Document Number

Sensus Lighting Control Installation Guide

Release 1.2.1

VERSION HISTORY				
Version	RNI Version	Date	Author	Description of Change
1.2.1	2.2.4	November 6, 2013	E. Lorenz	Initial draft

Defects

The following defects have been addressed in this document.

Date	Defect No.	Summary

Table of Contents

Overview

Purpose of this document is to instruct the reader on how to install and/or upgrade the LC application. Please read the <u>whole document</u> before proceeding to do any work on the installation box. Whether this is a new install or an upgrade of the LC application the installation steps are exactly the same because the install script accounts for any differences.

Contents of the ISO File

- Ant (folder with open source ant tool used by install process)
- buildversion.txt
- dbms (folder/directory)
- SLC_1.2.1_Installation.pdf (this document)
- slc.war (slc application war file)
- flexnet-slc (linux tomcat 7 service for flexnet-slc)
- install-slc.sh (actual install script you execute to install slc and its dependencies)
- install-slc.xml (ant script that does the heavy lifting for the install)
- prompt.txt (for silent install option)
- tomcat-7.0.42.tar.gz (tomcat 7 for the SLC application)
- maintainSLCUser.sh (script for adding SLC user, update SLC user password and making encoded password for gateway notification client & SLC user DBMS).

Prerequisites

- Linux Server with Red Hat Linux Enterprise Server 5 and above

- Root access and working knowledge of Linux

- Installed Oracle JDK & JRE 1.7 Update 7 or greater and set the JAVA_HOME environment variable

- A running Sensus Lighting Control 1.1.4 RNI & Gateway which is typically installed on a separate rni-webserver box.

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- Installed PostgreSQL 9.2.X & postgresql JDBC driver. Also install pgAdmin III options installed (may need connection pool and/or hotsync options for a clustered DB environment see your DBA group for specific options). Typically installed on separate DB Server.

- See appendix A on how to install the prerequisite software Oracle JDK & PostgreSQL

Installation Instructions

Manual SLC DBMS install

a. The LC Application Database is typically installed on a separate PostgreSQL DB Server
b. A dedicated PostgesSQL account and password to install the LC DBMS schemas, functions, triggers, and data. Please keep note of the account and password you will need it in later steps.
c. Copy the dbms folder and its contents from the mounted iso or cd to a desired temp location i.e. /tmp/. Please keep note of this location you will need it in later steps. Also on Linux you may need to change permissions to execute properly for example, chmod –R 755 /temp/ dbms/postgres/scripts
d. *__This Section is for a clean DBMS install, caution it will wipe out the existing LC DBMS and all existing stored data.__* Navigate to the /dbms/postgres/scripts/ folder you will notice 2 scripts.
    - *__sensus-lc-db-setup.sh__* *– used to create the LC application and indexes, triggers, functions and base look-up data. __This must be run for the LC application to function.__*
    (a) *Modify the appropriate* *__sensus-lc-db-setup__* *file according to instructions inside the file and then execute. It will take approximately* 30 seconds to 2 minutes to completely run.
    (b) An example of modified (red highlights were the areas changed) **sensus-lc-db-setup.sh** script below:

./db-setup/lc-strut.sh postgres postgres /tmp/dbms/postgres/scripts/db-setup /usr/pgsql-9.2/bin

e. ***This section is to update the SLC DBMS from a previous release, it will not wipe out the existing DBMS. Do not run if you ran step d.*** Navigate to the /dbms/postgres/scripts/ folder you will notice 2 scripts.

- ***sensus-lc-db-update.sh*** *– used to create the LC application and, indexes, triggers, functions and base look-up data.* ***This must be run for the LC application to function.***
  (a) *Modify the appropriate* ***sensus-lc-db-update*** *file according to instructions inside the file and then execute. It will take approximately* 30 seconds to 2 minutes to completely run.
  (b) An example of modified (red highlights were the areas changed) **sensus-lc-db-update.sh** script below:

  ./db-setup/lc-update.sh postgres postgres /tmp/dbms/postgres/scripts/db-setup /usr/pgsql-9.2/bin

- ***Run the sensus-lc-db-update.sh***

  > cd /tmp/dbms/postgres/scripts

  > ./ sensus-lc-db-update.sh

- The installer installs/performs the following on the WEB server:
  a. Installs *Tomcat7 (/opt/flexnet-slc)*
  b. Creates the *tomslc* userid for tomcat7 to run underneath
  c. Installs flexnet-slc service (tomcat 7 container for slc starts/stops tomcat 7 with tomslc userid)
  d. Installs the *slc.war* file
  e. Starts the *flexnet-slc service*

- Manual Install of LC application

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a. Unload your iso
b. su to root
c. [root@mallet]# ./install-slc.sh
d. Then you will see the following and will be prompted enter your choice for dbms userid & dbms password.

```
-------------------------
ANT_HOME
-------------------------
ant
-------------------------
CREATE TOMSLC USER ACCOUNT IF NOT PRESENT
-------------------------
creating new tomslc user

Enter your dbms userid press, default is slc_slcdb  [ENTER]:duid
duid
Enter your dbms password press [ENTER]: dpass
dpass
-------------------------------
INSTALL TOMCAT 7 and SLC APPLICATION
-------------------------------
Buildfile: install-epm.xml

stop-tomcat:

install-tomcat:
   [echo] Installing Tomcat 7
   [untar] Expanding: /root/EPM/tomcat-7.0.42.tar.gz into /opt/flexnet-slc
   [echo] Fixing Tomcat 7 directory permissions
   [copy] Copying 1 file to /etc/init.d
   [echo] Installing flexnet-slc service

copy-war:
   [echo] Cleanup old webapp
   [echo] Installing epm.war file
   [copy] Copying 1 file to /opt/flexnet-slc/webapps
   [echo] Altering context.xml userid and password

start-tomcat:
```

```
    [echo] Starting Tomcat 7

    install-all:

    BUILD SUCCESSFUL
    Total time: 4 seconds
    -------------------------------
    Change owner to tomslc
    -------------------------------
    SLC INSTALL COMPLETED
    -----------------------
```

- Silent Install of LC Application
  a. Modify prompt.txt to your proper responses to dbms userid, dbms
     password:

     Contents of prompt.txt for slc:

     duid
     dpass

  b. Then as root
  c. [root@mallet]# ./install-slc.sh < prompt.txt

Miscellaneous

Start/Stop/Restart LC tomcat 7 container

When LC installed a linux service named flexnet-slc under /etc/init.d was
installed.

Stop lc tomcat 7 :

[root@mallet]# service flexnet-slc stop

Start lc tomcat 7:

[root@mallet]# service flexnet-slc start

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Restart lc tomcat 7:

[root@mallet]# service flexnet-slc restart

**the /etc/init.d/flexnet-slc service script issues su to the tomslc user which was created during lc installation

Generate Encoded LC Password:

Run the following to encode your password in the sensus-lc.properties file for the webservice.user.pwd setting only:

[root@mallet]# GenerateEncodedSLCPassword.sh to obtain the encoded password for the webservice.user.pwd for the webservice.user.name configured.

LC sensus-lc.properties configuration

Below is the installed /opt/flexnet-slc/webapps/slc/WEB-INF/classes/settings/sensus-lc.properties.

If you need to change these settings stop the flexnet-slc service, edit/save the sensus-lc.properties and the start the flexnet-slc service. The items highlighted in red are the normal changes required to be made by most customers.

```
################ System user to call GATEWAY automatically ################
system.user.name=sysuser←(Change to match your environment)
system.user.pwd=sysuser←(Change to match your environment)

################ Notifications Web Service from the gateway Authorized User
##########################
webservice.user.name=not_user
webservice.user.pwd=ac4c8b343327980f515ad8656fe764d056a8a512b1687af4a534a2ab369608
e0←(Change to match your environment need to run GenerateEncodedSLCPassword.sh)

################ Super User Authorized for all Tenants ################
super.user.name=superuser

############### TIMER ####################
#
```

sensus

rni.check.status.timer.milliseconds is the timer responsible to call the code that checks if the rni is available or not
communication.failure.check.timer.milliseconds is the timer responsible to call the stored procedure that generates a Communication failure message
on the light that did not received a message during x hours. The x hours is set on the database on the table tenant, column min_smartpoint_comm_time.
#
rni.check.status.timer.milliseconds=300000
communication.failure.check.timer.milliseconds= 3600000
############### CALCULATION TIMER #######################
cron-expression is the string "0 0 12 ? * WED" - which means "every Wednesday at 12:00:00 pm".
strings bellow must follow the pattern: second minute hour day_of_month month day_of_week
#0 --> second (0-59)
#42 --> minute (0-59)
#23 --> hour (0-23)
#* --> day_of_month (* = all values - every day)
#* --> month (* = all values - every month)
#? --> day_of_week (? = no specific value - does not matter)
ecomode.calculation.timer=0 59 23 * * ?
mapcenter.location.calculation.timer=0 59 23 * * ?
status.message.delete.timer=0 0 01 * * ?

# note: dashboard resume calculation must happen after ecomode baseline calculation
dashboard.resume.calculation.timer=0 0 01 * * ?

################# Export File generation #########################
csv.temp.file.path=/opt/flexnet-slc/csvtemp

################# System settings default properties #######################
#America/Atikokan   - (GMT -5:00) Eastern Standard Time
#America/Bahia_Banderas - (GMT -6:00) Central Standard Time
#ART   - (GMT 2:00) Eastern European Time
#Africa/Algiers   - (GMT 1:00) Central European Time
#America/Araguaina   - (GMT -3:00) Brasilia Time
#for more valid values please see time zone drop down at system settings page
system.settings.timeZone=US/Eastern

#en_US - English (US)
#pt_BR - Portuguese (BR)
#es_MX - Spanish
system.settings.language=en_US

#MM/DD/YYYY
#DD/MM/YYYY
system.settings.dateFormat=MM/DD/YYYY

#1 - Always monitor Requests Status in Recent Requests.
#2 - Always dismiss Requests Status to Event History.
#3 - Prompt me each time a request is made.
system.settings.monitorRequest=3

#true - Convert units of energy to large factor MWh, GWh, TWh and PWh.
#false - Do not Convert units of energy to large factor MWh, GWh, TWh and PWh.

```
system.settings.convertEnergyUnit=false


#15
#25
#50
#100
system.settings.pageSize=100
system.settings.pageSizeList=15,25,50,100

#1 - Always save page size definitions
#2 - Never save page size definitions
#3 - Prompt me each time about page size definitions (default)
system.settings.pageSizeShowDialog=3


# Latitude / Longitude default - Morrisville
system.settings.tenant.latitude=35.823483←(Change to match your environment)
system.settings.tenant.longitude=-78.8255621←(Change to match your environment)
```

Tenant Configuration

Each new tenant or customer must have a new row added to the LC DBMS 'tenant' table which reflects the rni gateway URI (coordinate with the RNI installer to get LC Gateway URI). Each new tenant must have a WWW & LAN DNS entry added for their unique URI for example peco.slc.sensus.com for the 'peco' tenant/customer and acme.slc.sensus.com for the 'acme' customer/tenant. The 'acme' and 'peco' tenant/customer correspond to table columns in the LC DBMS to validate both security and to decide which gateway URI is to be used by each tenant. In addition, this new tenant row will contain the initial latitude & longitude to center the maps for this tenant/customer until the batch job run every night to recalculate this value based on actual lights in the LC DBMS for this tenant. *It is recommended you make the below changes using pgAdmin client installed in the prerequisite software section.*

Tenant Table Structure:
  tenant_id serial NOT NULL,
  "name" character varying(20) NOT NULL, (RNI Code like ACME or PECO)
  description character varying(80), (Can Be anything)
  rni_code character varying(5) NOT NULL, , (RNI Code like ACME or PECO)
  server_name character varying(150) NOT NULL,(Must be the server name of the URL the customer uses to access LC such as acme.slc.sensus.com)
  gateway_rni_location character varying(150), (LC GWY URL such as http://www.63333.venus.mor.sensus.com:9090/mlc-ws/mlc-ws/)

create_user character varying(20) NOT NULL, (Value of who created row such as Sensus, System or QAT)

create_date timestamp with time zone,

latitude double precision, (Initial latitude for the tenant/customer light location until batch job runs at night against the real lights)

longitude double precision, (Initial longitude for the tenant/customer light location until batch job runs at night against the real lights)

min_smartpoint_comm_time integer, (A number representing hours for which a light if not in contact with the LC application will display communication failure this by tenant of course)

light_time_zone character varying(80), (Timezone of the tenant's lights such as US/Eastern or US/Central, also used to determine the timezone for running batch processes)

ecomode_disable(booelan), (Whether eco-mode is enable for customer Timezone of the tenant's lights such as US/Eastern or US/Central)

batch_process_time(integer), (Controls when the tenant's batch process jobs will run for example "9" will be 9am for that tenant.)

Example Tenant Table Entry:
1;"acme";"ACME Corporation LC Demo";"ACME";"acme-app.davis.sensus.lab";"http://mallet-web.davis.sensus.lab/mlc-ws/mlc-ws/";"QAT";"2012-09-16 18:18:00.403862+00";35.9167104958959;-78.511114514837;3;"US/Eastern";"FALSE";"9"

Adding new Tenant to RNI

1. Add the new tenant id string (up to 5 characters) using RNI web. (Administration tab, Customer/Network/Configuration option, Click on 'Add Customer' button)

2. Allocate a unassigned tenant id number (0-255) from RNI table lc_tenant. Insert a new row in table lc_tenant with this tenant id number, and the newly added tenant id string.

   e.g. INSERT into lc_tenant (lc_tenant_id,customer_id) values (5, 'PECO')

3. Assign the destination URLs to point to SLC app. This will enable the SLC app to receive the notification messages from the endpoint. (Administration tab, Customer/Network/Configuration menu option, Configuration tab, choose the newly added customer under 'Configurations for' option menu.

   Scroll down to following keys and set the appropriate values. Ensure the userid used for option 'Mlc.DO.DestinationUserId' has the permissions to operate on the newly added tenant. (Check under user permissions – Configuration tab, Customer/Network/Configuration option, User Roles)

Update RNI ncpiperules.cfg

On the NC, ensure the ncpiperules.cfg (/opt/ncprogs/etc) is updated to forward the AppCode 86 (NA2W MLC Binding message) to the Parsers. By default in 2.2.3, this appcode 86 is not forwarded to the Parsers. Look for the lines with the appcode string:
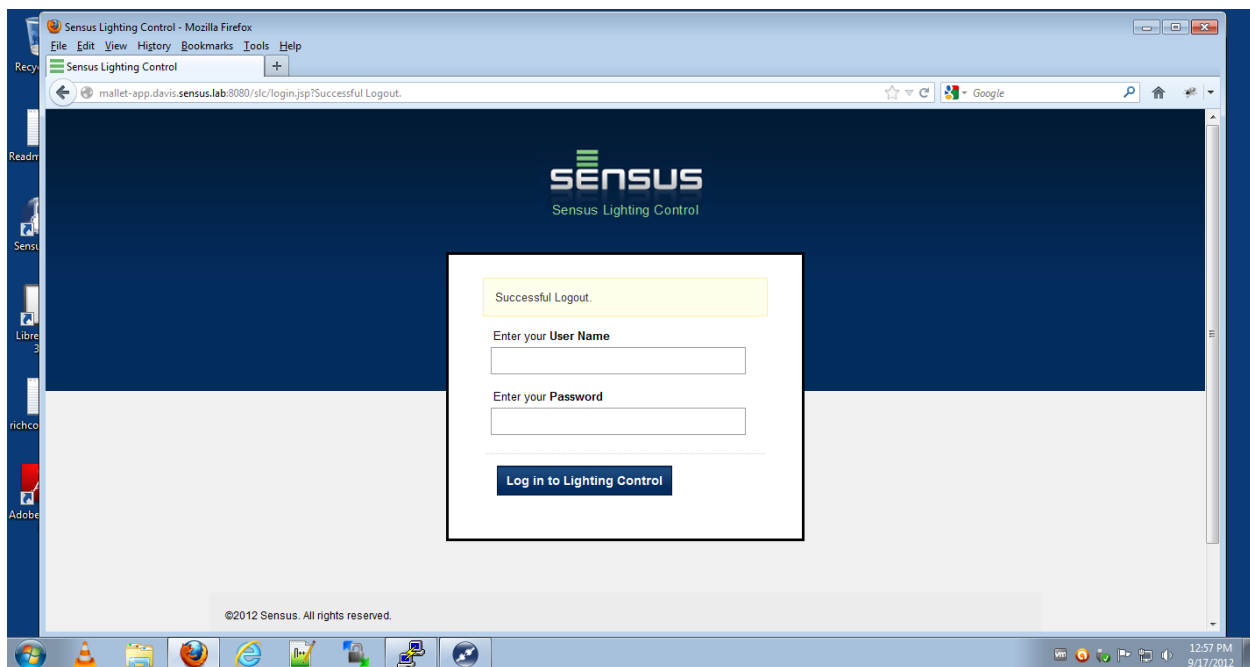
```
appcode=1,5,9,17,22,37,47,70,71,72,73,74,75,76,91
```
Add appcode 86 to above list.

```
appcode=1,5,9,17,22,37,47,70,71,72,73,74,75,76,86,91
```
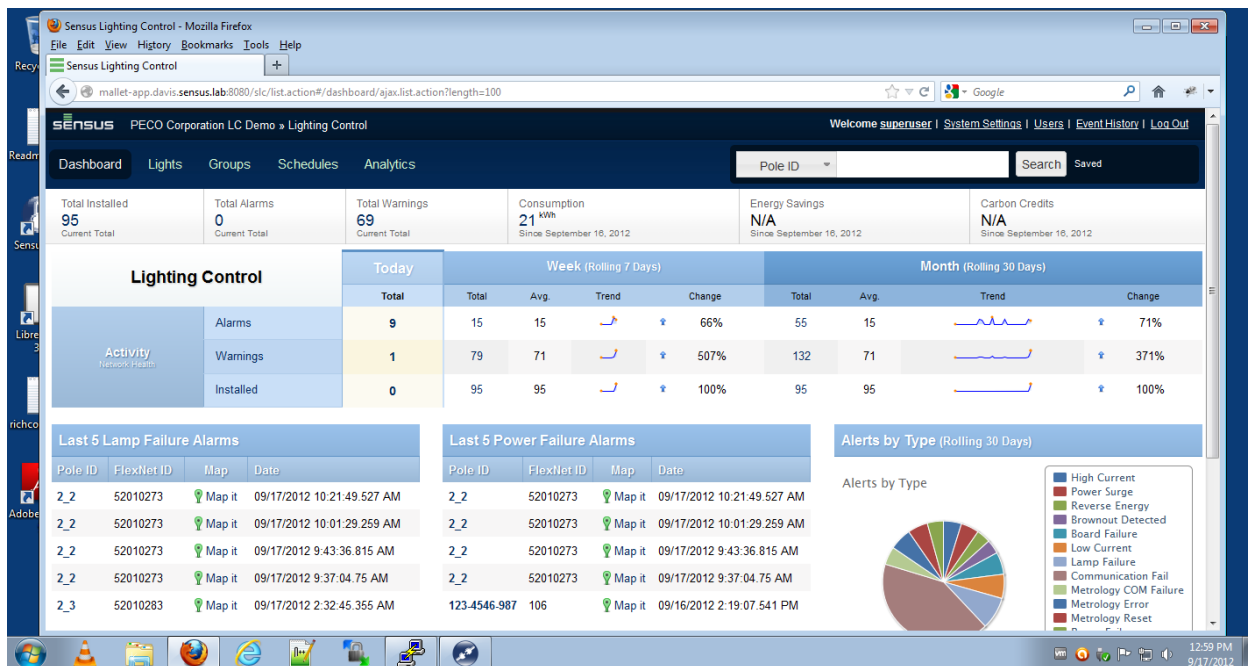
User Access & Verification

http://mallet-app.davis.sensus.lab:8080/slc/

Enter default superuser id/pwd: superuser/koala and then you should see the following:

Don't forget to change the superuser password!

Appendix A – Installation prerequisite software

Oracle JDK & JRE 1.7 Update7 or greater

1. Download the jdk-7u07-linux-x64-rpm.bin package from the following URL:

   http://www.oracle.com/technetwork/java/javase/downloads/index.html

2. Install the package:

   >./jdk-7u07-linux-x64-rpm.bin

3. Export the JAVA path

   > export JAVA_HOME=/usr/java/jdk1.7.0_07
   > export PATH=$JAVA_HOME/bin:$PATH

Install Postgres(if not already installed)

1. Unload your iso

2. >cd /install/pginstall

3. >./postgres_install.sh

Install pgAdmin

This application is a windows application and is available from the following WEB location:

http://pgadmin.org/

Note: Use the latest pgAdmin version for postgres 9.2.X or later
Perform the following steps to configure access to the postgres database on the LC server:

1. Select File -> Add Server
2. In the New Server Registration popup, enter the host server and postgres database authorization information. See below: