

S4M Quick Installation Guide

S4M can be installed on the Windows and Linux OS platforms. Depending on the OS platform that you choose, the S4M installation packages and procedures are different.

This guide takes you through these two installation procedures and other related tasks:

- [Installing S4M on a Linux Computer](#)
- [Installing S4M on a Windows Computer](#)
- [Registering Your S4M](#)
- [\(Optional\) Upgrading the S4M to Integrate the Energy Manager Module](#)

1 Installing S4M on a Linux Computer

This chapter contains the following topics:

- [Software and Hardware Requirements](#)
- [Installing the S4M on the Linux Platform](#)

1.1 Software and Hardware Requirements

Operating system requirements:

- Ubuntu 14/16/18 64-Bit
- CentOS 6/7 64-Bit
- Debian 8/9 64-Bit
- Red Hat Enterprise Linux 6/7 64-Bit

Browser requirements:

- Chrome
- Firefox
- Safari
- IE10 and 11

Hardware requirements

Category	Minimum	Recommended
Processor*	Intel Core I5 processor 3.0 GHz	Intel Core I7 processor 3.0 GHz
RAM (main memory)	2 G	≥8 G
Free disk space for installation	1.5 G	>2 G
Free disk space for measurement data in database	10 G	>100 G
Network card	Yes	Yes

* Denotes that all requirements are given based on Intel processors, and also apply to compatible AMD systems of comparable performance.

1.2 Installing the S4M on the Linux Platform

Based on your deployment plan, install the S4M on a local or cloud computer using the following steps:

1. [Step 1: Installing the Docker](#)
2. [Step 2: Creating a Docker User](#)
3. [Step 3: Installing the S4M Service](#)
4. [\(Optional\) Deploying the Public SSL Certificate File](#)

Note: We take the Ubuntu 18.04 OS for an example to introduce the commands.

1.2.1 Step 1: Installing the Docker

The Docker installation package available in the official Ubuntu repository may not be the latest version. To ensure that you get the latest version, install the Docker from the official Docker repository.

To do that, add a new package source, and then add the GPG key from Docker to ensure the downloads are valid. Finally install the package. Detailed steps are as follows:

1. Open a terminal.

2. Update the existing list of packages:

```
$ sudo apt update
```

3. Install a few prerequisite packages which let apt use packages over HTTPS:

```
$ sudo apt install apt-transport-https ca-certificates \
    curl software-properties-common
```

4. Add the GPG key for the official Docker repository to your system:

```
$ curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo apt-key add -
```

5. Add the Docker repository to APT sources:

```
$ sudo add-apt-repository \
    "deb [arch=amd64] https://download.docker.com/linux/ubuntu bionic stable"
```

6. Update the package database with the Docker packages from the newly added repository:

```
$ sudo apt update
```

7. Install the Docker:

```
$ sudo apt install docker-ce
```

Docker should now be installed. The daemon is started, and the process is enabled to start on boot.

8. Check whether the Docker is running:

```
$ sudo systemctl status docker
```

The output should be similar to the following, showing that the service is active and running:

```
docker.service - Docker Application Container Engine
   Loaded: loaded (/lib/systemd/system/docker.service; enabled; vendor
   preset: enabled)
```

```
Active: active (running) since Tue 2019-05-07 15:27:06 CST; 2min 5s ago
  Docs: https://docs.docker.com
Main PID: 21269 (dockerd)
  Tasks: 12
  Memory: 30.8M
  CGroup: /system.slice/docker.service
          └─21269 /usr/bin/dockerd -H fd://
--containerd=/run/containerd/containerd.sock
```

Press `q` to exit.

1.2.2 Step 2: Creating a Docker User

1. Create a user named s4m.

```
$ sudo adduser s4m
```

The output is as follows:

```
Adding user `s4m' ...
Adding new group `s4m' (1001) ...
Adding new user `s4m' (1001) with group `s4m' ...
The home directory `/home/s4m' already exists.  Not copying from
`/etc/skel'.
Enter new UNIX password: _
```

2. Enter and retype new password (please note the password is hidden). The output is as follows:

```
passwd: password updated successfully
Changing the user information for s4m
Enter the new value, or press ENTER for the default
  Full Name []:
  Room Number []:
  Work Phone []:
  Home Phone []:
  Other []:
```

3. Press and hold the Enter key until the following output appears. Enter "y" and press the Enter key again.

```
Is the information correct? [Y/n] y
```

4. Add s4m to the group docker:

```
$ sudo gpasswd -a s4m docker
```

5. Restart the docker service:

```
$ sudo service docker restart
```

1.2.3 Step 3: Installing the S4M Service

1. Copy the S4M package(e.g., s4m-images-1_2_2.tar.gz) to home directory.
2. Open a terminal and navigate to home directory:

```
$ cd ~
```

3. Extract the package:

```
$ tar -zxvf s4m-images-1_2_2.tar.gz
```

4. the extract files list as follows:

```
├─ dc-stack.yml
├─ s4m-images
│   ├── s4m-controlcentral.tar
│   ├── s4m-mosquitto.tar
│   ├── s4m-mysql.tar
│   └─ s4m-tomcat.tar
```

5. Load the images:

```
$ sudo docker load < s4m-images/s4m-tomcat.tar && \
  sudo docker load < s4m-images/s4m-controlcentral.tar && \
  sudo docker load < s4m-images/s4m-mosquitto.tar && \
  sudo docker load < s4m-images/s4m-mysql.tar
```

6. Initialize the docker swarm:

```
$ sudo docker swarm init
```

7. Deploy the service:

```
$ sudo docker stack deploy --compose-file=dc-stack.yml s4m
```

8. Check the services

```
$ sudo docker stack services s4m
```

Once the deployment is successful, the services list as follows:

ID	NAME	MODE	REPLICAS
ifjbj4hg88bw	s4m_controlcentral	replicated	1/1
s4m/controlcentral:v1.2.2			
iiløj8qiaxeZ	s4m_mosquitto	replicated	1/1
s4m/mosquitto:v1.2.2	*:8883->8883/tcp		
ngdtisa4z4or	s4m_tomcat	replicated	1/1
s4m/tomcat:v1.2.2	*:443->443/tcp		
qwvxsp0y0tcl	s4m_mysql	replicated	1/1
s4m/mysql:v1.2.2			

1.2.4 (Optional) Deploying the Public SSL Certificate File

By default, the S4M system embeds a self-sign certificate. After installation, users can access S4M by HTTPS. For the sake of security, we strongly suggest you install the SSL certificate.

To replace the default self-sign certificate with a public SSL certificate(for example, XXXX.key and XXXX.pem), perform the following steps:

1. Copy the key file XXXX.key to the docker:

```
$ sudo docker cp XXXX.key $(sudo docker ps | grep s4m_tomcat. | \
  awk '{print $1}'):usr/local/tomcat/conf
```

2. Copy the pem file XXXX.pem to the docker:

```
$ sudo docker cp XXXX.pem $(sudo docker ps | grep s4m_tomcat. | \
    awk '{print $1}'):usr/local/tomcat/conf
```

3. Enter the Tomcat container:

```
$ sudo docker exec -it \
    $(sudo docker ps | grep s4m_tomcat. | awk '{print $1}') bash
```

4. Use OpenSSL to create the p12 file , and type a real **PASSWORD** two times to protect the p12 file.

```
$ openssl pkcs12 -export -inkey XXXX.key -in XXXX.pem \
    -name tomcat -out tomcat.p12
```

5. Use Keytool to make the .jks file:

```
$ keytool -importkeystore -srckeystore tomcat.p12 -srcstoretype pkcs12
    -destkeystore tomcat.jks
```

6. Exit the Tomcat container:

```
$ exit
```

7. Open the configuration file:

```
$ sudo vi /var/lib/docker/volumes/s4m_tomcat_config/_data/server.xml
```

8. Replace the **PASSWORD** string with the real one and replace the **keystoreFile** value with /usr/local/tomcat/conf/tomcat.jks.

```
<Connector port="443" protocol="org.apache.coyote.http11.Http11NioProtocol"
    maxThreads="150" SSLEnabled="true" scheme="https" secure="true"
    keystoreFile="/usr/local/tomcat/conf/tomcat.jks"
    keystorePass="PASSWORD"
    clientAuth="false" sslProtocol="TLS" />
```

9. Stop the tomcat container and docker will restart it automatically soon.

```
$ sudo docker stop \
    $(sudo docker ps | grep s4m_tomcat. | awk '{print $1}')
```

10. Verify the services

```
$ sudo docker stack services s4m
```

The services list is as follows:

ID	NAME	MODE	REPLICAS
ifjbj4hg88bw	s4m_controlcentral	replicated	1/1
s4m/controlcentral:v1.2.2	PORTS		
iiloj8qiaxe	s4m_mosquitto	replicated	1/1
s4m/mosquitto:v1.2.2	*:8883->8883/tcp		
ngdtisa4z4or	s4m_tomcat	replicated	1/1
s4m/tomcat:v1.2.2	*:443->443/tcp		
qvwvsp0y0tc1	s4m_mysql	replicated	1/1
s4m/mysql:v1.2.2			

2 Installing S4M on a Windows Computer

This chapter contains the following topics:

- [Software and Hardware Requirements](#)
- [Installing the S4M on the Windows Platform](#)

2.1 Software and Hardware Requirements

Operating system requirements:

- Windows Server 2003 SP2
- Windows Server 2003 R2 SP2
- Windows Server 2008 SP2 (32-Bit)
- Windows Server 2003 R2 SP1 (64-Bit)
- Windows XP Professional SP3
- Windows 7 (Professional / Enterprise / Ultimate) 32-Bit
- Windows 7 (Professional / Enterprise / Ultimate) 64-Bit
- Windows 8 (Professional / Enterprise / Ultimate) 32-Bit
- Windows 8 (Professional / Enterprise / Ultimate) 64-Bit
- Windows 10 Pro
- Windows 10 Enterprise

Browser requirements:

- Chrome
- Firefox
- Safari
- IE10 and 11

Hardware requirements

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Network card	Yes	Yes

* Denotes that all requirements are given based on Intel processors, and also apply

to compatible AMD systems of comparable performance.

2.2 Installing the S4M on the Windows Platform

Based on your deployment plan, install the S4M on a local or cloud computer using the following steps:

1. On the computer, visit our web page at <http://www.suto-itec.com/>.
2. Go to the **Support > Downloads** section.
3. Search for **S4M Software for WINDOWS**, and then start your download.
The download may take several minutes depending on your internet connection.
4. Decompress the downloaded zip file, and then double-click the .EXE file.
5. On the **Open file** dialog box that appears, click **Run**.
6. Click **Next** and click **OK** several times to accept the default settings in the pop-up windows.
7. A firewall warning may pop up. Click **Allow access** to proceed.
8. In the window that appears, if the default web server port (443) is not available, please choose another one (for example, 8443 or 8444).
9. Click **Next** to start the installation.
10. To use your default browser to open S4M, keep the check box selected and click **Finish**.

After a successful installation, the S4M automatically starts up in the default Web browser on the computer. If it does not happen, open an Internet browser on the computer, and enter the following URL: **http://127.0.0.1** or **http://127.0.0.1:<the port number that you specified in step 8>** (for example, <http://127.0.0.1:8443>). S4M can also be launched through the Start menu in Windows. Looking for S4M in **All Programs** and select **Visit S4M-XL**.

11. After the S4M is launched, a login dialog appears. Enter **admin** as the user name and **admin** as the password, and then click **Login**.
12. If you installed the S4M on a cloud server, do the following to verify the installation:
 - a. On a networked computer, launch a Web browser and enter the the following URL: **http://<IP address of the cloud server>** or **http://<IP address of the cloud server>:<the port number that you specified in step 8>**.
 - b. In the **S4M Login** window that appears, enter **admin** as the user name and **admin** as the password, and then click **Login**.
If you can access the S4M system, the installation is successfully completed.

3 Registering Your S4M

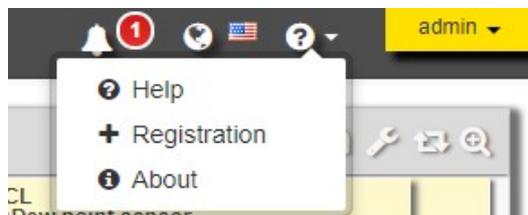
After installing the S4M, you need to register the S4M using the license key. This chapter introduces two registration ways:

- [Performing Online Registration](#)
- [Performing Offline Registration](#)

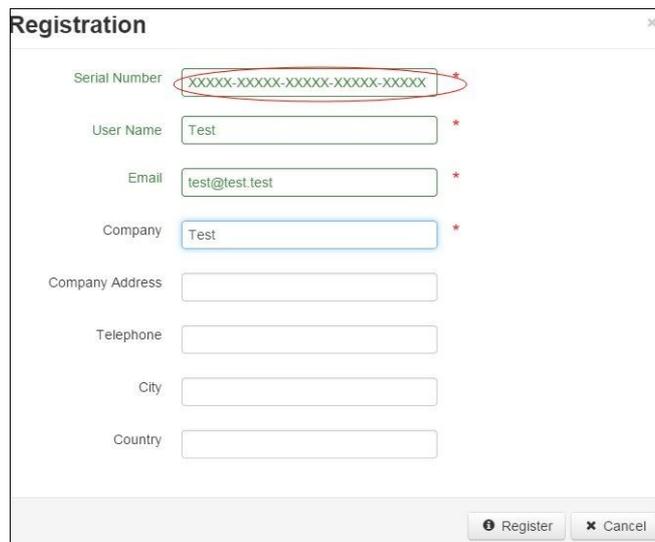
3.1 Performing Online Registration

If your facility has the Internet connection, use the online registration.

1. Log into the S4M as the Admin user.
2. Click the **Help** icon and select **Registration**.



3. In the **Registration Option** window, click **Online Registration**.


 A screenshot of the 'Registration' dialog box. It contains several input fields:

- Serial Number: A text box containing 'XXXXX-XXXXX-XXXXX-XXXXX-XXXXX', which is circled in red.
- User Name: A text box containing 'Test'.
- Email: A text box containing 'test@test.test'.
- Company: A text box containing 'Test'.
- Company Address: An empty text box.
- Telephone: An empty text box.
- City: An empty text box.
- Country: An empty text box.

 At the bottom right of the dialog, there are two buttons: 'Register' and 'Cancel'.

4. In the **Registration** window, enter the serial number and the contact information as needed.
5. Click the **Register** button.

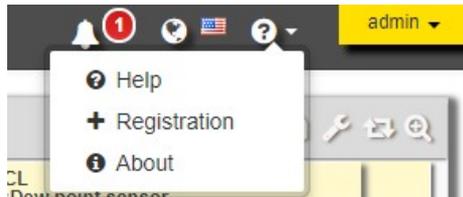
When registration is completed successfully, the following message pops up.



3.2 Performing Offline Registration

If your facility does not have Internet connection or experience network issues, you can register offline by making use of a networked PC to obtain the registration file.

1. Log into the S4M as the Admin user.
2. Click the **Help** icon and select **Registration**.



3. In the **Registration Option** window, click **Offline Registration**.



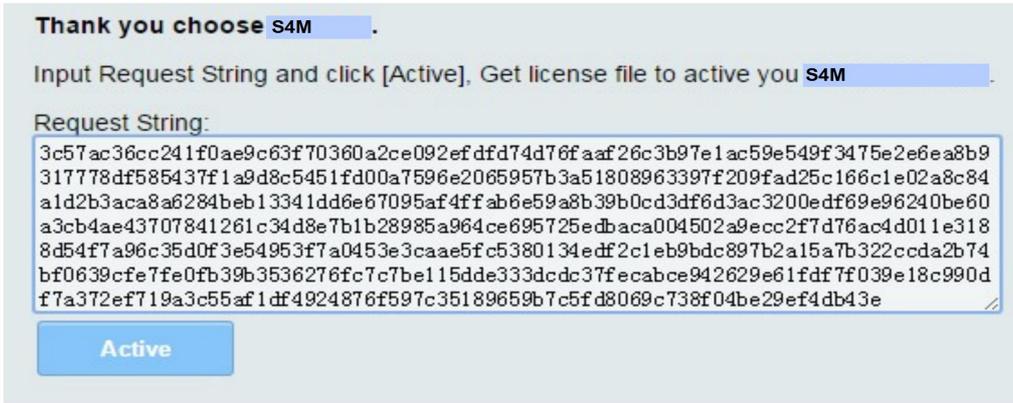
4. Enter the serial number and company information as needed.

A screenshot of a form titled 'Input registration information'. It contains several input fields: 'Company' (with 'Test' entered), 'User Name' (with 'Test' entered), 'Email' (with 'test@test.com' entered), and 'Telephone' (with '111XXXXXXXX' entered). Below these is a 'Serial Number' field with a red circle around it and the text 'Input license here' below it. To the right of the Serial Number field is a blue button labeled 'Create request string'.

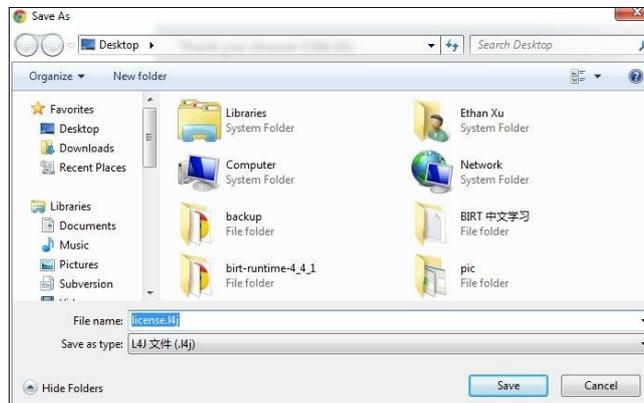
5. Click **Create request string**.
6. In the **Request string** window that appears, copy the string that is displayed.



7. Copy the request string and visit <http://suto.dyndns.biz:8080/algas/active.htm> on a PC with the Internet connection.
8. Paste your request string and click **Active**.



9. When the Save As dialog box appears, save the generated licensed file.



10. Go to S4M registration menu. Upload this license file and click **Validate**.



11. Copy the license file to the PC to be registered.

When the S4M offline registration is completed, and the following message is shown.



4 (Optional) Upgrading the S4M to Integrate the Energy Manager Module

The Energy Manager module is an add-in to the S4M software. If you did not buy this module on the first purchase, you can buy it later and integrate it into your existing S4M system.

1. Download the latest S4M edition, and install it to overwrite the existing installation.

Note: The re-installation does not affect your existing measurement data and operation settings.

2. Log into the S4M as the Admin user.
3. Upgrade the S4M with the new license you purchased.

Note: The only difference between a fresh installation and an upgrade is that the license you received from your vendor is an upgrade license (or call Upgrade key) instead of a new registration one.

