

Georgia COAM  
SAS Requirements  
Version 1.7  
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## **1. Introduction**

### **1.1 Purpose**

This document provides an explanation of the SAS Requirements for interfacing to the Vendor Central Monitoring System (CMS) and SAS site controller.

### **1.2 Intended Audience**

This document is intended for the following users:

- Manufacturers of Coin Operated Amusement Machines
- Georgia Coin Operated Amusement Machine Master Licensees
- Test laboratories for certifying to Georgia Lottery Corporation regulatory requirements
- Georgia Lottery Corporation employees responsible for the implementation and operation of the CMS
- Vendor staff responsible for the implementation and operation of the CMS

### **1.3 Overview**

The requirements contained in this document must be met in order for SAS COAMs to be monitored by the vendor Central Monitoring System (CMS). This document contains details regarding required SAS COAM functionality and information that must be provided by each manufacturer in order for COAMs to be monitored by the CMS.

## **1.4 List of Relevant Documents**

The following list provides reference to information for any external documents.

<b>Relevant Document</b>	
<b>References</b>	<b>Document Title</b>
R1	SAS Protocol Specification

**Table 1: References**

## **1.5 Acknowledgement**

This document references the SAS Protocol Specification document. The SAS Protocol Specification document is property of Gaming Standards Association and International Game Technology.

## **1.6 Definitions**

Below you may find the abbreviations and other definitions used in this document:

<b>Abbreviation/Acronym</b>	<b>Description</b>
CBI	Concatenated Binary Image File
CMS	Central Monitoring System
COAM	Coin Operated Amusement Machine
CMOS	Complementary Metal–Oxide–Semiconductor
CRC	Cyclical Redundancy Check
EPROM	Erasable Programmable Read Only Memory
FTP	File Transfer Protocol
GLC	Georgia Lottery Corporation
SAS	Slot Accounting System
SW	Software

**Table 2: Abbreviations and Acronyms**

## **2. Technical Requirements**

The following technical requirements must be met in order for COAMs to be monitored by the vendor CMS.

### **2.1 SAS Minimum Requirements**

The following minimum requirements must be met in order for SAS COAMs to successfully interoperate with the Vendor CMS.

- COAM must remain enabled and playable when not connected to the CMS.
- COAM must send event 70 as required by the SAS protocol
- COAM must support the ability to allow cash out when the COAM is disabled by the CMS, receives 0x01 Shutdown (lock out play).
- COAM must allow for an attendant configurable machine address with a range of 1-127.
- COAM must support configuring the base accounting denomination to \$.01 (pennies).
- SAS 6.02 certified including support for the following:
  - **Long Polls:**
    - 0x01 Shutdown (lock out play)
    - 0x02 Startup (enable play)
    - 0x0E Disable real time event reporting
    - 0x0F Send meters \$10 through \$15
    - 0x19 Send meters \$11 through \$15
    - 0x1F Send Gaming Machine ID and Information
    - 0x21 ROM signature verification

- 0x2F Send selected meters for game n
- 0x51 Send total number of games implemented
- 0x53 Send game n configuration
- 0x54 Send SAS version ID and gaming machine serial number
- 0x55 Send selected game number
- 0x56 Send enabled game numbers
- 0xA0 Send Enabled Features
- **Meters:**
  - 0000 Total Coin In
  - 0001 Total Coin Out
  - 0002 Total Jackpot credits
  - 0003 Total hand paid canceled credits
  - 0004 Total cancelled credits
  - 0005 Games Played
  - 0006 Games Won
  - 0007 Games Lost
  - 000B Total credits from bill accepted
  - 000C Current credits
  - 0016 Total ticket out
  - 001C Total machine paid payable win, not including progressive or external bonus
  - 001D Total machine paid progressive win
  - 001E Total machine paid external bonus win

- 001F Total attendant paid payable win, not including progressive or external bonus
- 0020 Total attendant paid progressive win
- 0021 Total Attendant Paid External Bonus
- 0022 Total won credits
- 0023 Total Hand paid credits
- 0024 Total drop
- 0040-0057 Total number of X bills accepted
- **Events - mandatory:**
  - Power Resets or power failure:
    - 17 AC power was applied to gaming machine
    - 18 AC power was lost from gaming machine
  - Handpay conditions (COAM jackpot, Cancelled credit handpay, Progressive Jackpot):
    - 51 Handpay is pending
    - 52 Handpay was reset
  - Door Openings (any door that accesses a critical area of the COAM)
    - 15 Card cage was opened
    - 16 Card cage was closed
    - 98 Power off card cage access
  - Operator Menu
    - 3C Operator changed options
  - COAM Low RAM Battery:
    - 3B Low backup battery detected
  - Buffer Overflow:
    - 70 Exception buffer overflow
  - Meter Reset:
    - 7A Gaming machine soft meter reset



- **Events – applicable:**
  - All SAS events must be supported when applicable based on hardware configuration of the COAM.
- The communication software of a SAS 6.02 COAM must be integrated into the COAM logic board.

## ***2.2 COAM Signature Verification***

COAM signature verification will be completed using the CRC calculation defined in the SAS Protocol specification. SAS long poll \$21 will be used to request the CRC value from the COAMs using an initial seed value defined by the CMS.

### **2.2.1 Long Poll \$21 Response Time**

COAM must respond to long poll \$21 request within 7 minutes.

### **2.2.2 Concatenated Binary Image (CBI)**

A CBI must be provided for each unique COAM software configuration to be deployed in Georgia. The specific contents of each manufacturers CBI will be based on what each manufacturer supports but at a minimum the CBI must consist of the SAS communication software that is implemented in the COAM. The CBI and associated data will be considered a Software Set (SW Set) in the CMS. The SW Set consists of the CBI and the data specified in section 3 of this document. The data specified in section 3 must be provided for each SW Set.

### **2.2.3 CBI Creation**

The CBI must be verified by an independent test lab.

## ***2.3 Interoperability Certification***

COAMs must be certified by an independent test lab. COAMs must be certified to be interoperable with the Vendor CMS.

### 3. Licensing Requirements

All information specified in section 3 must be verified by an independent test lab. Data and import file must be provided to the independent test lab for verification.

In order for COAMs to be licensed in the CMS the information contained in the following sections must be provided.

#### 3.1 Software Set Requirements

The following information must be provided for each software set that will be defined in the CMS.

SW Set Data					
Name	Description	Format	Validation	Comments	Example Data
Action	New	String	Must be 'New'	New – new software sets sent to vendor	New
Manufacturer ID	Manufacturer ID	String	3 characters - manufacturer ID will be GLC or Vendor assigned		ITL
Logical Version Number	Software set version number	Numeric	Maximum 6 digits	Always '1'	1
Replacement/Revocation Period	Unused	Numeric	Maximum 3 digits	Unused, no value should be defined	
SW set alias	Unique identifier for each software set per manufacturer, assigned by the software manufacturer for this software set	String	Maximum 30 alphanumeric (no spaces)	SW set alias is the unique key	LottoMagic

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Software Description	Description of SW set. If single game, it would be the game description. If multigame, it would be an overall description of the games included in the SW set.	String	Maximum 64 characters		LottoMagic
Filename	Filename of the concatenated binary image file. Filename must be unique. File will be used to compare to the results returned from LP 21.	String	Must have a '.bin' file extension. Maximum 64 alphanumeric including file extension	Example: LottoMagic.bin	LottoMagic.bin
Test Seed 1	seed for testing signature calculation	String	4 characters (0000-FFFF)	Randomly selected seed by the manufacturer	1234
Test Seed 2	seed for testing signature calculation	String	4 characters (0000-FFFF)	Randomly selected seed by the manufacturer, cannot be the same as Test Seed 1	3421
Test Signature 1	test signature for seed 1	String	4 characters (0000-FFFF)	As returned from LP 21 using seed 1	0C65
Test Signature 2	test signature for seed 2	String	4 characters (0000-FFFF)	As returned from LP 21 using seed 2	19E5
Number of Games	The number of games included in the SW set.	Numeric	Maximum 4 digits	Always '1'	1

**Table 3: Software Set Data**

### **3.1.1 Software Set Import File**

An import file must be provided for each Software Set. The import file must be provided as a comma delimited file (CSV file format). The name of the file will be 'Manufacturer ID'\_SW set alias' and the import file will have a '.csv' file extension. Example: ITL\_LottoMagic.csv

Single game example file contents based on the example data column in the table above:

```
New,ITL,1,,LottoMagic,LottoMagic,LottoMagic.bin,1234,3412,0C65,19E5,1
```

## **4. Site Controller Connectivity**

The COAM connects to the site controller via a standard RS 232 DB9 female cable (serial cable must have a female connector, the site controller connector is male). Due to possible different serial interfaces used by COAM manufacturers, the serial cable that connects the COAM to the site controller must be provided by the master licensee.

Pin	Signal	In/Out	Description	Site Controller Usage
1	DCD	In	Data Carrier Detect	Not Used
2	RxD	In	Receive Data	Receive Data
3	TxD	Out	Transmit Data	Transmit Data
4	DTR	Out	Data Terminal Ready	Not Used
5	GND	-	Ground (Signal Only not chassis GND)	Ground
6	DSR	In	Data Set Ready	Not Used
7	RTS	Out	Request To Send	Not Used
8	CTS	In	Clear To Send	Not Used
9	RI	In	Ring Indicator	Not Used

**Table 4: Site Controller RS-232 DB-9 Male Pinout**