

cloudSense

Technical Document

Push Data Reference

Push Mode CSV Template Format

Version 1.2

NOTE

**Push Mode works on
SOS Station Side
ONLY**

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1 Introduction

This document outlines CSV template format for push mode. Push mode mean far-end device or sensor-side send sensor data to SOS. There are 2 types of CSV format: one line one sensor and one line multiple sensors.

- **One Line One Sensor (OLOS):** only one sensor value is allowed in a line of records. Each record has its own timestamp.
- **One Line Multiple Sensors (OLMS):** multiple sensor values are allowed in a line of records. In this case, all sensor values in the same record share same timestamp.

As for data push methods, there are two method available:

- **PUSH-SENSOR-DATA (HTTP-POST API to push data)**
- **GET-LATEST-SENSOR-TIMESTAMP (to check latest data)**

This Push function is implemented only in SOS station. You need to install SOS station and make sure web application of SOS station can be accessed from data provider.

Important Note:

- For CSV, one line = one record.
- Line break or line separator of each line is newline character (LF or CR+LF).
- **All records in CSV must be sorted by DateTime ascending.**
- ISO DateTime format is “yyyy-MM-ddTHH:mm:ss±hhmm”
- yyyy is year such as 2012, MM is month (2 digits),
- mm is minute (2digit), HH is 24 hours
- T is constant value
- ±hhmm is Timezone such as +0000 and +0900
- EX: “**2010-08-01T10:21:10+0900**”
- **For programming, DateTime** format is “yyyy-MM-ddTHH:mm:ssZ”
 - * MM is month, mm is minute, HH is 24 hours
 - * Z is Timezone such as +0000 and +0900 (not UTC)
 - * EX: “**2010-08-01T10:21:10+0900**”
 - * Only “Z” does not mean GMT0, please use “+0000” for GMT0
- Error Value for sensor data is **-99999**
- Sensor Name must not have space
- There is no “,” as thousand separator. 1,000 -> 1000

2 Data Push Method

This section will describe data push method that are available for feeding sensor data to SOS.

Data provider or vender can provide any of these methods to allow data feeder to download/feed data from data provider server.

2.1 HTTP-POST for Push Data

This method is for push sensor data to SOS station. Sensor side have to call this API and send data in http post. Security can be enhanced using key.

If there is an error in the process, no any data will be stored in SOS station. Error message will be shown in response message.

2.1.1 Format

URL Format

<http://sos-url/WebAPIRequest.jsp?Cmd=PUSH-SENSOR-DATA&Key=SOS01&NodeId=xx &format=OLOS>

Parameters Description

Field Name	Type	Description
sos-url	String	URL to access SOS website For example: aa.com, bb.com
WebAPIRequest.jsp	String	This is function that SOS provide for other system to call API
Cmd	String	PUSH-SENSOR-DATA
Key	String	It is same value with SOS Unique Code of SOS. * If not match, it will return unauthorized. * in cS, it is under menu: Admin-SOS Station- Edit SOS * in SOS station, it is under menu: Admin- Edit SOS
NodeId	String	It can be any unique id to identify unique platform in the same SOS. It is field “ Node Id ” in platform
Format	String	OLOS = One Line One Sensor OLMS = One Line Multiple Sensors * check more detail in section 3

Example Request:

```
http://192.168.0.11/WebAPIRequest.jsp?Cmd=PUSH-SENSOR-DATA&Key=SOS01&NodeId=Node01&Format=OLOS
```

POST Content Format:

- Sensor data must follow format either OLOS or OLMS, check section 3
- Sensor data must order by DateTime ascending.
- CSV Format can be any of described format.

Response Message:

Error Message	HTTP Code	Description
Unauthorized	401	Invalid Key It is same value with SOS Unique Code of SOS.
ERROR: Support only post method	400	Invalid call method. Only HTTP POST is now supported
ERROR: Unknown NodeId	400	NodeId parameter not found in request URL
ERROR: Invalid NodeId	400	Invalid NodeId Check NodeId in platform edit
ERROR: Unknown format	400	Format parameter not found in request URL
ERROR: Number of sensors doesn't match with configuration	400	Number of sensors doesn't match with configuration
ERROR: Sensor header doesn't match with configuration	400	Sensor header doesn't match with configuration
No new data	200	Indicate no new data in post data
Created	201	Data have been inserted
Other error	500	Error message will be displayed in response message

2.2 HTTP-GET Latest Timestamp

This GET method is for getting latest timestamp of sensor data in SOS station. Far-end device or sensor system can request this method to check latest data on SOS, so that it can send only newer data.

2.2.1 Format

URL Format

<http://sos-url/WebAPIRequest.jsp?Cmd=GET-LATEST-SENSOR-TIMESTAMP&Key=SOS01&NodeId=xx>

Parameters Description

Field Name	Type	Description
sos-url	String	URL to access SOS website For example: aa.com, bb.com
WebAPIRequest.jsp	String	This is function that SOS provide for other system to call API
Cmd	String	GET-LATEST-SENSOR-TIMESTAMP
Key	String	It is same value with SOS Unique Code of SOS. * If not match, it will return unauthorized. * in cS, it is under menu: Admin-SOS Station- Edit SOS * in SOS station, it is under menu: Admin- Edit SOS
NodeId	String	It can be any unique id to identify unique platform in the same SOS. It is field “ Node Id ” in platform

Example Request:

<http://192.168.0.11/WebAPIRequest.jsp?Cmd=GET-LATEST-SENSOR-TIMESTAMP&Key=SOS01&NodeId=Node01>

Response Format:

2015-06-20T10:00:00+0900

Error Message:

Error Message	HTTP Code	Description
Unauthorized	401	Invalid Key It is same value with SOS Unique Code of SOS.
ERROR: Unknown NodeId	400	NodeId parameter not found in request URL
ERROR: Invalid NodeId	400	Invalid NodeId Check NodeId in platform edit
Other error	500	Error message will be displayed in response message

3 CSV Format

The data will be in Comma Separated Value (CSV) format and use comma (,) as separator. One line means one data and there is no space between field and comma.

3.1 One Line One Sensor (OLOS)

There is only one sensor value is allowed in a line of records and each record has its own timestamp.

3.1.1 Format

Record: NodeId,TokenKey,ChannelId,DateTime,SensorValue [UOM]

There are six main fields in the format. SensorValue can have only one sensor value. The meaning of each field is described in the following table. *** Header in CSV is NOT allowed for OLOS.**

Important:

For OLOS, you need to specify **Feeder Param 1** value in a configuration page of Platform. Values is corresponding to ChannelId of data..

Feeder Param 1 :

Field Description

Field Name	Type	Description
NodeId	String	It can be any unique id to identify unique platform in the same SOS. It is field “ Node Id ” in platform
TokenKey	String	It is same value with SOS Unique Code of SOS. * If not match, it will return unauthorized. * in cS, it is under menu: Admin-SOS Station- Edit SOS * in SOS station, it is under menu: Admin- Edit SOS
ChannelId	String	Channel id state the output sensor is from which channel of sensor system. Format: CHANNEL-SUBCHANNEL (Value start from 1) Or Format: Sensor Name (Temperature, Humidity) Ex: 1-1, 1-2, 1-3. It mean this system have 1 channel and each channel have 3 sub channel.
DateTime	Date/Time	Date and time value in following format “yyyy-MM-ddThh:mm:ssZ” * MM is month, mm is minute * T is constant value * Z is Timezone such as +0000 and +0900 * EX: “ 2010-08-01T10:21:10+0900 ”

SensorValue	Number	Output sensor data. It can be voltage value or physical value. Value must not have “,” in number such as 1,000 => 1000
UOM	String	Unit of measurement, please refer to UOM document

Examples

```
Node01,SOS01,1-1,2010-08-01T10:21:00+0900,1.2[Cel]
Node01,SOS01,1-1,2010-08-01T10:22:00+0900,1.2 [Cel]
Node01,SOS01,1-1,2010-08-01T10:23:00+0900,1.2 [Cel]
Node01,SOS01,2-1,2010-08-01T10:21:00+0900,900 [hPa]
Node01,SOS01,2-1,2010-08-01T10:22:00+0900,900 [hPa]
```

3.2 One Line Multiple Sensors (OLMS)

Multiple sensor values are allowed in a line of records. In this case, all sensor values in the same record share same timestamp.

3.2.1 Format

Header : `NodeId,TokenKey,DateTime,ChannelId [UOM],SensorName2 [UOM],...`

Record : `NodeId,TokenKey,DateTime,SensorValue1,SensorValue2,...`

SensorValue can have multiple data depended on plugged sensors. Some sensor has only one output value but some has multiple. So, last field in the format is variable fields. The meaning of each field is described in the following table. * **Header in CSV is mandatory for OLMS.**

Important:

For OLMS, you need to specify **Feeder Param 1** value in a configuration page of Plaform. Values is corresponding to sensor name in header of data. Order is significant.

Feeder Param 1 :

Field Description

Field Name	Type	Description
NodeId	String	It can be any unique id to identify unique platform in the same SOS. It is field “Node Id” in platform
TokenKey	String	It is same value with SOS Unique Code of SOS. * If not match, it will return unauthorized. * in cS, it is under menu: Admin-SOS Station- Edit SOS * in SOS station, it is under menu: Admin- Edit SOS
DateTime	Date/Time	Date and time value in following format “yyyy-MM-dd HH:mm:ssZ” * MM is month, mm is minute * Z is Timezone such as +0000 and +0900 * EX: “2010-08-01 10:21:10+0900”
ChannelId	String	Channel id state the output sensor is from which channel of sensor system. Format: CHANNEL-SUBCHANNEL (Value start from 1) Or Format: Sensor Name (Temperature, Humidity) Ex: 1-1, 1-2, 1-3. It mean this system have 1 channel and each channel have 3 sub channel.
SensorValueX	Number	Output sensor data. It can be voltage value or physical value. X is integer value to specific number of output sensors. If sensor has only one output, it has only SensorValue1 Value must not have “,” in number such as 1,000 => 1000
UOM	String	Unit of measurement, please refer to UOM document * UOM in record can be omitted when header present

Examples (With Header)

<p> NodeId,TokenKey,DateTime,air_temperature [Cel], air_pressure [hPa] Node01,SOS01,2010-08-01T10:21:00+0900,1.2,900 Node01,SOS01,2010-08-01T10:22:00+0900,1.2,900 Node01,SOS01,2010-08-01T10:23:00+0900,1.2,900 Node01,SOS01,2010-08-01T10:24:00+0900,1.2,900 Node01,SOS01,2010-08-01T10:25:00+0900,1.2,900 </p>
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