

SunGuide®:

Software Requirements Specification

SunGuide-SRS-8.0



Prepared for:

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Appendix A: Requirements

List of Acronyms

ATMS	Advanced Traffic Management System
AVL	Automatic Vehicle Location
C2C	Center-to-Center
CCTV	Closed Circuit Television
CVS.....	Connected Vehicle Subsystem
DA.....	Data Archiving
DD.....	Data Distribution
DFS	Data Fusion System
DMS	Dynamic Message Sign
DOT	Department of Transportation
EG	Evacuation Guidance
EH	Executive Handler
EM.....	Event Management
EM/PM.....	Event Management / Performance Measures
EV	Event Viewer
FDOT	Florida Department of Transportation
FEAT.....	Feature Requirement
GPIO	General Purpose Input/Output
HAR	Highway Advisory Radio
IDS	Incident Detection System
IM.....	Incident Management
IMS	Inventory Maintenance System
ITS.....	Intelligent Transportation Systems
ITN.....	Invitation to Negotiate
MAS.....	Message Arbitration System
ODS.....	Operational Data Store
PS	Pricing System
RMF	Ramp Metering Firmware
RMS	Ramp Metering System
RPG.....	Response Plan Generator
RR	Road Ranger
RS.....	Reporting System
RWIS.....	Road Weather Information System
SB.....	Safety Barrier
SPARR.....	Smart Phone Application for Road Rangers
SRS	Software Requirements Specification

SUB.....Subsystem Requirement
SwRISouthwest Research Institute
TCS.....Traffic Control Subsystem
TMC.....Traffic Management Center
TPS.....Truck Parking Subsystem
TSS.....Transportation Sensor System
TVToll Viewer
TVT.....Travel Times
VSL.....Variable Speed Limit
XML.....Extensible Markup Language

REVISION HISTORY

Revision	Date	Changes
1.0.0-Draft	December 22, 2003	Initial Release
1.0.1-Draft	January 27, 2004	Updated based on SRR input and discussion with ITS Central Office
1.0.2	April 2, 2004	Incorporated FDOT comments.
2.0.0-Draft	August 27, 2004	Added requirements for systems in release 2 (EG, HAR, WS, C2C and RMS)
2.0.0	May 4, 2005	Finalized with FDOT comments, new enhancements (from ECO 1.1)
2.0.1	August 11, 2005	Finalized with ECO 1 changes
2.1.0	April 12, 2006	Updated with Release 2.1 requirements
2.2.0	November 17, 2006	Updated with Release 2.2 requirements
2.2.1	November 27, 2006	Updated architecture based on naming nomenclature changes in the EM PM design and implementation
2.2.2	December 4, 2006	Added Ramp Metering firmware and CCTV Scheduler requirements
3.0.0-Draft	April 25, 2007	Added Release 3.0 requirements
3.0.0	May 29, 2007	Requirements updated based on SWAM #11. Added software release versioning information and requirements traceability.
4.0.0-Draft	December 16, 2007	Added Release 3.1 and 4.0 requirements.
4.0.0	February 22, 2008	Updated Release 3.1 and 4.0 requirements based on SWAM #15.
4.3	January 25, 2010	Updated Release 4.2 and 4.3 requirements based on SWAM#20, SWAM#21, SWAM#22 and referenced white papers
5.0	March 5, 2010	Added Release 5.0 requirements
5.1	February 16, 2012	Added Release 5.0.4, 5.0.5, and 5.1 requirements
6.0	February 15, 2013	Added Release 6.0 requirements
6.1	October 1, 2014	Added Release 6.1 requirements
6.2	August 5, 2015	Added Release 6.2 requirements
7.0	January 3, 2017	Added Release 7.0 requirements
7.1	September 25, 2017	Added Release 7.1 requirements
7.1.2	November 5, 2018	Added Release 7.1.1 and 7.1.2 requirements

7.2	July 3, 2019	Added Release 7.2 requirements
7.2	July 29, 2019	Release 7.2 requirement changes
8.0	March 10, 2020	Release 8.0 Set 1
8.0	April 20, 2020	Release 8.0 Set 2
8.0	July 1, 2020	Release 8.0 Set 3
8.0	September 22, 2020	Release 8.0 Revisions

1. Scope

1.1 Document Identification

The Software Requirements Specification (SRS) details the requirements for the Statewide Transportation Management Center Software Library System.

The requirements for the system are maintained in a database using SynapseRT. This document serves as a starting point for the requirements.

1.2 System Overview

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

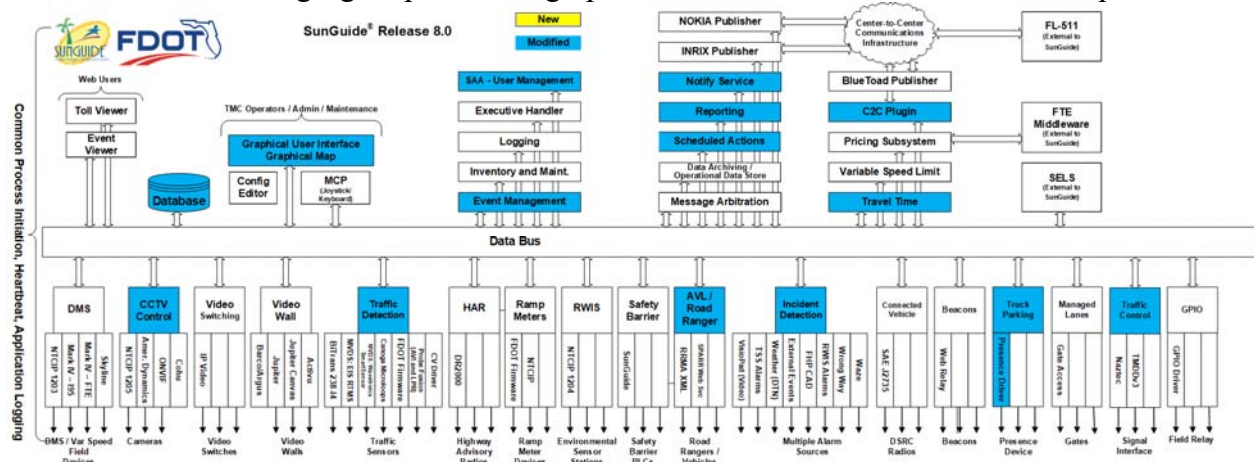


Figure 1-1 - High-Level Architectural Concept

1.3 Related Documents

The following documents were used to develop this document:

- FDOT Scope of Services: *BE492, Standard Written Agreement for SunGuide Software Support, Maintenance, and Development, Exhibit A: Scope of Services*. December 14, 2017.
- Notice to Proceed: Letter to Southwest Research Institute® (SwRI®) for BE492, December 14, 2017
- Letter of Authorization 008: Letter to SwRI for BE492, February 12, 2020.
- Amendment 1 of Letter of Authorization 008: Letter to SwRI for BE492, April 10, 2020.
- Amendment 2 of Letter of Authorization 008: Letter to SwRI for BE492, May 22, 2020
- SunGuide Project website: <http://sunguide.datasys.swri.edu>.

1.4 Contacts

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Appendix A:
REQUIREMENTS

Key	Summary	Description	Fix Version/s	Component/s
SRT-83	Event Details Attributes	The software will store a list of selectable event attributes in the database.	SG 8.0	EM
SRT-84	Attribute Fields	Each attribute will have a name, a setting to determine if a text field will also be presented with the attribute, a visibility setting (shown or not), sort order, a setting to determine if the attribute can be modified/deleted from the system, and a sensitive setting indicating that this attribute should only appear in the sensitive section of emails.	SG 8.0	EM
SRT-85	System Attributes	A list of default attributes will be added to the system that cannot be deleted.	SG 8.0	EM
SRT-86	Adding New Attributes	The software will allow a user with permissions to add new attributes to the system.	SG 8.0	EM
SRT-87	User Attribute Deletion	All new attributes will be added by users as attributes that may be deleted.	SG 8.0	EM
SRT-88	Edit Attributes	The software will allow a user with permission to edit attributes in the system.	SG 8.0	EM
SRT-89	System Attributes Name Changes	If an attribute is set to not allow deletion, the software will prevent the user from changing the name of the attribute.	SG 8.0	EM
SRT-90	Delete Attribute	The software will allow a user with permission to delete attributes in the system.	SG 8.0	EM
SRT-91	Deleting System Attribute	If an attribute is set to not allow deletion, the software will prevent the user from deleting that attribute.	SG 8.0	EM
SRT-92	Selecting Attributes	When managing an event, the user will be allowed to select one or more event attributes.	SG 8.0	EM
SRT-93	Additional Text	If a user selects an attribute that allows additional text, the user will be allowed to enter the text and save the text as part of the event record.	SG 8.0	EM
SRT-94	Attribute Event Chronology	When a set of attributes is saved, the software will add a row to the event chronology indicating the current selection of attributes for the event.	SG 8.0	EM
SRT-95	Historical Attributes	For all existing events at the time of upgrade, the system will migrate the existing selected attributes and select the appropriate attributes in the list of configured attributes.	SG 8.0	EM
SRT-96	TSS Link Threshold Groups	When setting up TSS link thresholds, the user will be able to add, modify, and delete TSS link threshold groups of TSS links to assist in the configuration of TSS link thresholds.	SG 8.0	TSS
SRT-97	Setting Groups	A link may only belong to a single TSS link threshold group at a time.	SG 8.0	TSS
SRT-98	Changes to Group	TSS link thresholds can be added to a group and will apply to all links in the group.	SG 8.0	TSS
SRT-99	Group Threshold Criteria	The user will define both the threshold or pair of thresholds and the time of day the threshold would apply.	SG 8.0	TSS

SRT-100	Event Tags in Predefined Plans	When configuring pre-defined response plans, the user will be able to select from a list of event tags that will be replaced with the event specific content when the predefined plan is added to the response plan.	SG 8.0	EM
SRT-101	Unavailable Text	If information for a tag is unavailable, the tag will be removed from the message.	SG 8.0	EM
SRT-102	No Event Available	If a pre-defined message is activated with no event context (e.g by SAS), the tags will be removed from the message.	SG 8.0	EM
SRT-103	Priority 0	Abbreviations set with a priority of 0 will automatically be applied to the sign, even if the message would already fit on the sign.	SG 8.0	EM
SRT-104	Abbreviations Applied	If the message is too large to fit on the sign, abbreviations will be applied to attempt to make the message fit.	SG 8.0	EM
SRT-105	Message too Large	If, after abbreviations are applied, the message is still too large for the sign, the sign will be added to the response plan with a blank message.	SG 8.0	EM
SRT-106	Fields to Spell Check	The software will provide spell check functionality for the following fields: <ul style="list-style-type: none"> -Floodgate Messages -Message Text -Banner Text -Comments -Operator comments -DMS Message entry 	SG 8.0	Operator Map
SRT-107	Manually Activate Signal Permission	The software will have a distinct permission to manually activate a signal timing plan.	SG 8.0	SAA
SRT-108	Add Signal Timing to Response Plan Permission	The software will have a distinct permission to add a signal timing plan to a response plan.	SG 8.0	SAA
SRT-109	Activate Response Plan with Traffic Signal Permission	The software will have a distinct permission to activate a response plan that contains traffic signal items.	SG 8.0	SAA
SRT-110	Set Presets Permission	The software will have a distinct permission to allow user to set camera presets.	SG 8.0	SAA
SRT-111	Change Op Status Permission	For each device type, the software will have a distinct permission for the user to be able to change the Op Status of the device.	SG 8.0	SAA

SRT-112	Configure Report Permission	The software will have a distinct permission to allow users to configure reports.	SG 8.0	SAA
SRT-113	Run Report Permission	The software will have a distinct permission to allow users to run reports.	SG 8.0	SAA
SRT-114	TT Link Enable/Disable Permission	The software will have a distinct permission to allow users to disable/enable travel time links.	SG 8.0	SAA
SRT-115	Audit Primary Events	SunGuide will allow users to audit the primary event ID of an event.	SG 8.0	EM
SRT-116	User Audits	Users will be able to add, modify, or remove the primary event from the event record.	SG 8.0	EM
SRT-117	Type Event Number	If the user is adding the primary event, the user will be required to type to the event number.	SG 8.0	EM
SRT-118	Archive Old SAS Items	The software will archive old SAS scheduled items.	SG 8.0	SAS
SRT-119	Historical Criteria	The software will have a configurable parameter indicating the length of time a scheduled item should remain in the software cache after the end time of the items has occurred and there are no other scheduled occurrences.	SG 8.0	SAS
SRT-120	Deprecated Items	Once removed from cache, the scheduled item will remain in the database.	SG 8.0	SAS
SRT-121	Request Old Items	The software will allow user to request old scheduled items.	SG 8.0	SAS
SRT-122	Request All Deprecated Items	The software will allow the user to request all deprecated scheduled items.	SG 8.0	SAS
SRT-123	Timeframe Criteria	The software will allow the user to request all deprecated scheduled items that were set up to activate in a configured timeframe.	SG 8.0	SAS
SRT-124	Action Criteria	The software will allow the user to request all deprecated scheduled items by type of action being performed.	SG 8.0	SAS
SRT-125	Fields to return for old items	The schedule items returned will include the scheduled items name, start date and end date, and type of action being performed.	SG 8.0	SAS
SRT-126	Reactivate Old Item	The software will allow the user to reactivate a scheduled item by allowing the user to change the end time of the scheduled item.	SG 8.0	SAS
SRT-127	Never Archive Flag	The software will have a flag on each scheduled item to indicate the item should never be archived, regardless of the end time of the scheduled item.	SG 8.0	SAS
SRT-128	Default for Flag	By default for the flag indicating the scheduled item should never be archived will not be set.	SG 8.0	SAS
SRT-129	Memory Thresholds	The software will allow the user to configure a process memory threshold and CPU Threshold for each process, including the Operator Map.	SG 8.0	Notify Manager
SRT-130	Type of Thresholds	The software will allow the user to configure a recovery process memory and CPU threshold for each process.	SG 8.0	Notify Manager

SRT-131	Default and Recovery	The software will allow the user to configure a default alert and recovery threshold that will be used in the case that a memory and CPU threshold is not configured for a process.	SG 8.0	Notify Manager
SRT-132	Send Email	If the process memory or CPU threshold is reached, Notify Manager will send an email alert indicating high memory or CPU usage.	SG 8.0	Notify Manager
SRT-133	Email Content	When an alert is sent, the alert will contain the process, CPU usage, the working set memory, the change in working set memory from the last time the value was read, the private memory usage, and the change in the private memory from the last time the value is read.	SG 8.0	Notify Manager
SRT-134	Retrigger Criteria	Once an alert has been sent, the process memory must drop below the recovery threshold and then exceed the alert threshold before retriggering an alert.	SG 8.0	Notify Manager
SRT-135	Process Emails	Notify Manager will send an email when a process starts or when a process exits abnormally.	SG 8.0	Notify Manager
SRT-136	Real time user changes	Notify Manager will subscribe to SAA for new user notification, permission changes, and email addresses for user that should receive alert notifications.	SG 8.0	Notify Manager
SRT-137	DA Watchdog	The software will query the database to confirm traffic data is being written to the database.	SG 8.0	Notify Manager
SRT-138	Confirm raw data	The software will query the database on a configurable interval to confirm that there are new 'raw' data (lane-level polling data) rows in the Data Archive traffic data table.	SG 8.0	Notify Manager
SRT-139	Confirm 15 min Rollups	The software will query the database every 15 mins to confirm the 15 min rollups are being written to the database.	SG 8.0	Notify Manager
SRT-140	Confirm 1 hr Rollups	The software will query the software every hour to confirm the 1 hour rollups are being written to the database.	SG 8.0	Notify Manager
SRT-141	Confirm 24 rollups	The software will query the software every day to confirm the 24 hour rollups are being written to the database.	SG 8.0	Notify Manager
SRT-142	Send Email	If the software detects that the data is not being written to the database at the correct intervals, the software will send an email to a configured list of users.	SG 8.0	Notify Manager
SRT-143	Telemetry Message	The software will support a telemetry request.	SG 8.0	Notify Manager
SRT-144	Telemetry Message Content	The software will support a system request which will provide the SunGuide version, a list of process that are currently connected, and the current process status.	SG 8.0	Notify Manager
SRT-145	Audit a Comment	The software will allow user with appropriate permission to audit comments to an event.	SG 8.0	EM
SRT-146	Comment Changes	The software will allow the users to add, modify, or delete comments.	SG 8.0	EM
SRT-147	Comment Timestamp	The timestamp field will be editable by the user	SG 8.0	EM
SRT-148	Submitted By Field	The Submitted By field will be made read-only.	SG 8.0	EM

SRT-149	Comment User	If a comment is added, the Submitted By field will indicate the user that is adding the comment.	SG 8.0	EM
SRT-150	Schedule Permission Groups	The software shall have the ability to schedule adding or removing users from permission groups.	SG 8.0	SAS
SRT-151	Permission to Schedule	The ability to schedule adding or removing users from permission groups will require the user to also have permission to modify user permissions.	SG 8.0	SAS
SRT-152	Schedule Items	When scheduling permission group changes, the user will select whether to add or remove users, the specific users, and the permission group.	SG 8.0	SAS
SRT-153	Change Permissions on Start	When scheduling group permission changes, the permission change will be made at the start time of the scheduled item's occurrence.	SG 8.0	SAS
SRT-154	Change Permissions on End	At the end of the scheduled item's occurrence for the action, the permission change will be undone.	SG 8.0	SAS
SRT-155	County Field	For each device type, the system will require the user to set a county where the device is located.	SG 8.0	EM
SRT-156	County Field to 511	When sending information to 511, the county information from the device will be used to populate the county data sent to 511.	SG 8.0	EM
SRT-157	County by Default	As part of the upgrade, the system will automatically set the county on all device types based on the existing latitude/longitude of the device.	SG 8.0	EM
SRT-158	Camera Blocking	The system will allow a user to block a camera that is not configured to be connected to a video source.	SG 8.0	CCTV
SRT-159	Blocking Status in Map	The blocked status of the camera will be shown in the Operator Map.	SG 8.0	CCTV
SRT-160	Blocking Status in C2C	The blocked status of the camera will be sent as part of the C2C camera status.	SG 8.0	CCTV
SRT-161	Changes in Blocking Status	Any changes to the blocked status of the camera will result in an update to the C2C camera status.	SG 8.0	CCTV
SRT-162	Acknowledge AVL Alerts	For AVL Stop and Geofence alerts, the software will allow the user to acknowledge the alerts from the Operator Map.	SG 8.0	AVL
SRT-163	Alert Logging	The user and time of acknowledgment will be logged to the database.	SG 8.0	AVL
SRT-164	Re-Trigger	The software will have a configurable parameter to determine how much time should elapse before re-evaluating an AVL Stop or Geofence alert to see if the condition persists.	SG 8.0	AVL
SRT-165	Updated Alerts	If an AVL Stop or Geofence alert has been acknowledged and the condition persists after the length of time determined by the configurable parameter, the system will send a new alert to the Operator Map.	SG 8.0	AVL
SRT-166	Order of Counties	The software will allow users to specify the order of counties a roadway travels through.	SG 8.0	EM

SRT-167	County Sort Order	The software will enforce the sort order of locations based on the county ordering.	SG 8.0	EM
SRT-168	Sort Order Utility	The software will have a utility for correcting location approach sort orders across county boundaries	SG 8.0	EM
SRT-169	County Ordering	The utility will update the sort order of locations on a roadway to be in roadway order across all counties the roadway spans.	SG 8.0	EM
SRT-170	Change County Ordering	The utility will allow users to change the county ordering of a roadway.	SG 8.0	EM
SRT-171	Modify Sort Order Locations	The software will allow users to modify the sort order of locations.	SG 8.0	EM
SRT-172	Range Restrictions	The software will restrict the sort order of locations in a county to be within the bounds of the sort orders of surrounding counties.	SG 8.0	EM
SRT-173	NOAA Feed	The software will poll the NOAA Weather feed on a configurable interval.	SG 8.0	IDS
SRT-174	Email on Error	If the software is unable to poll the feed, an email will be sent to an email address configured in the SunGuide configuration file.	SG 8.0	IDS
SRT-175	Generate Alerts	The software will generate alerts for items in the weather feed that match filter criteria.	SG 8.0	IDS
SRT-176	Filter Criteria	The software will support the following filter criteria: category, certainty, duration, event type, message, type, scope, severity, start distance, event status, event urgency, event county, and event zone.	SG 8.0	IDS
SRT-177	Alert Criteria	The software will only generate alerts if all filter criteria are met.	SG 8.0	IDS
SRT-178	Handling Options	When an alert sent to the Operator Map to be handled, the user will have the option to Create a New Event, Create a Secondary Event, Dismiss as Already Detected, or Dismiss the alert as a False Alarm.	SG 8.0	IDS
SRT-179	Alert in Chronology	If the alert is associated to an event, the details of the alert will be captured in the Event Chronology.	SG 8.0	IDS
SRT-180	Poll Sensor Status	The software will poll for sensor status while polling for space occupancy.	SG 8.0	TPS
SRT-181	Graphical Interface	The software will allow the user with permission to configure a visual representation of the sensor locations.	SG 8.0	TPS
SRT-182	Upload Image	The software will allow the user to upload an image of the facility.	SG 8.0	TPS
SRT-183	Place on Image	The software will allow the user to select from a reported list of sensors and place them on the uploaded image.	SG 8.0	TPS
SRT-184	Sensor Status	The software will retrieve the status of all sensors on each poll cycle.	SG 8.0	TPS
SRT-185	Additional Details	The software will also collect “additional information” (protocol specific) about each sensor available for display as status to the user.	SG 8.0	TPS
SRT-186	Show Additional Details	When displaying the “additional information” to the user, the label and the value will be shown to the user in the same manner they are listed in the protocol for the device.	SG 8.0	TPS

SRT-187	Tooltip Status	The status information for a device will also be shown on a tooltip when the user hovers over a device on the facilities uploaded image.	SG 8.0	TPS
SRT-188	Sensor State	The software will have 2 states for each sensor, "Active" and "Error".	SG 8.0	TPS
SRT-189	IpSens Values	For IpSens values ("I") will be considered "Active" while value "U" will be considered "Error".	SG 8.0	TPS
SRT-192	Status Color	The status of each sensor will display on the map with a color indicating if the sensor is in a "Active" state or a "Error" state.	SG 8.0	TPS
SRT-193	Email Errors	The software will allow a user to configure an email in the SunGuide configuration file indicating who an email should be sent to when a sensor transitions to a "Error" state.	SG 8.0	TPS
SRT-194	Email Reminders	The software will allow a user to configure an interval that emails should be sent for sensor in a "Error" state to remind administrators about the problem.	SG 8.0	TPS
SRT-195	Send Email on Error	The software will send an email to the configured email address when a sensor transitions to a "Error" state.	SG 8.0	TPS
SRT-196	Sending Reminders	The software will resend an email if the sensor remained in a bad state and the interval between the last email sent and the current time exceeds the configured interval from the SunGuide configuration file.	SG 8.0	TPS
SRT-197	Stop Sending Error Emails	The software will allow a user to set an individual sensor to stop sending email notifications about the state of the sensor.	SG 8.0	TPS
SRT-198	Automatic Recovery	If the sensor transitions from a "Error" state to a "Active" state as part of a poll cycle, the request to stop sending emails about the sensor moving to a "Error" state will be removed and transitions to a "Error" state will trigger a new email.	SG 8.0	TPS
SRT-327	Exclude Out of Service Cameras	When the software searches for the nearest camera to an event, cameras with an Out of Service Op Status will be excluded from the search.	SG 8.0	Operator Map
SRT-328	Updated "Last Updated Time"	When activating a response plan, if the "Last Updated Time" in the email response plan item is older than the "Last Activation Time" of the event, the software will prompt the user to cancel the activation of the response plan or to continue to activate the response plan.	SG 8.0	Operator Map
SRT-329	Areas to be configured	The software will allow areas to be configured.	SG 8.0	CNA
SRT-330	Configuring Areas	The software will support adding, modifying, and deleting areas.	SG 8.0	CNA
SRT-331	Area to Contact Configuration	The software will support an association between an area and a list of contacts.	SG 8.0	CNA
SRT-332	Area to Contact Group Configuration	The software will support an association between an area and a list of contact groups.	SG 8.0	CNA
SRT-333	Contact in Multiple Areas	The software will allow a contact to be in multiple areas.	SG 8.0	CNA
SRT-334	Contact Group in Multiple Areas	The software will allow a contact group to be in multiple areas.	SG 8.0	CNA

SRT-335	Geographic Configuration	The software will support configuration of geographic regions from the graphical user interface.	SG 8.0	CNA
SRT-336	Draw Regions	The software will allow users to draw the geographic regions from the graphical user interface.	SG 8.0	CNA
SRT-337	Suggest Contacts as part of Response Plans	When suggesting a response plan, the software will automatically suggest contacts and groups as part of an email plan item.	SG 8.0	CNA
SRT-338	Suggest Contacts based on Region	Contacts and groups in the email item will be automatically suggested based on whether the event is geo-located within an area associated to a contact or group.	SG 8.0	CNA
SRT-339	Injury Data on Cloning	When cloning an event, injury data will be reset to the default value in the cloned event. Required information being only what is needed to create an event (Event Type, Notifying Agency & Contact, Status, County, Roadway, Direction, Reference Point, Offset and Description).	SG 8.0	EM
SRT-340	Email Template for Response Plans	The software will support creating email templates for response plans.	SG 8.0	EM
SRT-341	Default Email Template	The software will have a default template for response plan emails.	SG 8.0	EM
SRT-342	Email Template per Event Type	The software will allow users with permission to set a different email template for each event type.	SG 8.0	EM
SRT-343	Use Event Specific Email Template	When an email item is created for a response plan, the system will use the event specific template to create the text for the email.	SG 8.0	EM
SRT-344	Email to Replace Event Tags	The system shall replace the template tags configured in the template with the information from the event.	SG 8.0	EM
SRT-345	Use Default Email Template	If no event specific email template exists, the system will use the default email template to generate the text for the email response plan item.	SG 8.0	EM
SRT-346	FHP to CAD Number	In the Event Details dialog and in the IDS FHP alert dialog, the software will rename "FHP Incident #" to "CAD #"	SG 8.0	EM
SRT-347	Add Case Number	The system will support saving a "Case #" field in the Event Details dialog.	SG 8.0	EM
SRT-348	Record Case Number in Database	The "Case #" will be saved in the database as part of the event record.	SG 8.0	EM
SRT-349	Audit Case Number	The "Case #" will be auditable and allow a user with audit permissions to set or remove the "Case #"	SG 8.0	EM
SRT-350	Device Linking Prevent Looping	When searching the device sequencing file for devices to add to an automatic response plan suggestion and the algorithm leaves a roadway to search a branching roadway, the search will stop along the path if a roadway is encountered that has already been traversed by the algorithm.	SG 8.0	EM

SRT-351	Device Linking exclude Cardinal Opposites	When searching the device sequencing file for devices to add to an automatic response plan, DMS along the same roadway but in the “cardinal opposite” direction would be excluded from the list of returned devices.	SG 8.0	EM
SRT-352	Northbound Exclusion	For an event with a Northbound direction, DMS on the same roadway with a Southbound direction would be excluded.	SG 8.0	EM
SRT-353	Eastbound Exclusion	For an event with an Eastbound direction, DMS on the same roadway with a Westbound direction would be excluded.	SG 8.0	EM
SRT-354	Southbound Exclusion	For an event with a Southbound direction, DMS on the same roadway with a Northbound direction would be excluded.	SG 8.0	EM
SRT-355	Westbound Exclusion	For an event with a Westbound direction, DMS on the same roadway with an Eastbound direction would be excluded.	SG 8.0	EM
SRT-356	Display Rendering for NTCIP multi-messages	The software will provide a display for rendering NTCIP DMS MULTI messages.	SG 8.0	Operator Map
SRT-357	Display Tags	The display will support formatting using the following NTCIP DMS MULTI tags: pt, fo, pb, cf, g, sc, jl, jp, tr, nl, and np.	SG 8.0	Operator Map
SRT-358	DMS Graphical Editor	The software will provide a graphical editor for composing NTCIP DMS MULTI messages.	SG 8.0	Operator Map
SRT-359	DMS Vertical Alignment for Text	The editor will support vertically aligning message text.	SG 8.0	Operator Map
SRT-360	DMS Horizontal Alignment for Text	The editor will support horizontally aligning text.	SG 8.0	Operator Map
SRT-361	DMS Vertical and Horizontal Alignment for Graphics	The editor will support vertical and horizontal positioning of graphics.	SG 8.0	Operator Map
SRT-362	Graphics in line with Text	The editor will support placement of graphics in line with text.	SG 8.0	Operator Map
SRT-363	Priority Value Ranges	The software will support configuring a range of priority values for each event type.	SG 8.0	EM
SRT-364	Default Priority Range	The software will support configuring a default range of priority values.	SG 8.0	EM
SRT-365	Configuration of Default Priority Range	By default, the default range will be priorities 1-255	SG 8.0	EM
SRT-366	Select Range Based on Event Type	When generating priorities for response plans, the system will select the range for the priorities based on event type.	SG 8.0	EM
SRT-367	If no range, use Default Range	If an event specific type is not configured, the default priority range will be used.	SG 8.0	EM
SRT-368	Priority within the Defined Range	Once the priority range is determined, the specific priority for a message will be determined by the distance from the event.	SG 8.0	EM
SRT-369	Miles away from Incident	The priority will be determined by adding the start of the priority range with the number of miles the DMS is located from the event.	SG 8.0	EM

SRT-370	Max Priority in the Range	If the total priority calculated exceeds the priority range, the priority will be equal to the highest priority in the range.	SG 8.0	EM
SRT-371	Max Priority	If the total priority calculated exceeds 255, the priority will be equal to 255.	SG 8.0	EM
SRT-372	Title Bar Items	In the Event Details Dialog, the window title bar will contain the event number, event type, and event location.	SG 8.0	Operator Map
SRT-373	Audit Injuries	The software will allow user to modify the injuries for an event using the audit feature.	SG 8.0	EM
SRT-374	Configuration of Last Updated Notification	For each event type, the software will support an optional number of minutes that can elapse since the last response plan activation before notifying the user that an update is needed.	SG 8.0	Operator Map
SRT-375	No Notification for Update Times	If the notification time for an event type has not been configured, the system will not notify the users.	SG 8.0	Operator Map
SRT-376	Update Event List Rows when Exceeded	To notify the users the time since the last response plan activation has exceeded the configured interval, the Event List dialog will differentiate the event row from the others.	SG 8.0	Operator Map
SRT-377	Default for Last Updated Notification	The default for each event type will be 0, indicating the system will not notify at any time.	SG 8.0	Operator Map
SRT-378	Graphics in Templates	When configuring EM message templates, the software will support adding a tag to the template indicating a graphic should be inserted when generating the message for the response plan item.	SG 8.0	EM
SRT-379	User Specified Graphic	The software will allow the user to specify an event type graphic in the template.	SG 8.0	EM
SRT-380	Removing Event Graphic Tags	If a graphic is not defined for the event type from the event or the configured graphics would not fit on the sign, the tag will be removed while generating the message.	SG 8.0	EM
SRT-381	Specify Roadway Graphic	The software will allow the user to specify a roadway type graphic in the template.	SG 8.0	EM
SRT-382	Removing Roadway Graphic Tags	If a graphic is not defined for the roadway from the event or the configured graphics would not fit on the sign, the tag will be removed while generating the message.	SG 8.0	EM
SRT-383	Specify Custom Graphic	The software will allow the user to specify a custom graphic in the template, including selecting the specific custom graphic.	SG 8.0	EM
SRT-384	Removing Custom Graphic Tags	If the configured graphic is no longer available or the configured graphic would not fit on the sign, the tag will be removed while generating the message.	SG 8.0	EM
SRT-385	Removing Tags from Signs that Don't Support Graphics	If a sign does not support graphics, the tag will be removed while generating the message.	SG 8.0	EM

SRT-388	Send Alert when TVT Config missing	When the travel times process identifies a C2C TSS link that is not in the defined configuration, an alert will be sent to an email address configured in the SunGuide configuration file.	SG 8.0	TVT
SRT-389	Conditions for Missing Configuration	In order to determine if a C2C TSS link is not in the defined configuration, the following conditions must be met: -Other links from the remote center are present networkData of the C2C stream -The C2C TSS link is not in the configuration from the remote center	SG 8.0	TVT
SRT-390	Send Email for Alert	While the unknown link remains in the travel times configuration, an email will be resent to the email configured in the config file at an interval configured in the SunGuide configuration file.	SG 8.0	TVT
SRT-391	Configure Maximum Number of Phases	The software will allow a user with permission to configure the maximum number of phases that can be put on a DMS sign using the SunGuide Operator Map.	SG 8.0	MAS
SRT-392	Restrict Phases	From the Operator Map, the software will restrict users from creating a manual message with more phases than allowed by the configured parameter.	SG 8.0	MAS
SRT-393	Merged Message Restriction	When merging messages, either manually or automatically, the software will restrict the phases of a merged message to be less than or equal to the maximum number of phases allowed on a sign.	SG 8.0	MAS
SRT-394	Manually Message Merge Restriction	If the operator manually merges messages and the merged message would result in more phases than the maximum number allowed, the software will use all of the phases from the higher priority message and as many phases from the lower priority message possible without exceeding the maximum number of phases on a sign.	SG 8.0	MAS
SRT-395	No Merge if Restricted	The software will not allow a user to manually merge two messages if the higher priority message has the same number of phases as the maximum number of phases allowed.	SG 8.0	MAS
SRT-396	Send Manual Focus Mode before Manual Command	If an NTCIP camera is set to autofocus mode and a user sends a request to manually change the focus, the software will send a command to change the camera to the manual focus mode before sending the request to change the focus.	SG 8.0	CCTV
SRT-397	Send Manual Iris Mode before Iris Command	If an NTCIP camera is set to auto-iris mode and a user sends a request to manually change the iris, the software shall send a command to change the camera to the manual iris mode before sending the request to change the iris.	SG 8.0	CCTV
SRT-398	RISC Contracts	The software will support management of RISC contracts.	SG 8.0	RISC
SRT-399	A/M/D Contracts	The software will allow a user to add/modify/delete RISC contracts.	SG 8.0	RISC

SRT-400	Contract Fields	A RISC contract will allow the user to set the contract name, allowed notification response time, allowed on-scene response time, allowed scene clearance time, and one or more zones.	SG 8.0	RISC
SRT-401	Responders to Zone Configuration	A RISC zone will allow the user to set the priority and a list of responders associated to the zone.	SG 8.0	RISC
SRT-402	Include all responders	The software will allow the user to select an option to include all of the available contractors in the system for that zone.	SG 8.0	RISC
SRT-403	Select roadway segments	A RISC Zone will allow the user to select one of more roadway segments to be included in the zone.	SG 8.0	RISC
SRT-404	Roadway Segment Fields	For each roadway segment, the system will allow a user to select a roadway, direction, and either a start and end point along the roadway or an option to include the entire roadway.	SG 8.0	RISC
SRT-405	RISC Zone Priority	The priority of a RISC zone will be required to be unique across the system.	SG 8.0	RISC
SRT-406	EM Agency Fields	The software will support four new configuration fields for an EM agency: "RISC Activator", "RISC Contractor", "Primary Phone Number", and "Secondary Phone Number".	SG 8.0	RISC
SRT-407	Using EM Agencies	Agencies marked as a RISC Contractor will be available for use during the RISC contract configuration.	SG 8.0	RISC
SRT-408	Primary and Secondary Phone Number	If an agency is marked as a RISC Contractor, the Primary and Secondary phone number fields will be required.	SG 8.0	RISC
SRT-409	RISC Activators	Agencies marked as a RISC Activator will be available for use during RISC activation.	SG 8.0	RISC
SRT-410	Manage RISC	As part of working an event, the software will allow a user to select and option to manage a RISC activation.	SG 8.0	RISC
SRT-411	RISC Ownership	The user activating the RISC will have ownership and control over the RISC activation.	SG 8.0	RISC
SRT-412	RISC/Event Ownership	The owner of the event and the owner of the RISC will not be required to be the same operator.	SG 8.0	RISC
SRT-413	Activating a RISC	When activating a new RISC, the user would select the requesting agency, requesting contact, and the additional equipment needed for the event.	SG 8.0	RISC
SRT-414	RISC in event Chronology	The software will add a new chronology entry to the event's chronology when a RISC is activated.	SG 8.0	RISC
SRT-415	Automatic Zone Selection	The software will automatically select the RISC contract and zone based on the location of the event.	SG 8.0	RISC
SRT-416	Highest Priority Selection	If more than one RISC contract matches the event's location, the zone with the highest priority will be selected.	SG 8.0	RISC
SRT-417	Changing Zones	The system will allow the user to change the selected zone and allow extra time for the response.	SG 8.0	RISC

SRT-418	Changing Zones Requires Comment	If the zone is changed, the user will be required to leave a comment indicating why the zone was changed from the automatically selected zone.	SG 8.0	RISC
SRT-419	Select Contractor at top of List	The software will automatically select a contractor from the top of the list of available contractors.	SG 8.0	RISC
SRT-420	Show Contractor Info	The software will show the operator the contract information for the selected contractor including the contractor name, and the primary and secondary phone numbers.	SG 8.0	RISC
SRT-421	Set Contractor Notification	Once the contractor is notified, the software will allow the user to set the notification time for the contractor.	SG 8.0	RISC
SRT-422	Move Contractor to Bottom of the List	Once a contractor is contacted, they will move to the bottom of the list of available contractors for that zone.	SG 8.0	RISC
SRT-423	Notification Response Time	Once the notification is set, the system will start a timer for the duration the Notification Response Time. The software will display the time remaining on the user interface.	SG 8.0	RISC
SRT-424	Contractor Accepts RISC	If the contractor responds before the timer expires and accepts the RISC, the software will allow the user to indicate the contractor responded and provide the contact spoken to.	SG 8.0	RISC
SRT-425	Contractor Declines RISC	If the contractor responds before the timer expires and declines the RISC, the software will allow the user to indicate the contractor responded and indicate a reason the contractor declined the RISC.	SG 8.0	RISC
SRT-426	Next Contractor on List on Decline	If the contractor declines, the next contractor at the top of the list will be selected and shown to the user.	SG 8.0	RISC
SRT-427	No Contractor Response	If the timer expires, the software will allow the user to indicate the contractor did not respond.	SG 8.0	RISC
SRT-428	Next Contractor on List on No Response	If the contractor does not respond, the next contractor at the top of the list will be selected and shown to the user.	SG 8.0	RISC
SRT-429	Reselecting RISC Contractor	The software will allow selecting a new RISC contractor for the activation after one has already accepted.	SG 8.0	RISC
SRT-430	Use Next Contractor in List	The software will automatically present the next contractor in the list.	SG 8.0	RISC
SRT-431	Explanation of Contractor Change	The software will require the user to provide an explanation for why the contractor was changed.	SG 8.0	RISC
SRT-432	Reset Timers on Change	The software will reset any timers when the contractor is changed.	SG 8.0	RISC
SRT-433	Equipment Timestamps	For each piece of equipment requested on site, the system will allow the user to set the arrival time, the verified time, and whether the equipment was utilized.	SG 8.0	RISC
SRT-434	Equipment Verified Timestamps	When setting the verified time, the software will require the user to select the agency, contact, and timestamp of who verified the equipment on-site.	SG 8.0	RISC

SRT-435	Contact of Verified Arrival	When setting the arrival time, the software will require the user to select the contact and timestamp of who verified the arrival.	SG 8.0	RISC
SRT-436	Notice To Proceed	The software will allow the user to set the Notice To Proceed.	SG 8.0	RISC
SRT-437	NTP Agency/Contact	When setting the Notice To Proceed, the user will be required to select the agency and contact authorizing the Notice to Proceed, and the time of the authorization.	SG 8.0	RISC
SRT-438	NTP Stop	The software will allow the user to Stop the timing of the Notice To Proceed.	SG 8.0	RISC
SRT-439	NTP Stop Agency/Contact	When stopping the Notice To Proceed, the user will be required to select the agency and contact authorizing stopping Notice to Proceed, and the time of the authorization.	SG 8.0	RISC
SRT-440	NTP Resume	The software will allow the user to resume the timing of the Notice To Proceed.	SG 8.0	RISC
SRT-441	NTP Resume Agency/Contact	When resuming the Notice To Proceed, the user will be required to select the agency and contact authorizing resuming Notice to Proceed, and the time of the authorization.	SG 8.0	RISC
SRT-442	NTP Reset	The software will allow the user to reset the timing of the Notice To Proceed.	SG 8.0	RISC
SRT-443	NTP Reset Agency/Contact	When resetting the Notice To Proceed, the user will be required to select the agency and contact authorizing resetting Notice to Proceed, and the time of the authorization.	SG 8.0	RISC
SRT-444	All Lanes Cleared	The software will allow a user to set All Lanes Cleared	SG 8.0	RISC
SRT-445	All Lanes Cleared Agency/Contact	When setting the All Lanes Cleared, the user will be required to select the agency and contact confirming the All Lanes Cleared, and the time of the confirmation.	SG 8.0	RISC
SRT-446	Cancel RISC	The software will allow a user to cancel a risk activation.	SG 8.0	RISC
SRT-447	Cancel RISC Explanation	When canceling a RISC activation, the user will be required to provide an explanation of why the RISC was canceled.	SG 8.0	RISC
SRT-448	Void RISC	The software will allow a user to void a RISC activation.	SG 8.0	RISC
SRT-449	Void RISC Explanation	When voiding a RISC activation, the user will be required to provide an explanation of why the RISC was voided.	SG 8.0	RISC
SRT-450	RISC Chronology	The software will keep a chronology of timestamps for RISC actions including, at a minimum, Contractor Activation, Contractor Response, RISC Activation, Equipment Arrival and Confirmation, Notice To Proceed Activations and Modifications, and All Lanes Cleared separate from the events chronology.	SG 8.0	RISC
SRT-451	Audit RISC	The software will allow a user to audit RISC Activations.	SG 8.0	RISC
SRT-452	Audit Agency/Contact	The software will allow a user to modify the RISC Requesting Agency and Contact.	SG 8.0	RISC

SRT-453	Audit Contractor Timestamps	The software will allow a user to modify the Contractor Notified Time, and Contractor Response Time.	SG 8.0	RISC
SRT-454	Audit Equipment Records	The software will allow a user to add/modify/delete records for the equipment used.	SG 8.0	RISC
SRT-455	Audit Equipment Fields	The software will allow the user to add/modify the equipment, Time Requested, Arrived Timestamp, Arrived Contact, Verified Timestamp, Verified Agency, Verified Contact, and whether the equipment was utilized.	SG 8.0	RISC
SRT-456	Audit NTP and Lanes Cleared	The software will allow the user to add/modify/delete Notice to Proceed and All Lanes Clear entries.	SG 8.0	RISC
SRT-457	Retrieve Remote Devices	RCA will allow clients to retrieve remote device information.	SG 8.0	RCA
SRT-458	Retrieve Device Configuration	RCA will allow clients to retrieve remote device configuration data.	SG 8.0	RCA
SRT-459	Retrieve Device Status	RCA will allow clients to retrieve remote device status data.	SG 8.0	RCA
SRT-460	Retrieve Remote System Data	RCA will allow clients to retrieve relevant remote system configuration data.	SG 8.0	RCA
SRT-461	Retrieve Remote DMS System Config	RCA will allow clients to retrieve remote DMS system configuration data.	SG 8.0	RCA
SRT-462	Retrieve Remote DMS Font Config	RCA will allow clients to retrieve remote DMS font configuration data.	SG 8.0	RCA
SRT-463	Retrieve Remote Message Libraries	RCA will allow clients to retrieve remote message libraries.	SG 8.0	RCA
SRT-464	Retrieve Remote DMS Sign Config	RCA will allow clients to retrieve remote DMS default duration and phase times	SG 8.0	RCA
SRT-465	Retrieve Remote MAS Queues	RCA will allow clients to retrieve MAS queues for DMSs.	SG 8.0	RCA
SRT-466	Allow Certificate Configuration	RCA will allow remote RCA process' public key certificates to be configured.	SG 8.0	RCA
SRT-467	Configure Connections	RCA will allow an authorized user to configure connection information for other RCA processes.	SG 8.0	RCA
SRT-468	Subscribe for Updates	RCA will allow clients to subscribe for updates.	SG 8.0	RCA
SRT-469	Subscribe for Config Updates	RCA will allow clients to subscribe for remote device configuration updates.	SG 8.0	RCA
SRT-470	Subscribe for Status Updates	RCA will allow clients to subscribe for remote resource status updates.	SG 8.0	RCA
SRT-471	Connect to Other RCA	RCA will establish communication to other RCA processes.	SG 8.0	RCA
SRT-472	Retrieve Connection Info from DB	RCA will retrieve connection information for other RCA processes from the database.	SG 8.0	RCA
SRT-473	Comm Retry	RCA will periodically retry connection to other RCA processes when connection fails or is disconnected.	SG 8.0	RCA

SRT-474	Comm Heartbeat	RCA will contain a heartbeat message to monitor the connection between remote installations.	SG 8.0	RCA
SRT-475	Retrieve Other Devices	RCA will retrieve information for remote devices from other RCA processes.	SG 8.0	RCA
SRT-476	Retrieve Device Info on Connect	RCA will retrieve remote device information upon successful communication with another RCA process.	SG 8.0	RCA
SRT-477	Clear Device Info on Disconnect	RCA will clear the remote device information for an RCA process which disconnects.	SG 8.0	RCA
SRT-478	Update Databus	RCA will update DataBus with device status received from other RCA processes.	SG 8.0	RCA
SRT-479	Subscribe to Other RCA Processes	RCA will subscribe to device status updates from other RCA processes.	SG 8.0	RCA
SRT-480	RCA Device Status	RCA will support device status for specific types of devices and/or resources.	SG 8.0	RCA
SRT-481	RCA DMS Status	RCA will support device status for DMSs.	SG 8.0	RCA
SRT-482	RCA CCTV Status	RCA will support device status for CCTVs.	SG 8.0	RCA
SRT-483	RCA TSS Status	RCA will support device status for TSS.	SG 8.0	RCA
SRT-484	RCA Event Status	RCA will support retrieving remote events.	SG 8.0	RCA
SRT-485	Forward Commands	RCA will forward client commands to the appropriate RCA process.	SG 8.0	RCA
SRT-486	Forward Commands Through RCA	RCA will forward client command responses to the appropriate client.	SG 8.0	RCA
SRT-487	Permission to Send Commands	RCA will verify a user has permission to send commands to another RCA process.	SG 8.0	RCA
SRT-488	Authenticating Users	RCA will verify another RCA process' user name has permission to perform a command.	SG 8.0	RCA
SRT-489	Permission Errors	RCA will return a permission error to another RCA process when the process does not have the appropriate permissions for a command.	SG 8.0	RCA
SRT-490	Verify in Remote System	RCA will verify permission for configuring other RCA processes' connection information.	SG 8.0	RCA
SRT-491	Public/Private Encryption	RCA will utilize public/private key encryption for messages sent to another RCA process.	SG 8.0	RCA
SRT-492	Encrypt Messages	RCA will encrypt outgoing messages to other RCA processes such that the public key for the transmitting process can be used to decrypt the message.	SG 8.0	RCA
SRT-493	Decrypt Messages	RCA will decrypt incoming messages from other RCA processes using the public key for the transmitting process.	SG 8.0	RCA
SRT-494	Log Connection Status	RCA will log the connection status of other RCA processes.	SG 8.0	RCA
SRT-495	Log Initial Connection Attempts	RCA will log the result of initial connection attempts to other RCA processes.	SG 8.0	RCA
SRT-496	Log Disconnects	RCA will log when another RCA process disconnects.	SG 8.0	RCA

SRT-497	Log Reconnection	RCA will log a successful reconnection to another RCA process.	SG 8.0	RCA
SRT-498	Log Device Messages	When in detailed log mode, RCA will log devices received from another RCA process.	SG 8.0	RCA
SRT-499	Log Data Retrieval	When in detailed log mode, RCA will log the contents of the initial device data retrieved from an RCA process.	SG 8.0	RCA
SRT-500	CCTV Center Id	When a dialog contains a list of cameras, the dialog will contain a column indicating the Center Id of the installation where the Camera originated.	SG 8.0	RCA
SRT-501	DMS Center Id	When a dialog contains a list of DMS, the dialog will contain a column indicating the Center Id of the installation where the DMS originated.	SG 8.0	RCA
SRT-502	Using Remote Message Library	The Add Message dialog for a DMS will allow the user to use both the local message library as well as the remote message library.	SG 8.0	RCA
SRT-503	Graphic/Sign Match	The software will prevent a user from sending a remote graphic to local sign as well as a local graphic to a remote sign.	SG 8.0	RCA
SRT-504	Event Center Id	When a dialog contains a list of events, the dialog will include a column containing the Center Id of the installation from which the event originated.	SG 8.0	RCA
SRT-505	Event List Filtering	The Event List will allow users to filter this list of events to "All" events, "Local" events (showing only events generated from the local system), or by any individual named RCA connection.	SG 8.0	RCA
SRT-506	Event Details Center Id	The Event Details dialog will contain the name of the originating district within the dialog.	SG 8.0	RCA
SRT-507	TSS Center Id	When a dialog contains a list of TSS objects, the dialog will contain a column indicating the Center Id of the installation where the TSS object originated.	SG 8.0	RCA
SRT-508	Remote Configuration	The software will allow users to configure 1 or more connection to remote RCA systems.	SG 8.0	RCA
SRT-509	Host Configuration Params	When configuring a host, the user will input the connection name, host, port, whether to allow incoming data, whether to allow outgoing data, a local username, and a certificate generated from the remote RCA system.	SG 8.0	RCA
SRT-510	View RCA Connection Status	The software will allow users to monitor any existing RCA connections and determine the connection status to each remote subsystem.	SG 8.0	RCA
SRT-511	Connection Status Updates	For each remote subsystem, the software will update the user interface every minute to indicate the time the last message was received for that subsystem.	SG 8.0	RCA
SRT-512	DB timestamps timezone	All timestamps stored in the database will contain date and time information as well as timezone information.	SG 8.0	System

SRT-513	Process timestamps timezone	All timestamps sent by SunGuide process to other SunGuide processes will contain date and time information as well as timezone information.	SG 8.0	System
SRT-514	Group System Owned Events Setting	The software will allow a user with permission to set a system wide setting on whether the system will group events owned by a system user into a single category.	SG 8.0	Operator Map
SRT-515	Group System Owned Events	If the system is set to group events owned by a system user, events in the Event List dialog will be grouped together, regardless of other event characteristics.	SG 8.0	Operator Map
SRT-516	Event List Grouping	If the system is set not group events owned by a system user, events will be grouped according to their event characteristics.	SG 8.0	Operator Map