socomec
Innovative Power Solutions

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Shutdown Agent for Linux and MacOS User Manual JNC for Linux and MacOS			
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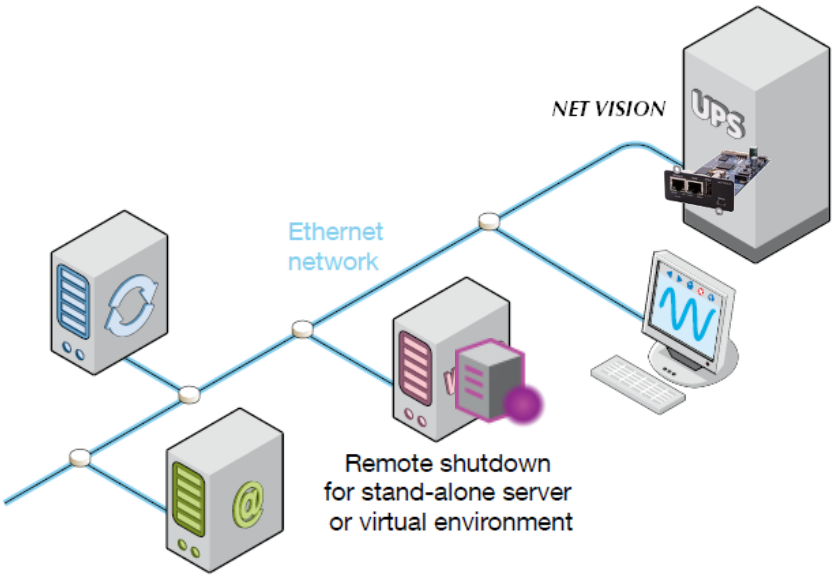
FOREWORD

This document describes the installation and the configuration of SOCOMEC Shutdown Agent. This SW is an “all in one package” for standalone Linux and MacOS computers (***JNC*** Socomec software).

The shutdown events are managed from ***NET VISION*** or ***RT VISION*** (Optional or Embedded Card) UPS network interface.



1. GENERAL DESCRIPTION

The Shutdown Agent (SD-Agent) is software for automatically managing the graceful shutdown of standalone workstations/servers.
It includes an intuitive graphical interface and ensures an ordered shutdown process.
The SD-Agent installed on Linux computer or on Mac station, consists of a user interface using web interface and a daemon or service performing the complete shutdown procedure.

The user web interface includes:
• Configurations pages – Access protected
- Connection: UPS connection settings and network configuration
- Parameters: Delay and shutdown parameters depending on server type.
• Viewer page: Client Monitor
- UPS Status and shutdown event
- Shutdown process notification
This web page is automatically open in case of new notification coming from SD-Agent.
The web browser is called automatically, if it is not open, with the viewer page. The web browser is called for notification only if user is logged on Linux.

1.1. Network adapter

The UPS which supplies the Computer / Server must be equipped with a SOCOMEC Network adapter (i.e. ***NET VISION***) and shutdown events and timings must be configured via the web pages.

NET VISION Shutdown events configuration page: (Refer to NET VISION or RT VISION user manual for more details)

Shutdown Management

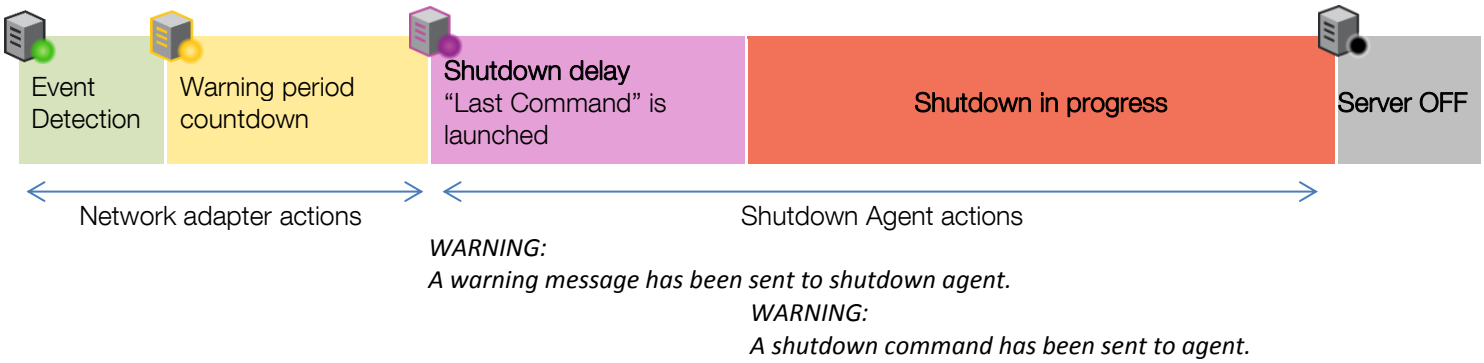
UPS Shutdown Delay (Sec)		Request to shut off the UPS after delay
UPS Shut Off	Disabled ▼ Enabled	
UPS On Delay (mn)		Request to restart the UPS
Level of battery capacity (%)	0 - 100	Set the battery level for event shutdown

Shutdown Event	Shutdown Actions	Warning Period (Min)	1st Warning (Sec)	Warning Interval (Sec)
On Battery Bat. Low / Discharged Battery Level Imminent Stop UPS Overload UPS over Temperature On Bypass EMD events	Disabled ▼ Warning Shutdown	Delay in minutes before sending shutdown command to Shutdown Agent SW	Delay in seconds before sending the first warning message to sever	Delay between 2 warning messages sent to server

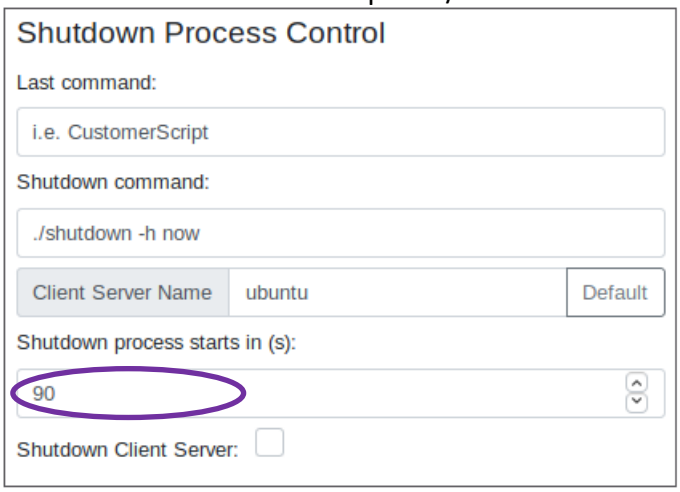
WARNING!
Make sure that the UPS shut-off time period is longer than the total time period for the shutdown procedure for the Computer / Server supplied by the UPS

1.2. SHUTDOWN Process

At the end of Warning period running on the network adapter a “SHUTDOWN REQUEST” is send to Shutdown Agent.



Standalone Computer / MAC



2. Shutdown Agent SW compatibility

2.1. Linux Distribution

x64 Distribution	Version	Retro-compatibility
Redhat	8	(7.x)
Centos	7.x	
Fedora	30 server edition	
Oracle	7.6	(6.7)
Ubuntu	19.x	(18)
Debian	10	(9)
Mint	19.1	
SUSE	15 SP1	
Open Suse	15.1 (leap)	

SD-Agent is not compatible with 32bits (x86) platform

2.2. Mac OS

Following versions are compatible with SD-Agent:

- SIERRA 10.12
- HIGH SIERRA 10.13
- MOJAVE 10.14

WARNING

⚠ IT configurations are approximate, and cannot be considered definitive because they are IT environment dependent and outside the scope of this user manual

3. SHUTDOWN AGENT SW INSTALLATION

The SD-Agent SW installation package is available on SOCOMEC's website; on CD bundle with 1 phase UPS, or on NET VISION's CD.
If this version is not present on the CD, please download it from our web site to be sure having last release.

3.1. Prerequisites

Admin credentials are necessary to install the SD-Agent program for all Operating Systems.

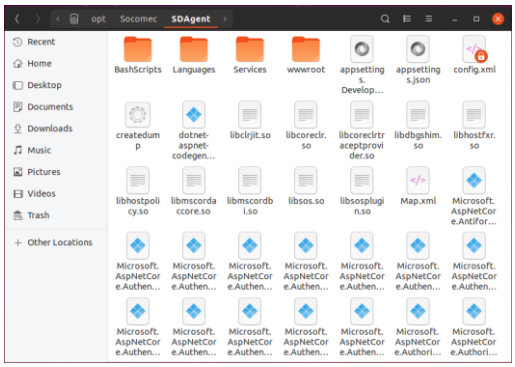
3.2. LINUX installation procedure

The `SDAgentPackage.sh` file is the script for installing the SD-Agent program.
It is recommended to copy the file in a common access directory such as `/Documents`

Step by Step procedure:

1. Open a Terminal session in the directory where the installation program has been copied ('/Document').
2. Change the permission for execution: `chmod +x SDAgentPackage.sh`
3. Execute the installation program: `sudo ./SDAgentPackage.sh`
4. Follow the instructions, and answer the questions to proceed.
5. The program is installed in `/opt/Socomec/SDAgent` directory
6. Service activation
   The service or daemon is installed in `/etc/systemd/system`
   Service name: `SDAgentConf-daemon.service`
   The installation program asks if the service has to be installed (y / n):
   If 'y' the service is installed
   If 'n' the SD-Agent program has to be run with following command: ./SDAgentConfig, or otherwise configured for automatic startup (refer to the documentation of the specific Linux distribution)

   The installation program asks if the service has to be set as 'ENABLED' to start on boot: (y / n)
   If 'y': the computer has to be rebooted to start the service for the first time.
   If 'n': the service has to be started by shell command (Refer to § below).



Once the service is running, the web interface can be opened.

3.2.1. Manual control of the service:

```
sudo systemctl start SDAgentConf-daemon.service
sudo systemctl stop SDAgentConf-daemon.service
sudo systemctl restart SDAgentConf-daemon.service
sudo systemctl status SDAgentConf-daemon.service
```

To run the daemon automatically after boot:

```
sudo systemctl enable SDAgentConf-daemon.service
```

to disable the auto-execution

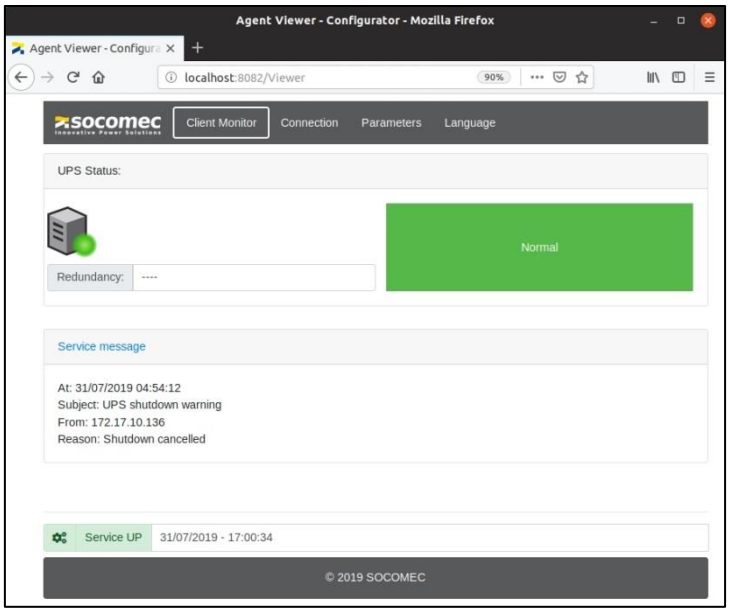
```
sudo systemctl disable SDAgentConf-daemon.service
```

status return data:

```
root@ubuntu:/opt/Socomec/SDAgent# systemctl status SDAgentConf-daemon.service
SDAgentConf-daemon.service - SDAgent daemon
Loaded: loaded (/etc/systemd/system/SDAgentConf-daemon.service; enabled; vend
Active: activating (start) since Tue 2019-08-06 16:39:12 CEST; 6min ago Main PID: 923 (SDAgentConfig)
Tasks: 21 (limit: 2311)
Memory: 81.0M
CGroup: /system.slice/SDAgentConf-daemon.service
└─>923 /opt/Socomec/SDAgent/SDAgentConfig
Aug 06 16:39:31 ubuntu SDAgentConfig[923]: Reason: Client list updated
Aug 06 16:39:31 ubuntu SDAgentConfig[923]: At: 06/08/2019 04:39:31
Aug 06 16:39:31 ubuntu SDAgentConfig[923]: Subject: Agent connection
Aug 06 16:39:31 ubuntu SDAgentConfig[923]: From: 192.168.1.1
Aug 06 16:39:31 ubuntu SDAgentConfig[923]: Reason: Client list updated
Aug 06 16:39:31 ubuntu SDAgentConfig[923]: Hosting environment: Production
```

3.2.2. User page – web interface

Call following url to open the User Interface: http://localhost:8082



Web Browser compatibility:

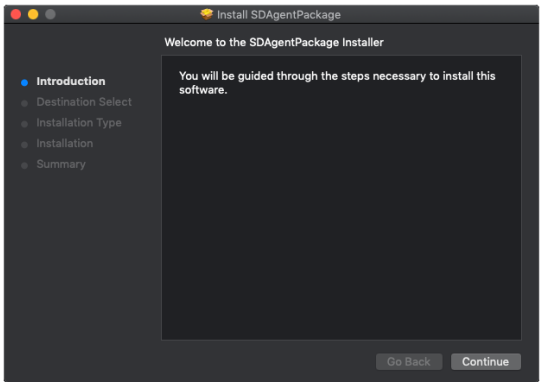
- Firefox
- Chrome
- Safari

3.3. Mac OS installation procedure

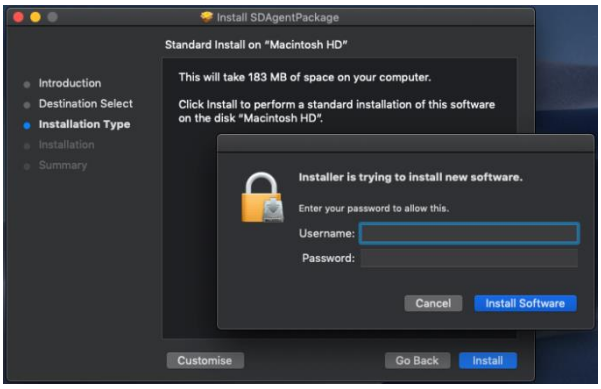
Installation package: SDAgentPackage.mpkg

1. Run the package
2. New icon is created in Application folder.
3. Click on the icon open Safari with the viewer of SD-Agent web page.

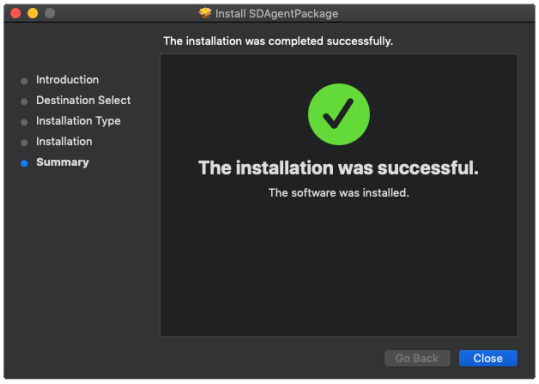
Running the installation package



MacOS admin credential

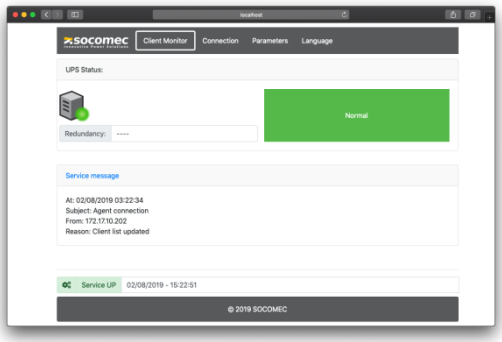


SD-Agent installed



SD-Agent added in Application

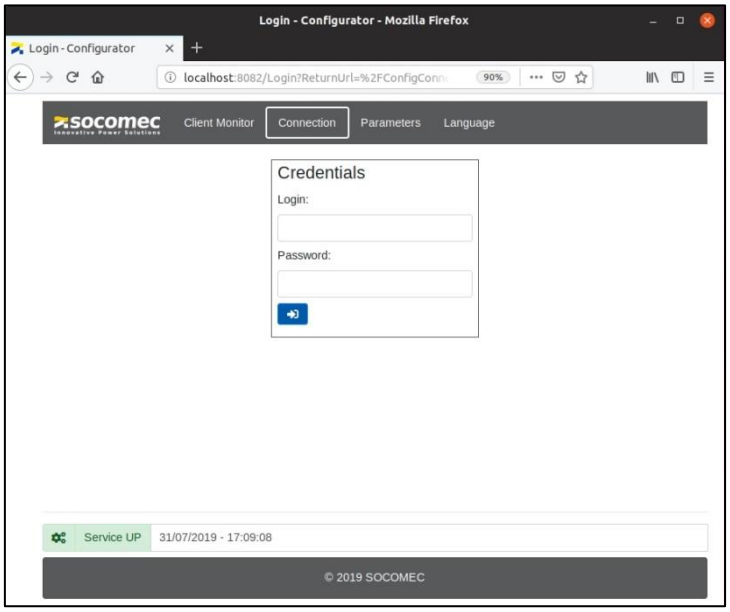
The Client Monitor is opened with Safari



4. SD-AGENT CONFIGURATION

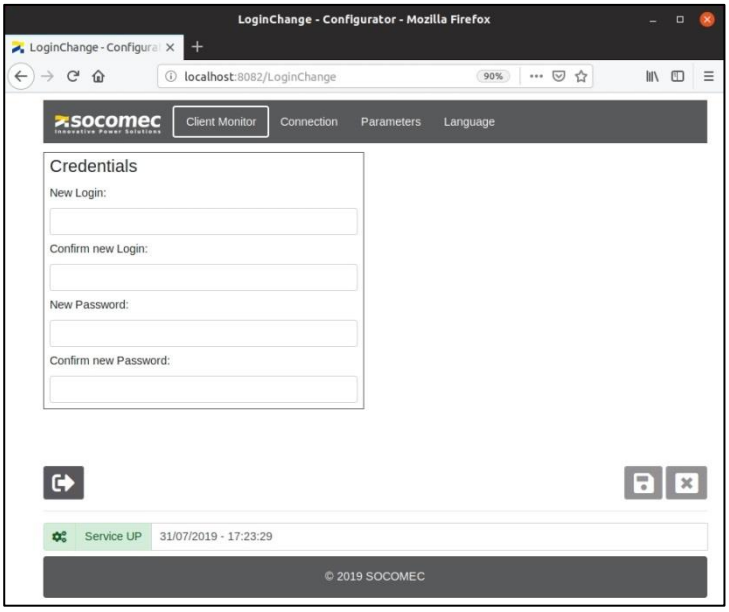
4.1. Login

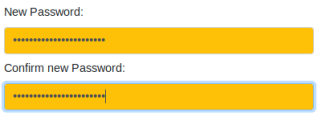
A login and password are requested before accessing to the configurations pages.
Default login: admin
Default password: public



WARNING!
In case of losing password the config.xml file has to be removed. The file will be regenerated when a new session is opened. The credential switches to default, and all configurations have to be inserted again.

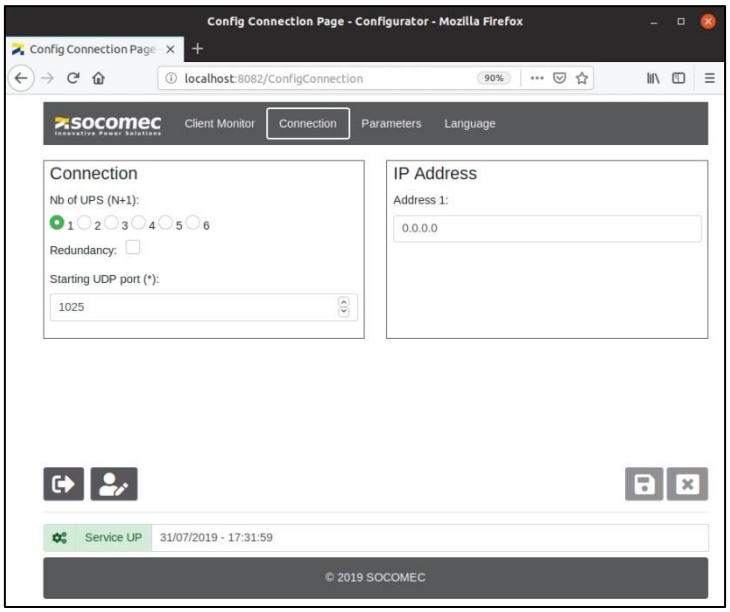
this function gives the possibility to change the default credentials.





Means that the password doesn't match

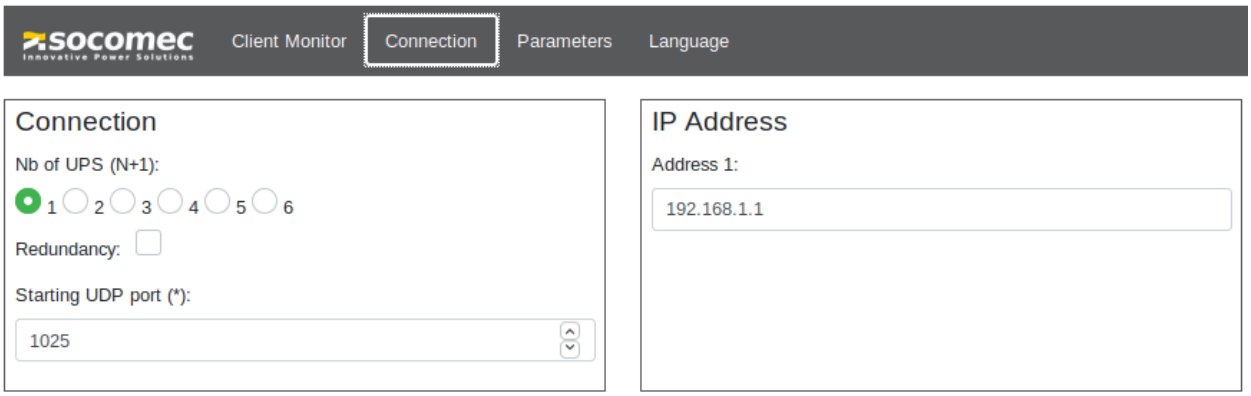
4.2. Configuration pages description



Functions	Description
	Log out from Configurations pages, and switch to Client Monitor page.
	Change current credential
	Save current configuration and restart the service
	Cancel current settings without saving
Service UP	The daemon or service is running
Connection	Access to UPS and network interface settings
Parameters	Access to Shutdown parameters
Language	Access to available language list. Click on the flag to select the language and save the setting

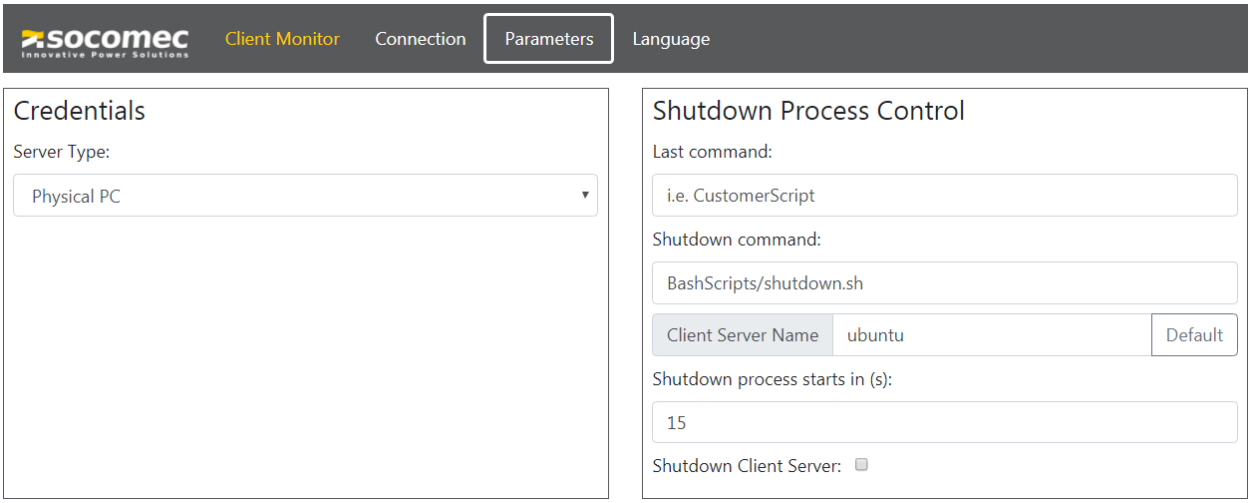
4.3. UPS Connection

By default there is only 1 UPS system (standalone UPS or parallel UPS) to be linked to SD-Agent.
In case of several UPS systems for redundancy power supply the number of UPS systems has to be selected and the IP address of each Network Interface has to be reported.



Field	Description	Default value
Nb of UPS systems	It defines the number of network devices connected to the same computer / server. (needed also for DIGYS and MASTERYS BC up to 40 kVA range parallel system)	1
Redundancy	It enables or disables the redundancy function in case N+1 UPS architecture. If the redundancy is enabled the SD-Agent checks if there are shutdown events from at least two UPS to start the procedure	Disabled
UDP Port	It defines the local UDP port used for communication with Network Interface. The Service is bound on this port. If the port is busy, the service looks for the first free port after.	1025
IP address	To set the IP address of the UPS WEB/SNMP interface.	

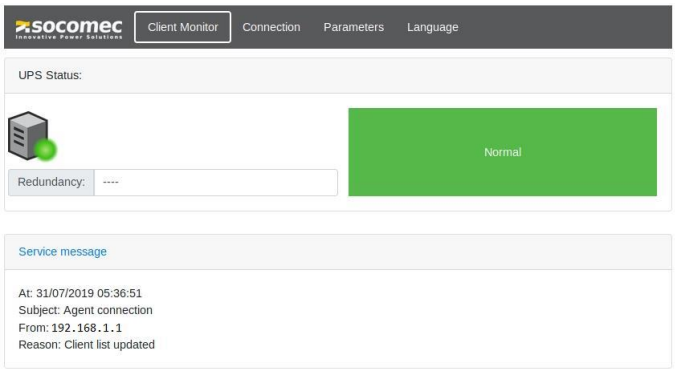
4.4. Shutdown Process Parameters



Field	Description	Default value
Server type	Defined a type of Server: Computer or Server. (Currently fix. Reserved for future use)	Physical PC
Shutdown command	It defines the shutdown command to be executed. The command can be replaced by a script. Example: BatchScripts/shutdown.sh or direct command such as : shutdown –h now	Empty
Last command	It defines the command to execute when the shutdown command is received from Network Interface. This function gives the possibility to stop and close applications before Operating System shutdown.	Empty
Shutdown process starts in (s)	It defines the time between the shutdown request from Network Interface and the Operating System shutdown command. The delay set has to be greater than the time execution of the command or script set in 'Last command' parameter.	90
Client Server name	Name of the Computer / Server. This name is reported to NET VISION interface Default button reports the server / PC name automatically in the Client Name field.	Empty

Click on to save the parameters and the daemon or service restarts automatically.

5. SD-AGENT VIEWER WEB PAGE



This page indicates the status of the UPS and SD-Agent service.

5.1. Viewer status definition

Status	Icon	Colour	Description
SERVICE OFF		Grey	SD-Agent service is not started
CONNECTION REQUIRED		Red	SD-Agent tries to connect to Network device (NET VISION)
CONNECTED		Green	SD-Agent connected to Network device and UPS working in normal mode, on inverter or eco mode.
SHUTDOWN PENDING		Yellow	A shutdown event has been detected by network device. Warning period.
SHUTDOWN IN PROGRESS		Magenta	End of warning period: the shutdown procedure is in progress. Irreversible period.

5.2. Service message

Subject	Reason	Description
Empty	Empty	No event detected or Ack. by user clicking on “OK” button
Agent connection	Client list updated	The SD-Agent has been registered by network interface
UPS Shutdown warning	Power Fail*	UPS on battery
	Battery Low*	Battery low or battery discharged
	Over temperature	UPS temperature alarm
	Over load	UPS in overload
	Imminent Stop	UPS Imminent STOP
	On bypass	Load supplied by automatic bypass
	Level of battery capacity*	The level of battery capacity set on NET VISION has been reached
	EMD** Temperature Alarm	The temperature has been detected too high or too low according EMD settings.
	EMD** Humidity Alarm	The humidity has been detected too high or too low according EMD settings if device present.
	EMD** Input 1 abnormal	The Input 1 of EMD has been detected as abnormal condition
	EMD** Input 2 abnormal	The Input 2 of EMD has been detected as abnormal condition
	Shutdown cancelled	The shutdown event has been removed from UPS
Shutdown action	Shutdown countdown started	The script is running (if present and set)
Shutdown pending		Last countdown: At the end the OS shutdown starts

(*) if battery present on the UPS
(**) if EMD device connected to NET VISION

5.3. Notification

A new incoming shutdown event opens automatically the Viewer web page if a session is opened.

5.4. Local and remote User Interface connection

SD-Agent program allows a remote connection for the user web interface

The `appsettings.json` file can be modified for the remote (and also for Local) connection via HTTP or HTTPs Protocol
This file is located in `/opt/Socomec/SDAgent`

Default web User Interface accesses:

- Locally using HTTP with 'localhost' address
- From a remote station using HTTPs IP:8443 port

```
{
 "Kestrel":
     {
      "Endpoints":
          {
           "Http":
               {
                "Url" : "http//localhost:8082"
               },
           "Https":
               {
                "Url": https://*:8443
                "Cerfificate":
                    {
                     "Path":"./sdagent.pfx",
                     "Password":"Socomec",
                     "AllowInvalid":"true"
                    }
               }
          }
     }
}
```

HTTP configuration:

Replacing 'localhost' by '*' means that a remote HTTP connection can be established
The HTTP port:8082 set by default can be changed

HTTPs configuration:

- The default certificate can be changed
- The port:8443 set by default can be changed.

WARNING!
Using the default certificate an error can occur on the browser: NET::ERR_CERT_AUTHORITY_INVALI.
This error occurs as the certificate cannot be trusted by external servers because it is self-signed
Continuing the navigation the connection is secure and safe using SSL/TLS layers.
It is in any case possible to replace it with a another certificate of the same format (mind also to modify the Password field accordingly)

6. TIMING AND DELAY MANAGEMENT

Input data to know:

- Contractual remaining backup time (R-BUT)
- Server(s) / host(s) shutdown time (SD-TIME)

Common data:

Theoretical maximum value for “Warning delay” set to Network interface = R-BUT – SD-TIME

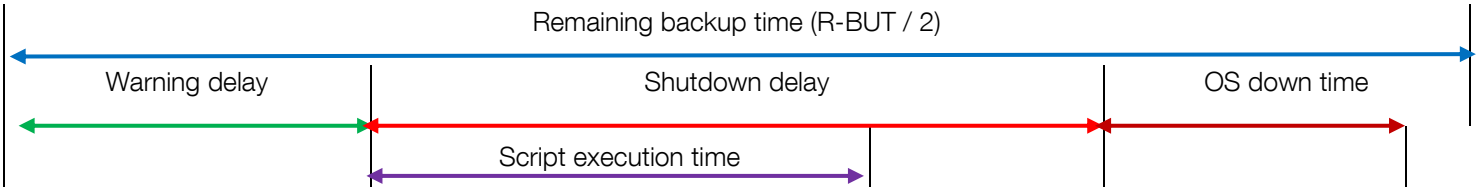
For security reason it is suggested to take account the half of backup time.
Warning Delay = (R-BUT/2 – SD-TIME)

Example for 10 minutes BUT and a shutdown time of 2 minutes:
The warning delay can be set at (10/2) – 2 = 3 minutes

6.1. For standalone Server

SD-TIME has to take account of:

- Script execution time
- Shutdown delay
- OS shutdown time



SD-TIME = shutdown delay + OS down time.
With Shutdown delay >> Script execution time