet, between added adjacent midpoints.
- <confidenceThreshold>20</confidenceThreshold> Minimum confidence value of Nokia speed data to be published. Value should be 0-100.
- <allowEmptyCountyList>true</allowEmptyCountyList> If set to true, will allow the counties list to be empty.

3.10.4.10.25 **Managed Lanes (MLS)**

The MLS subsystem has no custom configuration parameters.

3.10.4.10.25.1 **MLS NTCIP Driver**

The MLS NTCIP driver has the following custom configuration parameters:

- <rapidPollCycleSeconds>10</rapidPollCycleSeconds> The frequency, in seconds, between poll requests during a rapid poll cycle.
- <rapidPollCycleDurationMinutes>5</rapidPollCycleDurationMinutes> The length of time (in minutes) for the driver to continue rapid polling a device.
- <failedPollCycleMultiplier>1</failedPollCycleMultiplier> The multiplier to increase the poll cycle by while a device is in a failed state.
- <oidsBulkSize>4</oidsBulkSize> The number of OIDs to send in a single packet.

3.10.4.10.26 **Truck Parking (TPS)**

The TPS Subsystem has the following custom configuration parameters:
- <tpsUpdateFreqInSecs>5</tpsUpdateFreqInSecs> The number of seconds between updates to parking availability
- <dmsUpdateFreqInSecs>5</dmsUpdateFreqInSecs> The number of seconds between updates to DMS messages for parking availability.
- <dmsMsgPriority>250</dmsMsgPriority> The priority of messages sent to DMS signs.
- <shouldPublishDmsMsgs>true</shouldPublishDmsMsgs> Indicates whether TPS should publish DMS messages for parking availability.

3.10.4.10.27 **Traffic Control Subsystem (TCS)**

The TCS subsystem has the following custom configuration parameters;

- <routePlanExpirationMins>60</routePlanExpirationMins> The interval, in seconds, that the Naztec web service will be polled.

3.10.4.10.27.1 **Naztec Driver**

The Naztec driver has the following custom configuration parameters:

- <pollTimeSec>30</pollTimeSec> The frequency, in seconds, between poll requests during a rapid poll cycle.
- <webService>
  - <baseUrl>http://naztecserver:17055/</baseUrl> The base URL where all web pages are available.
  - <getControllersPage>SunGuideGetCtrlList.aspx</getControllersPage> The web page to retrieve the controller information from.
  - <getTimingPlansPage>SunGuideGetTimingPlan.aspx</getTimingPlansPage> The web page to retrieve the timing plan information.
  - <activateTimingPlanPage>SunGuideActivateTimingPlan.aspx</activateTimingPlanPage> The web page to activate timing plans.
  - <timingPlanParameterName>PlanID</timingPlanParameterName> The parameter name to use when activating a timing plan.
- </webService>

3.10.4.11 Toll Viewer

The Toll Viewer web application retrieves settings from a standard file named "web.config". The settings are defined as "key" and "value" attributes of <add> elements within the <appSettings> element.
- URL of the web service used to retrieve database content:
  - key="TollVIewerSvc.TollViewerSvc"
  - value=http://pythagoras.dyn.datasys.swri.edu/TollViewerWebSvc/TollViewerSvc.asmx
- Required time format types (The following Time keys are used as "values" in "timeFormat" configuration to override/set the global display format of all Time fields in the Toll Viewer web application.):

- o key="time_AmPm"; value="h:mm:ss tt"
- o key="time_24mm"; value="HH:mm"
- Required date format types (The following Date keys are used as "values" in "dateFormat" configuration to override/set the global display format of all Date fields in the Toll Viewer web application.):
  - o key="date_Dash"; value="MM'-'dd'-'yyyy"
  - o key="date_YMD"; value="yyyyMMdd"
  - o key="date_Coln"; value="MM':'dd':'yyyy"
  - o key="date_FrSl"; value="MM'/'dd'/'yyyy"
  - o key="date_BkSl"; value="MM'\'dd'\'yyyy"
- Time and date format overrides(Used to set the global display format of all Time and Date fields in the Toll Viewer web application.):
  - o key="timeFormat"; value="time_AmPm"
  - o key="dateFormat"; value="date_Dash"
- Image text and path to Static Map (The "SiteMapText" value is the actual text to be displayed in the Toll Viewer web application navigation bar that links to the static map image. The "StaticMapLink" value identifies physical path/location and name of the image file.):
  - o key="StaticMapText"; value="Static Map Link"
  - o key="StaticMapLink"; value="~/mapImages/I95 Device Locations – 2008-01-09.JPG"
- Optional switches:
  - o key="srtAllColumns"; value="true" (When set to true this switch allows the Ascending and Descending sort icon images to be placed on all data view tables at the same time. When set to false the, sort icon images only appear at the most reciently sorted table column.)
  - o key="addScrollbars"; value="false" (When set to true this switch allows the User to select how many data rows to be displayed in each data view table and provides scroll bars in each data view for rows and columns that exceed the users selection.)
  - o key="showOvrdEffEndTime"; value="false" (This switch is set to false for this release in order to hide the Effective End Time column in the Overrides data view table of the Detail View.)
  - o key="applyScreenResolution"; value="false" (This switch should always be set to false for this release, and is included only for future enhancements of the screen resolution size that is currently set to 1024x780)
  - o key="sortGantryPrim"; value="true" (When set to true this switch causes all data view tables that contain a column entry for Gantry to be sorted first by Gantry and then by the column selected by the User or by the initialized sort column as described below.)
- Initial sort column for each data view (The following key/value settings allow initial sort configuration of data view tables with out requiring a change to application code or SQL queries.):
  - o key="iscTOLL_RATES"; value="TIMESTAMP"
  - o key="iscDMS_ATTEMPTS"; value="TIME_ACKNOWLEDGED"
  - o key="iscTOLL_RATE_ATTEMPTS"; value="TIME_SENT"

- o key="iscOVERRIDES"; value="START_TIME"
- o key="iscEVENTS"; value="START_TIME"

3.11 System Configuration

The final step in setup of a SunGuide installation is to run the configuration editors for the system. These editors are described in the SunGuide User manual. These editors are present in both the Administrative Editor and the Operator Map.

3.12 System Updates

Districts are encouraged to keep servers and workstations used to host SunGuide up to date with operating system patches and security hotfixes, and .NET updates and service packs. However, operating system service packs should be tested against SunGuide and approved before deployment to production systems. Note that .NET major version updates may be installed since they reside "side-by-side" with the major .NET version currently used by SunGuide.

4. Source Code Installation (For Development Purposes)

Installation of the SunGuide Software includes both installation of the COTS tools and SunGuidecustom source code on the host platform for software development and installation of theSunGuide executable programs and DLLs on the target system for operation.

4.1 Installation on Development Platform

In order to modify either the SunGuide custom software or the custom installation packages, it is necessary to install the COTS development tools and the source code for the SunGuide system.

4.1.1 COTS Development Tools Installation

Microsoft® Windows XPProfessional or higher version is installed on the development workstation using the operating system setup utility. When installation is complete, all service packs must be applied.

Microsoft® Visual Studio 2015 is installed on the development workstation using the compiler setup utility. The C++ and C# components must be installed at a minimum.

The Microsoft® Platform SDK, Windows Server 2008 SP1 Release, is installed on the development workstation using the SDK download utility available on the Microsoft web site. Only the Core SDK component of the Windows SDK is installed.

NetToolWorks SNMP .NET Version 1.4.2 is installed on the development workstation using the setup utility provided with the toolkit. The toolkit's licensing application must be run to enter a valid license key before the toolkit's library components can be distributed.

Pegasus Imaging CapturePRO Version 3 is installed on the development workstation using the setup utility provided with the toolkit. The toolkit's licensing application must be run to enter a valid license key before the toolkit's library components can be distributed. This component is optional.

FlexaraInstallShield® Version 2013 is installed on the development workstation.

DevExpress WPF Controls v13 is installed on the development workstation.

4.1.2 SunGuide Custom Software

The source files for the SunGuidecustom software must be installed on the development system in order to be modified or rebuilt.

4.1.2.1 Source Code Installation

The SunGuidesource code is installed on the development system by copying it from the distribution CD to the development system using Windows Explorer. Because the various projects that make up the SunGuide system software have interdependencies, all of the source code should be copied to the development workstation. Also, because the relative paths to the source code and support files are stored in the Visual Studio workspace and project files used to build the software components, the source files must be copied to the development system with the directory structure intact.

To install the source code on a development workstation, create a destination directory on the development system named **Projects\SunGuide\Source**, and copy the entire contents of the

\Source\SunGuide directory on the distribution CD to the destination directory on the development system.

4.1.2.2 Build Instructions

The various software components (DLLs and executables) that make up the SunGuide system are described in Section 2.2.2. Each of these components was built using the IDE that accompanies Microsoft® Visual Studio .NET. A Microsoft® Visual Studio .NET solution file (*.sln*) is provided on the distribution CD for building each of components that comprise the SunGuide system. Prior to building software components you must:

- Install the COTS development tools as described in Section 4.1.1.

- Install the SunGuidesource code as described in Section 4.1.2.1.

4.1.2.2.1 Building the Components

The solution files for each of the components described in Section 2.2.2 are listed in the following table.

Solution File	Component(s)
SunGuideAdmin.sln (C# Project)	SunGuideAdmin.dll
Activu SunGuide Service.sln (C# Project)	Activu SunGuide Service.exe
AmericanDynamicsDriver.sln (C# Project)	AmerDynDriverLib.dll AmerDynDriverSvc.exe
Avl.sln (C# Project)	AvlLib.dll AvlService.exe
BarcoDriverSvc.sln (C# Project)	BarcoDriverLib.dll BarcoDriverSvc.exe
Bms.sln (C# Project)	BmsLib.dll BmsService.exe
BlueToad.sln	BlueToadLib.dll BlueToadDataLib.dll BlueToadService.exe
C2cClientService.sln (C# Project)	C2cClientLib.dll C2cClientService.exe C2cEmLib.dll C2cSharedLib.dll
C2cServer.sln (C# Project)	C2cEmLib.dll C2cServerLib.dll C2cServerService.exe C2cSharedLib.dll
CctvService.sln (C# Project)	CctvLib.dll CctvService.exe

Solution File	Component(s)
ConfigEditorv2.sln (C# Project)	ConfigEditorv2.exe
Cvs.sln (C# Project)	CvsLibrary.dll
	CvsService.exe
CvTssDriver.sln (C# project)	CvTssDriverLib.dll
	CcTssDriverSvc.exe
DataArchive.sln (C# Project)	DataArchiveLib.dll
	DataArchiveService.exe
Dar.sln (C# Project)	Dar.exe
	DarLib.dll
DataBusService.sln (C# Project)	DataBusLib.dll
	DataBusService.exe
Em.sln (C# Project)	EmLib.dll
	EmService.exe
EventViewer.sln (C# Project)	EventViewer.dll
	OMInterface.dll
	Preprocessor.exe
ExecClientLib.sln (C# Project)	FDOT.ExecClientLib.dll
ExecutiveHandler.sln (C++ Projects)	FDOT.ExecHandlerDll.dll
	ExecHandlerEditor.exe
	ExecHandlerSvc.exe
	ExecHandlerViewer.exe
ExternalEventDriver.sln	IdsDataLib.dll
	ExternalEventDriverLib.dll
	ExternalDriverSvc.exe
FhpIncidentDriver.sln	FhpIncidentLib.dll
	FhpIncidentService.exe
	IdsDatalib.dll
HarDR2000Svc.sln (C# Project)	DR2000Lib.dll
	HarDR2000Svc.exe
HarService.sln (C# Project)	HarLibrary.dll
	HarService.exe
Ids.sln (C# Project)	IdsDataLib.dll
	IdsLib.dll
	IdsService.exe
ImsService.sln (C# Project)	ImsLib.dll
	ImsService.exe
Inrix.sln (C# Project)	C2cSharedLib.dll
	InrixLib.dll
	InrixService.exe
IpVideoSwitchSvc.sln (C# Project)	IpVideoSwitchLib.dll
	IpVideoSwitchSvc.exe

Solution File	Component(s)
ItsGenericLibrary.sln (C# Project)	FDOT.ItsGenericLibrary.dll
J2735Driver.sln (C# Project)	J2735DriverLib.dll ASN_200911.dll ASN_200911_WIN32.dll ASN_200911_WIN32_MGDLIB.dll ASN_VIIPOC.dll ASN_VIIPOC_WIN32.dll ASN_VIIPOC_WIN32_MGDLIB.dll J2735DriverService.exe
JupiterVwd.SLN (C# Project)	JupiterVwdService.exe JupiterVwdLibrary.dll
JupiterCanvas.sln (C# Project)	JupiterCanvasDriverService.exe JupiterCanvasDriverLibrary.dll
MasService.sln (C# Project)	MasLib.dll MasService.exe
McpManager.sln (C# Project)	McpControlLib.dll McpManagerLib.dll McpManagerSvc.exe
Mls.sln (C# Project)	MlsService.exe MlsLib.dll
NaztecDriver.sln (C# Project)	NaztecDriver.exe NaztecDriverLib.dll
Nokia.sln (C# Project)	C2cSharedLib.dll NokiaLib.dll NokiaService.exe
NotifyManager.sln (C# Projects)	NotifyMgrLib.dll NotifyManagerSvc.exe
NtcipDriver.sln (C# Project)	NtcipDriverServer.exe NtcipDriver.dll MlsDriverBase.dll
OMInterface.sln (C# Project)	OMInterface.dll
OperatorMap.sln (C# Project)	OperatorMap.exe OperatorMap.xbap libvlc.dll libvlccore.dll
ProbeFusionDriverSvc.sln (C# Project)	ProbeFusionDriverLib.dll ProbeFusionDriverSvc.exe
Ps.sln (C# Project)	PsLib.dll PsService.dll TollInterfaceLib.dll

Solution File	Component(s)
Rms170DriverSvc.sln (C# Project)	Rms170DriverLib.dll Rms170DriverSvc.exe
RRXMLDriver.sln (C# Project)	RRXMLDriverService.exe RRXMLLib.dll
RsService.sln (C# Project)	RsLib.dll RsService.exe
RtmsDriverSvc.sln (C# Project)	RtmsDriverLib.dll RtmsDriverSvc.exe
RwisAlarmDriver.sln (C# Project)	RwisAlarmDriverLib.dll RwisAlarmDriverService.exe
RwisDriverSvc.sln (C# Project)	RwisDriverLib.dll RwisDriverSvc.exe
RwisService.sln (C# Project)	RwisLib.dll RwisService.exe
Saa.sln (C# Project)	Saa.exe
Sas.sln (C# Project)	SasLib.dll SasService.exe
SbAlarmDriver.sln	SbAlarmDriverLib.dll SbAlarmDriverSvc.exe
SbDriverSvc.sln (C# Project)	SbDriverLib.dll SbDriverSvc.exe
SbService.sln (C# Project)	SafetyBarrierLib.dll SbService.exe
SPARRDriver.sln (C# Project)	GZipEncoder.dll SPARRDriverService.exe SPARRLib.dll SPARRWebServiceLib.dll
SpatialLib.sln (C# Project)	SpatialLib.dll
StatusLogger.sln (C++ Projects)	FDOT.StatusLoggerDll.dll StatusLogger.cpl StatusLogService.exe StatusLogViewer.exe
StatusLogClientLib.sln (C# Project)	FDOT.StatusLogClientLib.dll
SunGuideAdmin.sln (C# Project)	SunGuideAdmin.dll
Tcs.sln (C# Project)	TcsLib.dll TcsService.exe
Tps.sln (C# Project)	TpsLib.dll TpsService.exe

Solution File	Component(s)
TollViewer.sln (C# Project)	AppCode.dll App_WebReferences.dll App_Web_abc.dll App_Web_xyz.dll SortControl.dll TollViewerLib.dll TollViewerSvc.dll
Tps.sln (C# Project)	TpsLib.dll TpsService.exe
TssAlarmDriver.sln (C# Project)	IdsDataLib.dll TssAlarmDriverLib.dll TssAlarmDriverSvc.exe
Tss.sln (C# Project)	TssLib.dll TssService.exe
TvtService.sln (C# Project)	TvtLib.dll TvtService.exe
VisioPadDriver.sln (C# Project)	VisioPadDriverLib.dll VisioPadDriverSvc.exe
Vsl.sln (C# Project)	VslLib.dll VslService.exe
Vs.sln (C# Project)	VsLib.dll VsService.exe
VwsService.sln (C# Project)	VwsLibrary.dll VwsService.exe
WazeEventDriver.sln	IdsDataLib.dll WazeEventLib.dll WazeEventService.exe
WeatherAlertDriver.sln	IdsDataLib.dll WeatherAlertLib.dll WeatherAlertDriverSvc.exe
WebRelayDriver.sln	WebRelayLib.dll WebRelayService.exe
WsDOTDriverSvc.sln (C# Project)	WsDOT170TssDriverLib.dll WsDOTDriverSvc.exe

To build the components the following steps are performed.

1. Using Windows Explorer, locate the solution file for the component, located in the sub-folder for the component within the folder **Projects\SunGuide\Source** on the development workstation and double click on that file to start Microsoft® Visual Studio .NET using that solution file.

2. From the Build menu, select Configuration Manager and set the configuration to either Debug or Release for the solution. The output of the compiler (newly built library or executable) will be stored in either the **Debug** or **Release** subdirectory of the component depending on the configuration selected.

3. In the Solution Explorer window of the Microsoft® Visual Studio .NETIDE, select the solution (the top entry in the pane). Right click on the solution and select Build Solution to build the component(s) or Rebuild Solution to force a complete rebuild of the component(s).

4.1.3 SunGuide Custom Installation Package

A custom installation package was developed to install the SunGuideexecutables, DLLs and support files on target workstations. If it is necessary to modify or update the installation packages, the source files for the installation packages must be installed on the development system.

4.1.3.1 Source Code Installation

The SunGuideinstaller source code is installed on the development system by copying it from the distribution CD to the development system using Windows Explorer. Because the relative paths to the install source code and support files are managed by the InstallShield utility, the source files must be copied to the development system with the directory structure intact.

To install the source code on a development workstation, create a destination directory on the development system named **Installers\SunGuide**, and copy the contents of the **Installer** directory from the **Source** directory on the distribution CD to the **Installers\SunGuide** directory on the development system. This directory contains the InstallShield project for the SunGuide system installation package. It also contains the SunGuide executables, DLLs, and support files that are packaged and installed by the InstallShield installation package.

4.1.3.2 Build Instructions

Prior to building the installation package for the SunGuide system you must:

- Install the COTS development tools as described in Section 4.1.1.
- Install the SunGuide system installer source code as described in Section 4.1.3.1.

To build the installation package, the following steps are performed.

1. Using Windows Explorer, locate the InstallShield project file for the SunGuide system, **SunGuide.ism**, located in the directory **Installers\SG Installer** on the development workstation and double click on that file to start InstallShield DevStudio using that project file.

2. All SunGuide software packages must be built in the same relative source tree path using the Release build flags.

3. From the Releases category on the InstallShield IDE, select SINGLE_EXE_IMAGE under either x64 or x86, right click and select Build to rebuild the chosen installation package. The installation package will be built to **ISbin\<platform>\SINGLE_EXE_IMAGE\DiskImages\DISK1\Setup.exe**. Note that the additional files and folders with the installer are also required for a successful installation.

4.2 Installation on Target System

4.2.1 Custom Software Installation

Installation of the SunGuide system executable applications and DLLs on the target system is done using the SunGuide custom installation package. The procedure for doing this is described in the SunGuide Software Users Manual.

4.2.2 Target System Setup

Some aspects of the target system setup cannot be performed by the installation package. These activities are described in the following section.

4.2.2.1 Time Synchronization

Since the SunGuide system components reside on several servers and workstations, all logging status information to a central repository, it is important that the clocks on all machines are synchronized. In a Windows domain environment, all workstations and servers that are members of the domain will automatically be synchronized with the designated domain time controller. This domain time controller can then be synchronized with an external time source such as **time.microsoft.com** or **time.nist.gov**.

5. Notes

5.1 BiTrans Controller Communications Limitations

BiTrans B238-I4 driver: the BiTrans controller firmware only recognizes the following serial port settings (which implies that terminal severs must use this configuration when then are connected to this device):

- baud rate: 1200
- data bits: 8
- parity: even
- stop bits: 1

5.2 Barco/Argus Video Wall Driver

The current version of the Apollo software from Barco does not support the retrieval of the "current connections" through the Apollo Application Program Interface (API) when the SunGuide driver is started. Barco is working on a "fix" for this and once the Barco API is updated the SunGuide driver should work without modification.

5.3 Logging Levels and Debugging Mode

The information logging level and debugging mode SunGuide applications can be changed by editing the common configuration file and restarting the applications. The logging level of applications can also be changed dynamically using a feature of the Executive Handle Viewer. It is important to note that applications running in debugging mode and with debug or detail logging mode will take longer to respond than normal because of the extra information being displayed and logged. This can be especially noticeable when using the Admin Editor since requests for data from a subsystem will take longer to fulfill and may result in a timeout error.

5.4 Operator Map

The Operator Map requires that the Microsoft .NET Framework 4.0 at a minimum be installed on each client workstation to allow the WPF XAML to run.

5.5 Daylight Savings Time Adjustments

The change to the start and stop dates of DST will require some patches to the Java virtual machines used by SunGuide and Oracle. The following list summarizes the changes:

- None of the SunGuide applications need any changes; times are provided either by the OS (in the case of C/C++/C#) or the JVM.
- Operating System
  - Microsoft has a page where you can specify any OS and products you are using and determine patches that you will need: http://support.microsoft.com/dst2007/
- JVM: Java, since it uses internal timezone data, needs to be updated. Here is the page explaining: http://java.sun.com/developer/technicalArticles/Intl/USDST_Faq.html
  - Here's the link to download the update tool for Java JREs (JDK US DST Timezone Update Tool): http://java.sun.com/javase/downloads/index.jsp
  - Follow the instructions in the readme. Each app must be stopped before applying the patch.

- Database
  - Oracle, given that it runs a JVM, has issues. The fixes involve updating the JVM and Oracle timezone data: http://www.oracle.com/technology/pub/notes/daylight-saving-time-update-guide.html#2

5.6 American Dynamics Ultra 8 Camera

The American Dynamics Speed Dome Ultra VII camera that was used during development was running (the most recent version available) firmware version 2.03, dated January 24, 2006. According to AD, this is the most current version of the firmware.

The driver was tested against an American Dynamics Speed Dome Ultra 8 camera that was running firmware version 1.09, FPGA version 2006/10/31 15:18. Firmware updates for the American Dynamics Speed Dome Ultra cameras are available from at:

> http://www.americandynamics.net/support/downloads_speeddome.aspx

The American Dynamics CCTVs do not support all of the capability provided by a NTCIP CCTV. The features supported by the driver include:

- Pan
- Tilt
- Zoom
- Focus
- Iris
- Nudge pan
- Nudge tile
- Store preset
- Move to preset

Note that the "nudge" command is "backwards" on the Ultra 8, the vendor has verified that the version SwRI tests against has an error in the firmware.In order to ensure that that the cameras are functioning properly with the SunGuide system, they should be reset to factory default settings prior to installation. This is done using the SpeedDome Configuration utility (available from American Dynamics). For the Speed Dome Ultra VII, this is described in the "American Dynamics SpeedDome Ultra VII Day/Night Camera Dome Configuration Utility Operator's Manual". For the Speed Dome Ultra 8, this is described in the "American Dynamics SpeedDome Ultra 8 Camera Dome Configuration Utility Version 1.01 Operator's Guide". Both of these documents are available from at:

> http://www.americandynamics.net/support/documents_index.aspx?docType=7

Also, unless the cameras are installed in a multi-drop configuration, the address switches should be set to switch 1 = 1, switch 2 = 0, switch 3 = 0.

5.7 Externally Generated Snapshot Files

The IP Video Switch driver can be cofigured to read externally generated image files instead of generating images internally with the video capture hardware and driver. The image files must be placed in the folder named in the "snapshotDirectory" element of the IP Video Driver section of the configuration file, section **Error! Reference source not found.**. The files must be named using the following format:

"<Center ID>_<Device ID>.<File Type>", where

- "Device ID" specifies both a camera and a video source,

- "Center ID" is the value from the "centerId" element from the common section of the configuration file, and

- "File Type" matches the "fileType" element from the IP Video Driver section of the configuration file.

This functionality is enabled by setting the "useExternalFiles" element in the IP Video Driver section of the configuration file to "true" and the "externalFileType" element to the image file type to be read. Note that capturing snapshots with the video capture card and driver will be disabled while this setting is in use.

5.8 New Behavior of Video Switching

Shared displays are no longer displayed as an ordered list of destinations, but are instead displayed as a Virtual Video Wall. New installations and upgrades from versions prior to 3.1.1 will require configuration of the Virtual Video Wall to view and switch shared video destinations with Video Switching. This can be accomplished by logging into the Operator Map as a user with permission to configure video destinations, selecting VS | Virtual Wall Layouts from the context menu, and adding all shared video destinations to the wall as they are physically arranged.

5.9 FHP Interface Server Configuration

The FHP Interface Server application is intended to be installed once in a central location and provide FHP incident data to all SunGuide deployments via the IDS FHP Incident Driver. The default installation will the set the application, which runs as a Windows service, to start automatically on a system restart, and it will use a local "config.xml" file copied by the installer into the folder where the EXE file is located. The default location of the EXE is "c:\Program Files\Florida Department of Transportation\SunGuide\SubSystems\IDS\FhpinterfaceServer".

The configuration file contains values that will need to be edited before the application can be used. The edits include defining the location and usage credentials of the FHP FTP server and the list of users (i.e. SunGuide deployments) that will be subscribing for FHP incidents. The FHP Interface server settings are enclosed in the an element named "fhp", that is located in the "dataProviders" element. Section **Error! Reference source not found.**.

5.10 SPARR Installation and Configuration

5.10.1 SSL Configuration

The use of SSL for communication between the SPARR mobile app and the AVL SPARR driver can be enabled and disabled using a flag in the SunGuide configuration file. If SSL is to be used, support for it must be installed on the server hosting the SPARR driver. The files necessary to install the SSL support are in the "InstallSSL" folder of the distribution media.

Copy the "InstallSSL" folder to a local hard drive, and start the "InstallSsl.exe" application from the local folder by double-clicking on the application in the folder view. The following figures show the dialogs presented by the application.

Usage Notes:

- The "httpcfg" command, used for older systems, is in the "InstallSSL" folder.
- The "port" value requested by the application and mentioned in the steps below will be the same value as in SPARR Driver "webServicePort" parameter in the config file.

PLEASE NOTE: PHONES RUNNING ANDROID 5.0+ USING SSL MUST BE CONFIGURED TO RUN WITH WINDOWS SERVER 2008 AND HIGHER (TLS version support).
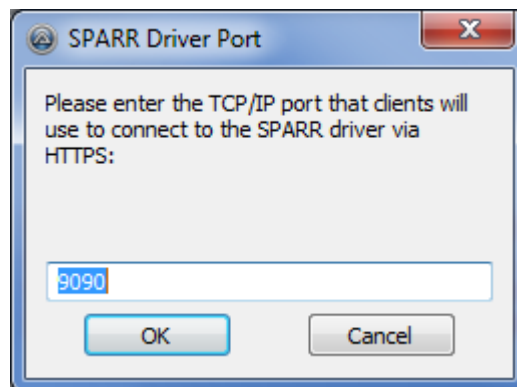
5.10.1.1 All Versions of Windows

For all Windows versions, initial dialogs similar to the following will be presented.

This dialog simply explains what will be done to the system. Press the OK button to continue.
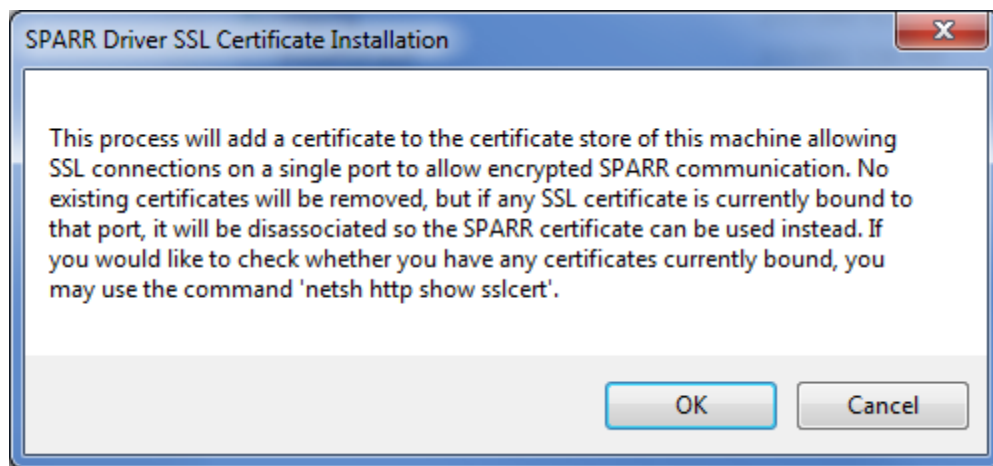
This dialog is prompting for the port number to be used for secure communications between the mobile device and the SunGuide SPARR driver. The port entered in the dialog and the port in the SPARR Driver "webServicePort" parameter in the SunGuide config file should be the same. Enter a value and press the OK button to continue.

This dialog shows the import certificate command that was run and the result. Press the OK button to continue.
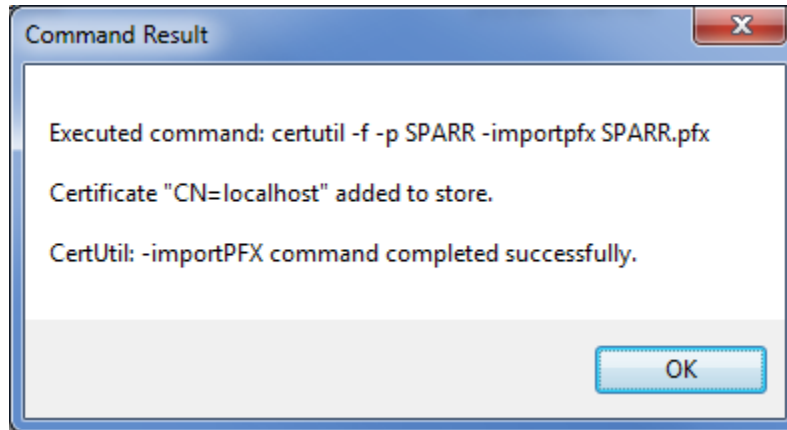
5.10.1.2 Newer Versions of Windows

For newer systems (Vista, Windows 7, Server 2008) the following dialogs will be presented.

This dialog is asking how the SPARR driver will be used: as a Windows service, or as a console application. Press Yes to indicate the Windows service is being installed, as this is what is provided by the installer. The console app option is only used for testing purposes.
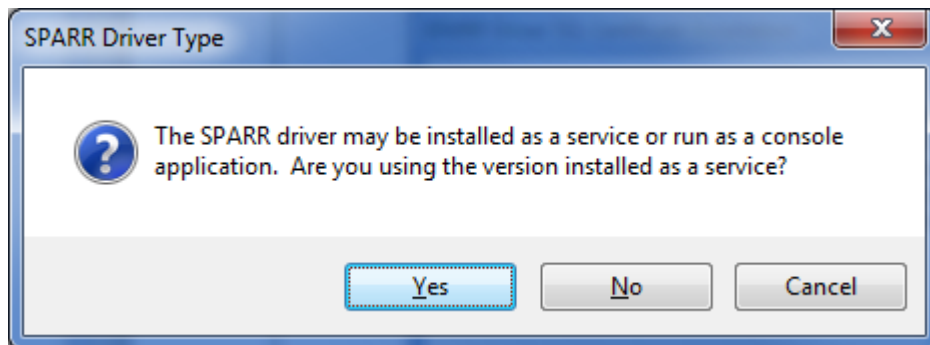
This dialog shows the delete certificate command that was run and the result. Press the OK button to continue. Note that the command result will indicate a failure if no certificate for the entered port was present on the machine; this is normal behavior.
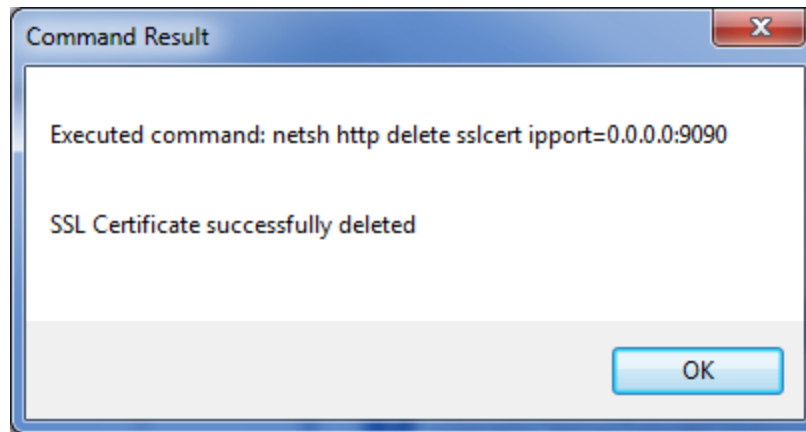
This dialog shows the add certificate command that was run and the result. Press the OK button to complete the SPARR SSL certificate installation on newer systems.
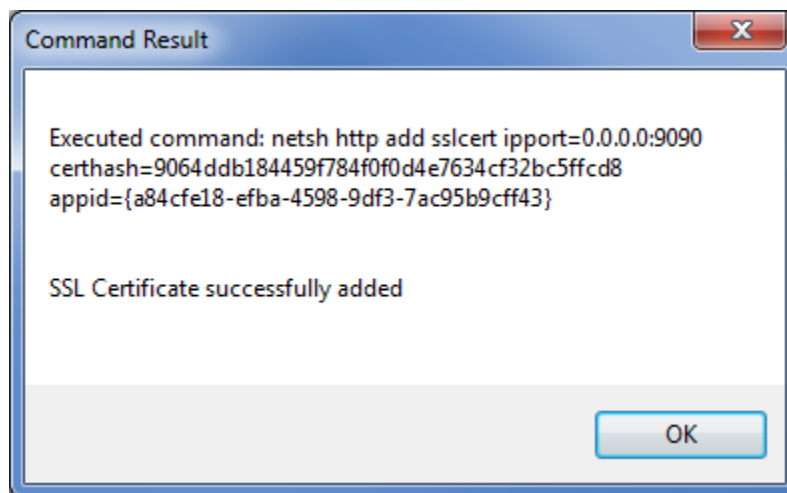
5.10.1.3 Older Versions of Windows

For Windows XP and Server 2003, the following dialogs will be presented

This dialog shows the delete certificate command that was run and the result. Press the OK button to continue. Note that the command result will indicate a failure if no certificate for the entered port was present on the machine; this is normal behavior.
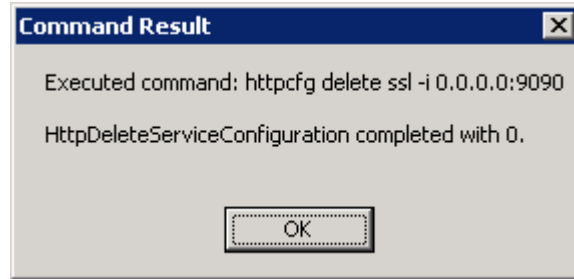
This dialog shows the add certificate command that was run and the result. Press the OK button to complete the SPARR SSL certificate installation on older systems.
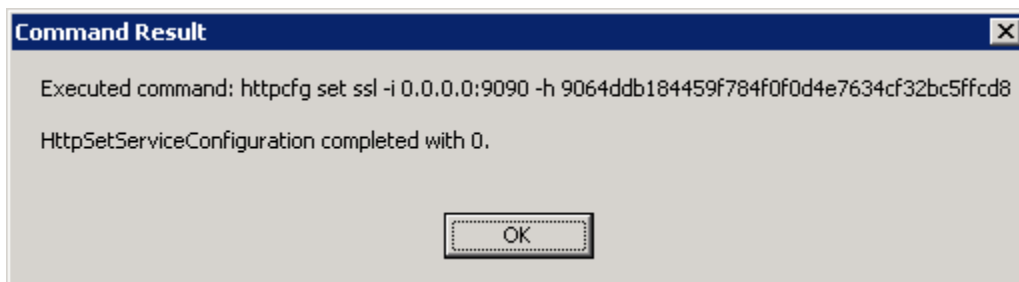
5.10.1.4 Manual Certificate Installation

If running the application did not successfully install the SSL support the following steps using manual-entered commands can be used instead.

For systems running Windows XP or Server 2003, use these steps:

1. Copy the "InstallSSL" folder and its contents to a folder on a local hard drive.

2. Start a Windows Command Prompt and change the working directory to the local-copied folder.

3. Run the following command, where <port> is the web service port.

   ```
   httpcfg delete ssl –i 0.0.0.0:<port>
   ```

4. Run the following command, where <port> is the web service port. Do not include a line break. (The hex code is a certificate thumbprint.)

   ```
   httpcfg set ssl –i 0.0.0.0:<port>-h
   9064ddb184459f784f0f0d4e7634cf32bc5ffcd8
   ```

For systems running Windows Vista, Windows 7, or Server 2008, use these steps:
1. Copy the "InstallSSL" folder and its contents to a folder on a local hard drive.
2. Start a Windows Command Prompt and change the working directory to the local-copied folder.
3. Run the following command, where <port> is the web service port.
   ```
   netsh http delete sslcert ipport=0.0.0.0:<port>
   ```

4. Run the following command, where <port> is the web service port. Do not include line breaks. (The first hex code is a certificate thumbprint. The second is the application ID for the SPARR driver Windows service.)
```
netsh http add sslcert ipport=0.0.0.0:<port>
certhash=9064ddb184459f784f0f0d4e7634cf32bc5ffcd8
appid={a84cfe18-efba-4598-9df3-7ac95b9cff43}
```

5.11 Video Wall Drivers

As of version 5.1.1, both Activu and and Jupiter video walls will be supported in SunGuide. The following is the currently supported version of each:

Make: Activu
Model: Visualization & Collaboration Software for Command and Control
Version: 5.0

Make: Jupiter
Hardware Model: Fusion Catalyst
Control Software Name: Control Point Server
Version: 2.1.0.117

5.12 Operator Map Troubleshooting

- From each workstation that plans to run Operator Map, please verify the following setting in Internet Explorer. Under Tools > Internet Options > Browsing History > Settings the "Check for newer versions of stored pages" should be set to "Every time I visit a webpage"
- Try uninstalling Operator Map from the list of Add or Remove Programs in the Control Panel and then reinstall from the web site.

5.13 Currently Supported version of IE

- SunGuide currently supports IE 11 and below.

5.14 Generation of Database Creation Scripts from ERWIN

5.14.1 Generating Oracle Database Scripts

This section will cover how to generate the Oracle scripts to create a complete SunGuide database with the minimal data set needed to allow the SunGuide software to run without error. Unlike the SQL Server script generation, the Oracle scripts can be generated in both ERWIN 8 and ERWIN 9 without error.
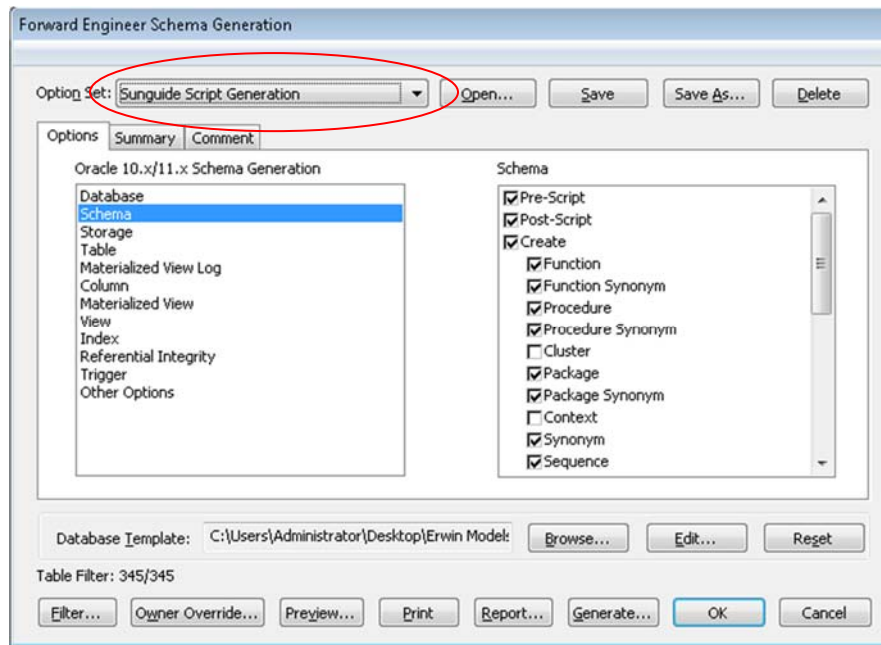
With ERWIN open and the "SunGuide_Model-ORACLE-PHYSICAL" model loaded, navigate to the "Actions" menu item and hover over the "Forward Engineer" item. After a short period a small menu will appear to the side, left-click the "Schema…" option.
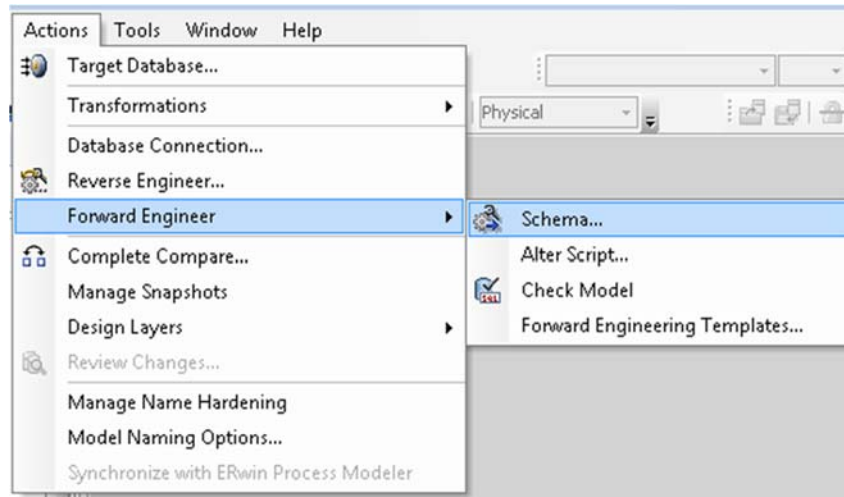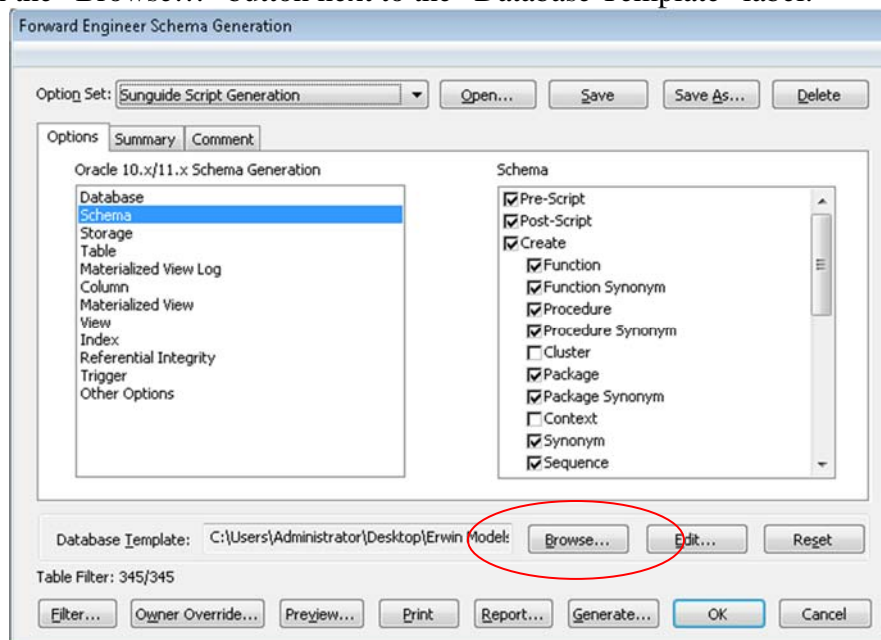
Once selected, The dialog below will appear.
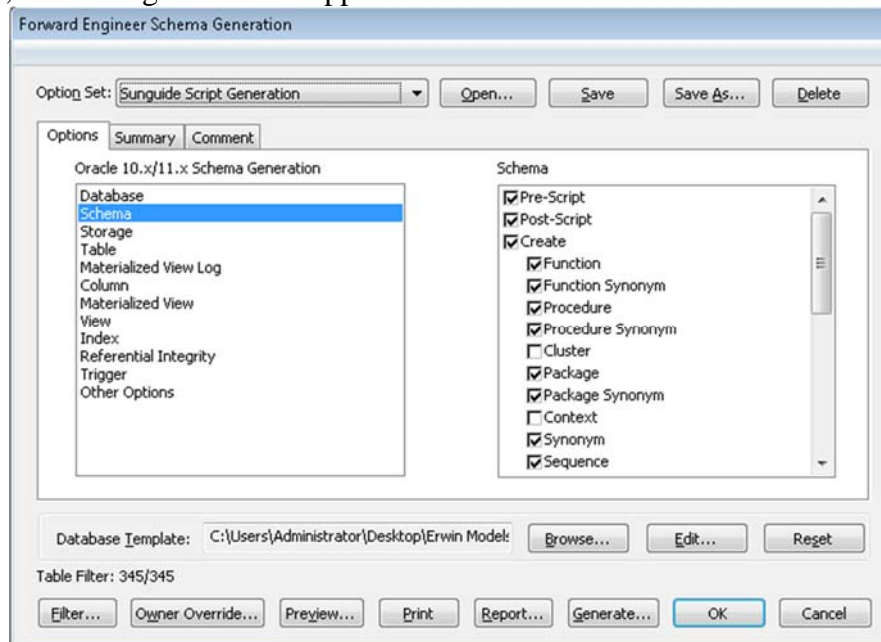
In the window, select "SunGuide Script Generation" in the "Option Set" drop down box.

Next, click on the "Browse…" button next to the "Database Template" label.

In the "Open File" dialog that appears, navigate to the "Oracle_Sunguide.fet" that was included with the installation media and click on the "Open" button. Once the "Select File" dialog closes click on the "Report…" button located at the bottom of the "Schema Generation" dialog.
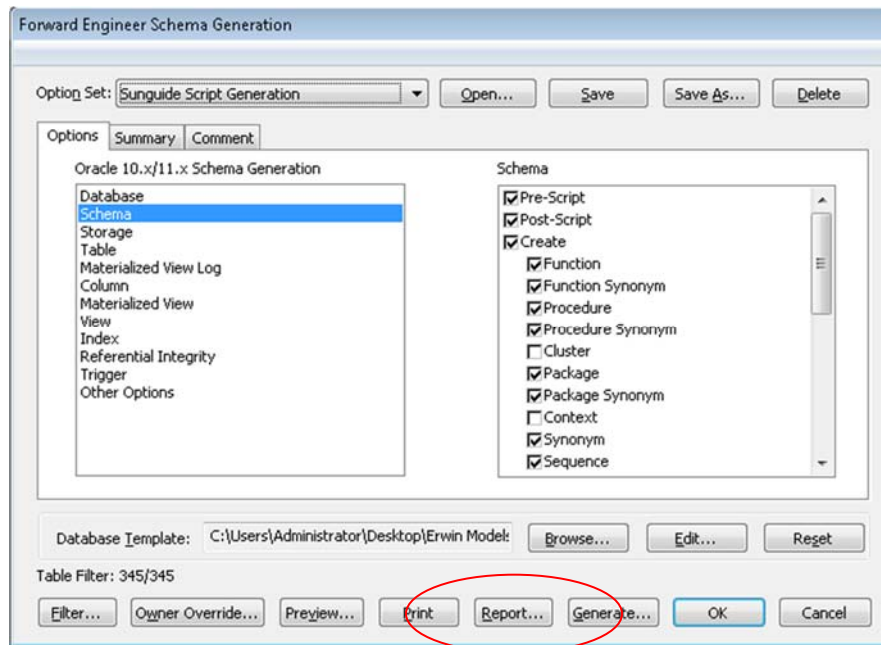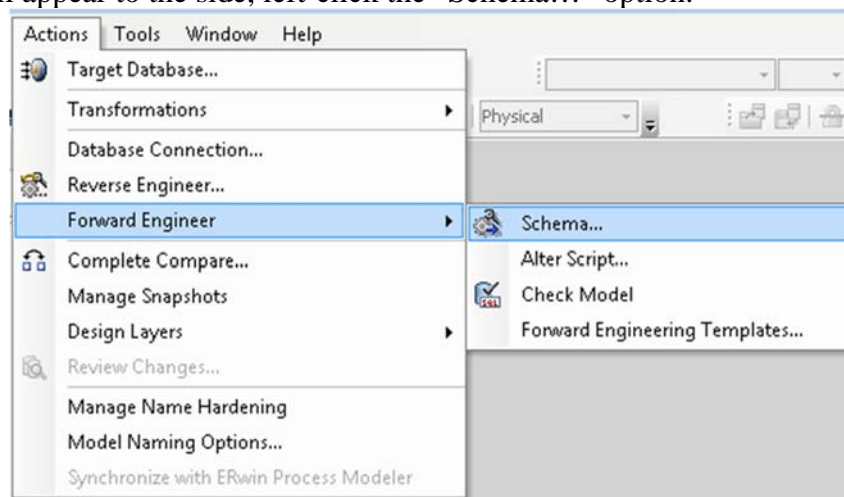
Once pressed, another "Save File" dialog will appear, give a name to the file to generate and navigate to the location where ERWIN should save the file to and click the "Save" button. A small dialog will appear showing that ERWIN is currently generating the script and will disappear once the script has been generated. Once that dialog disappears, ERWIN may be closed without any issue.

5.14.2 Generating SQL Server Database Scripts

This section will cover how to generate the SQL Server scripts to create a complete SunGuide database with the minimal data set needed to allow the SunGuide software to run without error. Please note that there is currently an issue in the Database Template that ERWIN uses to generate the script in ERWIN 9. This document assumes that the user will be generating the SQL Server scripts in ERWIN 8.

With ERWIN open and the "SunGuide_Model-SQL Server-PHYSICAL" model loaded, navigate to the "Actions" menu item and hover over the "Forward Engineer" item. After a short period a small menu will appear to the side, left-click the "Schema…" option.
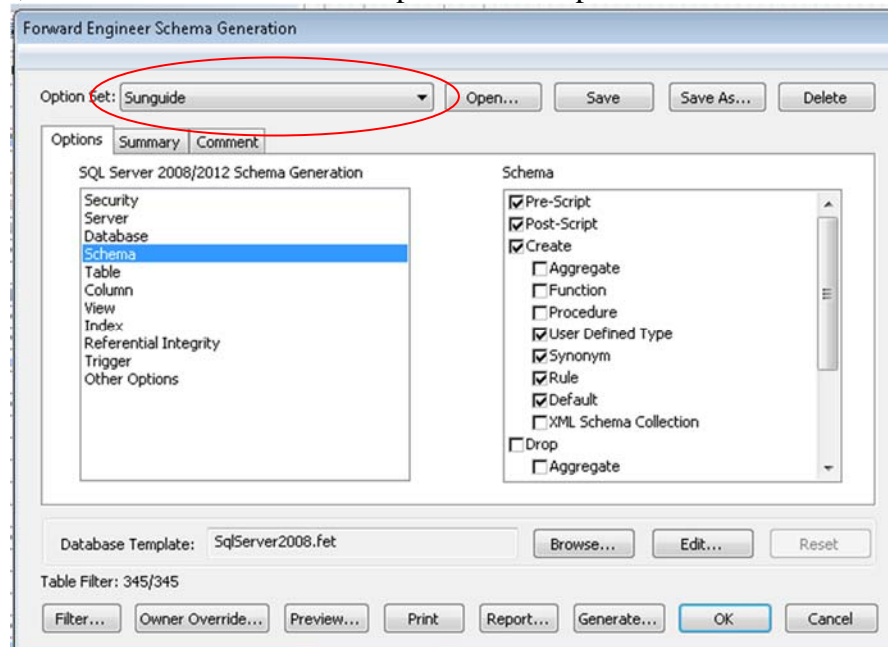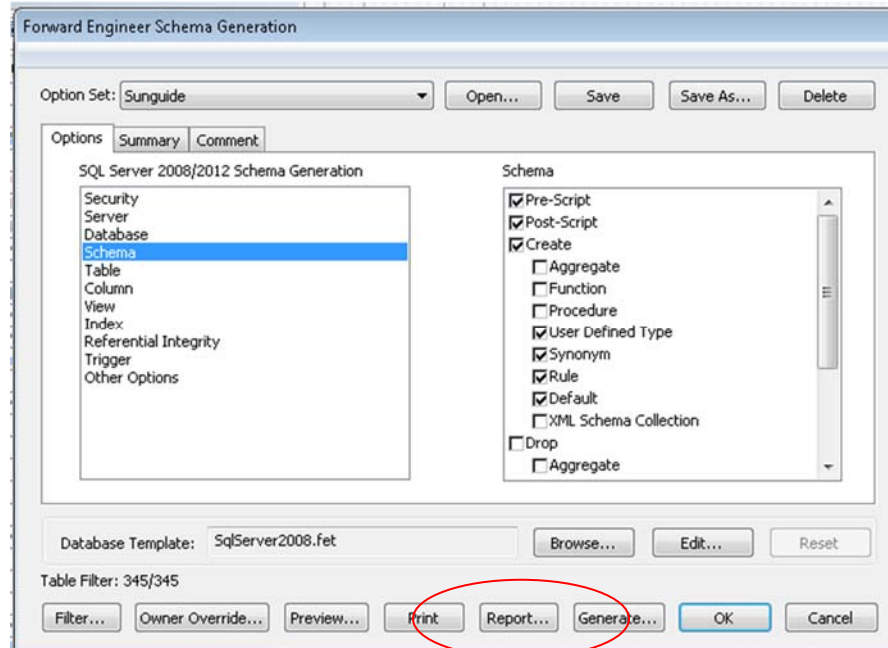

Once selected, the dialog below will appear.
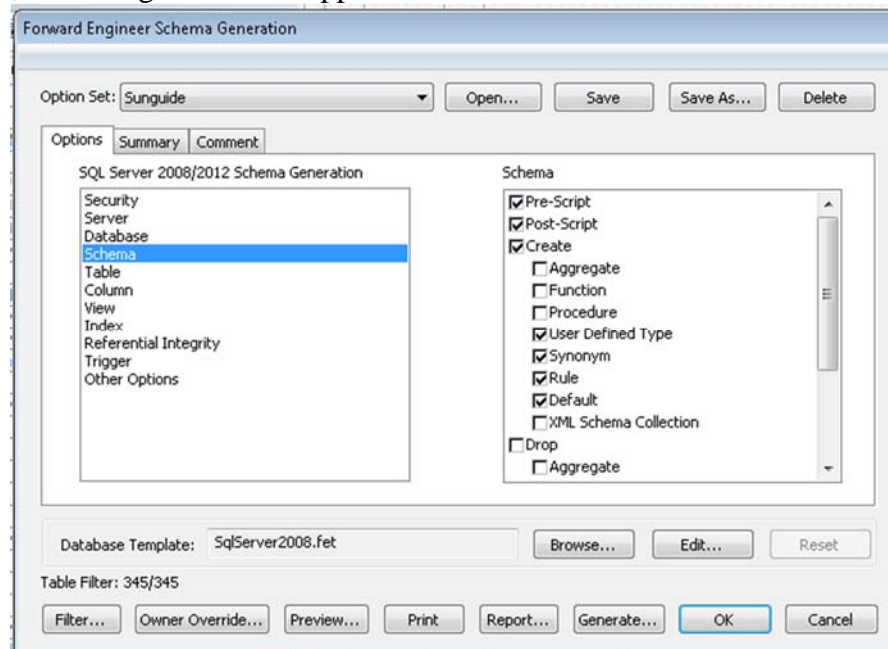
In the window, select "SunGuide" in the "Option Set" drop down box.

Next, click on the "Report…" button located at the bottom of the "Schema Generation" dialog.

Once pressed, another "Save File" dialog will appear, give a name to the file to generate and navigate to the location where ERWIN should save the file to and click the "Save" button. A small dialog will appear showing that ERWIN is currently generating the script and will disappear once the script has been generated. Once that dialog disappears, ERWIN may be closed without any issue.