



Technical Memorandum

SunGuide[®] Software System



SunGuide Software Standard Physical Configuration Audit Procedures

Version 1.0

September 22, 2014

Prepared for:

*Florida Department of Transportation
Intelligent Transportation Systems Program
605 Suwannee Street, M.S. 90
Tallahassee, Florida 32399-0450
(850) 410-5600*

Table of Contents

1 Purpose.....	1
2 Related Documents	1
3 Standard PCA Procedure Plan	1
4 Standard PCA Procedures.....	2
5 Example PCA Checklists	3
6 Example of PCA Components Schedule	6

List of Tables

Table 3.1: PCA Work Breakdown with Schedule	1
Table 5.1: PCA Checklist Example 1.....	3
Table 5.2 Example Operating System, Commercial Off-the-Shelf, and Specialize Software Checklist.....	4

List of Figures

Figure 6.1: PCA Components Schedule.....	6
--	---

List of Acronyms and Abbreviations

FAT.....	Factory Acceptance Test
FDOT.....	Florida Department of Transportation
PCA.....	Physical Configuration Audit
SICP.....	Software Integration Case Procedure
SIP.....	Software Integration Plan

1 Purpose

This document describes standard physical configuration audit (PCA) procedures, a superset of activities that could be performed during a SunGuide® software PCA. A PCA verifies a particular software’s version and the test facility’s readiness for the factory acceptance test (FAT). A successful PCA indicates that the FAT test setup is properly prepared.

The standard PCA procedures in this document provide the framework for the PCA for any SunGuide software FAT. From these standard procedures, a release-specific checklist will be generated and used during the PCA.

2 Related Documents

The following documents were used to develop the SunGuide software standard PCA procedures:

- *SunGuide Software Scope of Services, Contract # BDQ69*

3 Standard PCA Procedure Plan

A PCA must be planned for, executed, and closed out. Table 3.1 shows a list of these activities along with a schedule of relative dates against an unspecified FAT date.

Table 3.1: PCA Work Breakdown with Schedule

Item	Scheduling Guidelines	Assignee	Description
PCA Scheduling	Prior to software development schedule finalization	SunGuide Software Contractor	Using the schedule estimate, ensure that the remaining milestone dates in this table are included in the software development schedule according the scheduling guidelines and assigned to the right party. Ensure dates for dependencies are also accounted for.
SIP and SICP Draft Documents	3 weeks prior to FAT	SunGuide Software Contractor	Software integration plan (SIP) and software integration case procedure (SICP) drafts are delivered to the Florida Department of Transportation (FDOT) for review and use in PCA checklist development.
PCA Checklist Draft Complete	2 weeks prior to FAT	FDOT	FDOT will generate a FAT-specific draft PCA Checklist to be followed during the PCA.

Item	Scheduling Guidelines	Assignee	Description
PCA Checklist Review Comments	1 week plus 2 business days prior to FAT	SunGuide Software Contractor	The SunGuide Software Contractor will provide comments electronically on the PCA Checklist. Additionally and optionally, a meeting could be held between FDOT and the SunGuide Software Contractor to discuss and expedite resolution of all comments.
PCA Checklist Finalized	1 week plus 1 business days prior to FAT	FDOT	FDOT will address the comments, finalize the PCA Checklist, and publish.
PCA Conducted	1 week prior to FAT.	FDOT and SunGuide Software Contractor	FDOT will conduct the PCA with the SunGuide Software Contractor at the FAT facility.
Draft PCA Report including Test Readiness Punch List	1 business day after PCA event	FDOT	FDOT will produce a draft PCA report containing the results of the testing and a punch list of items requiring attention prior to the FAT in order to be ready for the FAT.
Draft PCA Report Comments	1-2 business days after PCA Report Draft is provided	SunGuide Software Contractor	The SunGuide Software Contractor will provide comments on the PCA Report. Additionally and optionally, a meeting could be held between FDOT and the SunGuide Software Contractor to discuss and expedite resolution of all comments.
PCA Report Finalized	1-2 business days after Draft PCA Report Comments received	FDOT	FDOT will address the comments, finalize the PCA report, and publish.
Draft PCA Punch List Verification	Prior to beginning of FAT	FDOT and SunGuide Software Contractor	FDOT will verify before or at the beginning of FAT that the items in the punch list have been resolved.

4 Standard PCA Procedures

The PCA will verify the availability and readiness of appropriate computer software, software products and tools, test tools, test data, SunGuide software, and hardware and network infrastructure identified by the SIP and SICP.

The following standard PCA procedures will be followed according to the work breakdown and schedule in Table 3.1 above:

1. Prior to finalizing the software development schedule, the work breakdown and schedule table in Table 3.1 will be used to verify that each item is included and achievable as scheduled.

2. Prior to the PCA, FDOT will use the SIP and SICP documents to create the FAT event specific to the PCA Checklist. See Table 5.1 for an example. Also, see Table 5.2 for an example of an optional, secondary checklist that is referenced and used by the first step in the Table 5.1 example PCA checklist.
3. Prior to FAT at the PCA, FDOT will use the FAT event specific PCA Checklist to ensure that all testing resources are validated and ready for FAT. Any items not ready will be documented in a punch list to be addressed prior to FAT.

5 Example PCA Checklists

Table 5.1: PCA Checklist Example 1

Item	Description	Result
Hardware and Software Resources	Use the Table 5.2 checklist to verify presence of required hardware and/or software systems, test tools, simulators	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
Simulation of Transportation Sensor Subsystem Data for Reporting	Verify the remote traffic microwave sensor simulator can simulate changing values by running a report	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
Dry run SICP Test Case 3 Steps 1-11	Dry run the SICP Test Case 3 Steps 1-11 (ensuring the color dynamic message sign works in SunGuide software)	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Table 5.2 Example Operating System, Commercial Off-the-Shelf, and Specialize Software Checklist

Software Installation	SunGuide Application Server A supporting SunGuide x.y	SunGuide Application Server B supporting SunGuide x.y	SunGuide Application Server supporting SunGuide x.y	SunGuide Oracle Database Server supporting SG x.y	SunGuide SQL-Server Database Server supporting SG x.y	SunGuide Oracle Database Server supporting SG x.y	SunGuide Workstation A	SunGuide Workstation B	SunGuide Workstation C
Windows 2008 servers with current service packs and hot fixes									
IIS on the application servers									
Oracle RDBMS on a database server supporting SG 6.0									
SQL Server on a database server supporting SG 6.0									
Oracle RDBMS on the database server supporting SG 5.1.1									
SunGuide software 6.0									
SunGuide software 5.1.1									
Windows 7 (current service packs and hot fixes)									
IE 8 (current service packs and hot fixes)									
Oracle 11.1.0.7.0 client with SQL Developer									
Oracle 11.1.0.7.0 Enterprise Manager Console									
SQL Server 2012 client									
SQL Server 2012 SQL Server Management Studio									

Software Installation	SunGuide Application Server A supporting SunGuide x.y	SunGuide Application Server B supporting SunGuide x.y	SunGuide Application Server supporting SunGuide x.y	SunGuide Oracle Database Server supporting SG x.y	SunGuide SQL-Server Database Server supporting SG x.y	SunGuide Oracle Database Server supporting SG x.y	SunGuide Workstation A	SunGuide Workstation B	SunGuide Workstation C
XML Test Client									
NotePad ++									
Status Logger (SL) Viewer									
Executive Handler Viewer									
TSS Simulator									
Connected Vehicle Simulator									
DMS Simulator									
RWIS Simulator									
AVL Simulator									
Safety Barrier Simulator									

6 Example of PCA Components Schedule

Figure 6.1 depicts the activities and documents that must be performed to properly conduct and successfully complete a PCA. This schedule will be incorporated into the overall software development schedule with the dependencies in tact prior to finalization of the software development schedule. Any delay in the delivery of the necessary documentation could result in the SunGuide Software Contractor failing the PCA and/or a delay in the FAT execution. Any deviations to this schedule must be approved by FDOT prior to the start of software development.

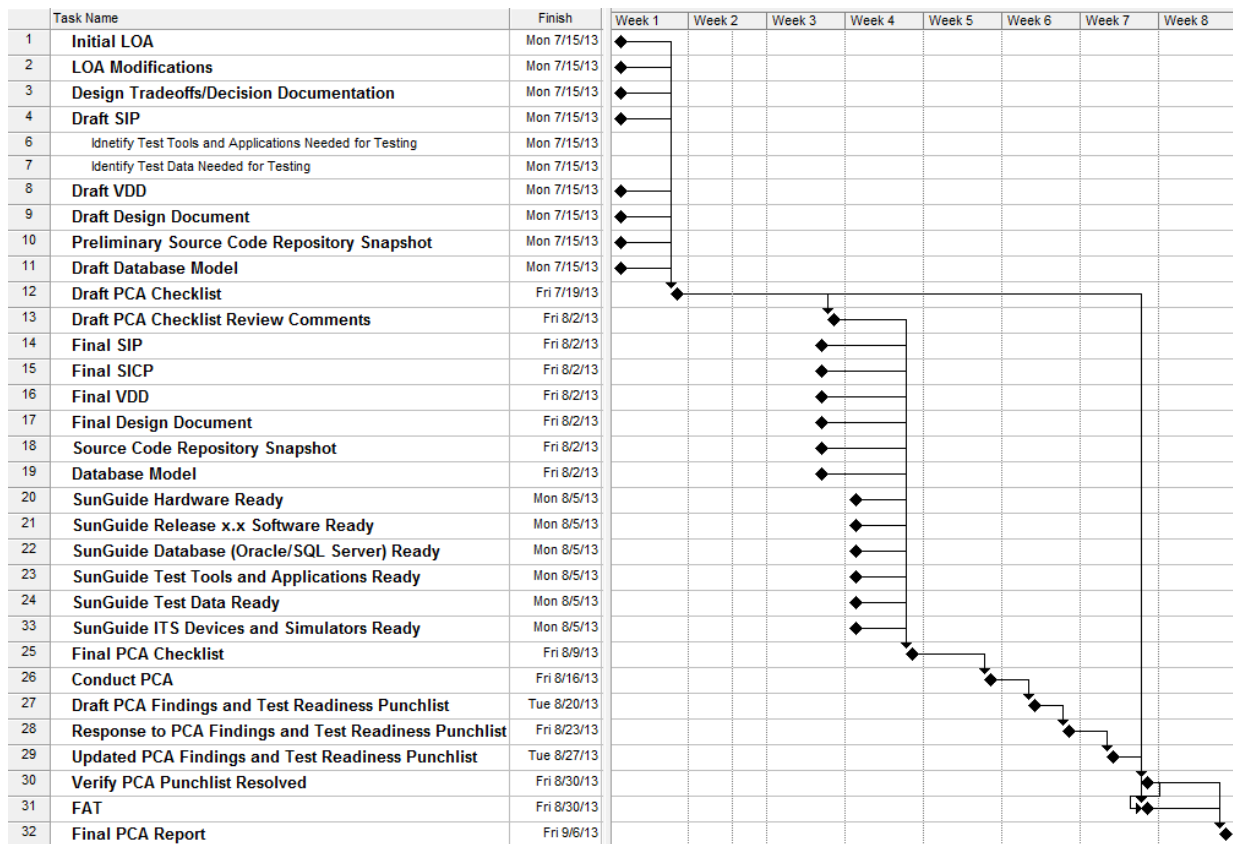


Figure 6.1: PCA Components Schedule