Georgia COAM

SAS Requirements

Version 1.8

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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 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 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.

Relevant Document	
References	**Document Title**
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:

Abbreviation/Acronym	*Description*
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 for COAMs to be monitored by the vendor CMS.

2.1 SAS Minimum Requirements

The following minimum requirements must be met 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).

- Dual SAS Functionality: Multiple serial ports may be available on some COAMs and, therefore, it is possible to have two or more hosts connected. Independent Lab Certification Testing must confirm that only one SAS host (CMS Designated Primary) has the General Control of the COAM while the other host(s) (Secondary) have specific access for reporting, bonusing and validation. Other host(s) should not have the ability to shutdown (lock out play) or startup (enable) the COAM. Independent lab testing and verification must confirm that the primary SAS connection to the CMS is unaffected by the operation of an additional SAS option(s). This is to avoid conflicting instructions from the different hosts.

- SAS 6.02 certified including support for the following:

  o **Long Polls:**

- 0x01 Shutdown (lock out play)

- 0x02 Startup (enable play)

- 0x0E Disable real time event reporting

- 0x0F Send meters $10 through $15

- 0x15 Total Ticket in (for COAMs with ticket redemption functionality)

- 0x16 Total Ticket Out

- 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 paytable win, not including progressive or external bonus

- 001D Total machine paid progressive win

- 001E Total machine paid external bonus win

- 001F Total attendant paid paytable 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

- o **Events - mandatory:**
  - Power Resets or power failure:
    - o 17 AC power was applied to gaming machine
    - o 18 AC power was lost from gaming machine
  - Handpay conditions (COAM jackpot, Cancelled credit handpay, Progressive Jackpot):
    - o 51 Handpay is pending
    - o 52 Handpay was reset

- ▪ Door Openings (any door that accesses a critical area of the COAM)
  - o 15 Card cage was opened
  - o 16 Card cage was closed
  - o 98 Power off card cage access
- ▪ Operator Menu
  - o 3C Operator changed options
- ▪ COAM Low RAM Battery:
  - o 3B Low backup battery detected
- ▪ Buffer Overflow:
  - o 70 Exception buffer overflow
- ▪ Meter Reset:
  - o 7A Gaming machine soft meter reset

- o **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.

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/Update	String	Must be 'New' or Update	New – new software sets sent to vendor Update – Add new games in an existing Vendor. In case of 'Update', SW Set Alias and Filename must match the data of the existing software set	New
Manufacturer ID	Manufacturer ID	String	3 characters - manufacturer ID will be GLC or Vendor assigned		ITL
Protocol	Protocol	Numeric	Maximum 2 digits	1 = SAS	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
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 v10
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	'1' for single game, 'N' for N-game multigame. The number of games included in the SW set.	Numeric	Maximum 4 digits		1

Number of Games Variations	The number of total games variations included in the SW set.	Numeric	Maximum 4 digits		1
Game Information	see below	see below			

Game Information (repeated <Number of Game Variations> times)	Note: Each game record will start on a new line. See example on page 13.				
SAS Game ID	SAS Game ID	String	2 characters	Game ID as returned by LP 53 for game N	EX
Game name	It corresponds to VLT_GAMES.DSC	String			TEST014-000009-001
SAS Paytable ID	The SAS Paytable ID as returned by LP 53 for Game N	String	6 characters (positions) required, if Paytable ID is less than 6 characters insert the necessary spaces to equate to 6 positions	SAS Paytable ID as returned by LP 53 for Game N	ITL028
Base Percentage RTP	Base Percentage as returned by LP 53 for Game N (RTP – Return to Player percentage)	Numeric	4 digits, no decimal	Base Percentage as returned by LP 53 for Game N	9253
Additional ID	The additional ID as it can be found under LP 1F	String	3 digits		001
SAS Slot Number	The SAS slot of this game (Game Number N)	Numeric	Maximum 4 digits	SAS Game Number	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 pipe (|) delimited file. The name of the file will be 'Manufacturer ID'_'SW set alias' and the import file will have a '.sw' file extension. Example: ITL_LottoMagic.sw

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

```
New|ITL|1|1|LottoMagic|LottoMagic|LottoMagic.bin|1234|3412|
0C65,19E5|6
EX|TEST014-000009-001|ITL028|9253|001|1
EX|TEST014-000009-001|ITL028|9352|001|2
EX|TEST014-000009-001|ITL028|9455|001|3
EX|TEST014-000009-001|ITL028|9552|001|4
EX|TEST014-000009-001|ITL028|9651|001|5
EX|TEST014-000009-001|ITL028|9753|001|6
```

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