
GLI-21 Revision History

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Revision History Outline

Date Released: September 6, 2011 V2.2 *Final*
Date Released: February 28, 2007 V2.0 *Released for Comment*
Date Released: February 5, 2007 V1.5 *Released for Internal Comment*
Date Released: June 30, 2006 V1.4 *Released for comment*
Date Released: April 29, 2005 V1.3 *Final*
Date Released: April 11, 2005 V1.2 *Released for second commentary period*
Date Created: December 15, 2004 V1.1 *Released for comment*

Revision 2.2

Notable Changes

- General-Changed dates. Standardized line spacing @1.5, font to 12pt. Substituted LLC for Inc. wherever needed. Standardized use of *NOTE*.
- 1.2.1 Added additional offline ticket standards references.
- 3.7.1 Deleted CSS Verification General Statement
- 3.7.1 Added Controlled Server Component requirements
- 3.7.3 Added Controlled Client Terminal Component requirements
- 3.10.2 Deleted Verification of Controlled Program
- 3.10.2 Added Controlled Program requirements
- 3.10.3 Deleted Controlled Program requirements
- 3.8.1 Removed Server “50 play step” reference for Client Terminals as redundant to that in 6.17.3.
- 3.11.1 Added more specific GLI-11 reference to Section 1.5.
- 3.12.1 Changed footnote #2 to “NOTE”.
- 3.12.2 Added more correct GLI-11 reference to Section 3.3.
- Deleted V2.1 Chapter 2, please refer to a separate submission document
- Deleted V2,1 section 5.2 through the rest of the chapter
- Deleted V2.1 Chapter 6

Revision 2.1

- 1.3.1 Clarified to better outline purpose of technical standards
- 1.4 Removed note regarding GLI-11 compliance because GLI-21 contains applicable GLI-11 rules
- 1.5.1 Added missing parenthesis
- 1.5.1.2 Removed additional reference to ‘conventional client terminal’
- 3.1.3 Added concessions for multi-player games
- 3.1.3 Expanded ability of CSS to perform handpays in loss of communication scenarios
- 3.2 Added concession for alternate network in situations of intended redundancy
- 3.2.1 Clarified to assuage confusion of firewall applicability
- 3.2.2 Added an exception for predefined number of attempts
- 3.4.1 Removed reference to protocol being approved for use
- 4.1.1 Removed reference to point of sale and accounting features
- 4.3.1 Added concession for SSGS to provide command and control functions
- 4.3.5 Added exception for SQL statements already resident on the system to be used with secure access
- 4.3.6 Added ‘recommendation’ to the virus protection rule
- 4.5.1 Clarified system failure expectations
- 4.5.2 Changed ‘system’ to ‘database’ to set realistic recovery requirements
- 4.6.1 Added statement that self-monitoring schemes will be reviewed on a case-by-case basis
- 4.8.1 Clarified game recall requirements to delineate between the recall responsibilities of the client terminal and the server
- 4.9.3 Parsed out items (d) & (e) as they do not involve the download data library

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- 4.9.4 Created this section to accommodate an audit log to record activity between the server and the clients
 - 4.10.2 Removed statement regarding key or seed of sufficient length
 - 4.10.2 Addressed incorrect references to ‘device’s memory’ in item (e)
 - 4.10.2 Added ‘if applicable’ statement
 - 4.10.3 Added reference ‘activation’ after any references to download
 - 4.10.3 Clarified statement regarding forensic examinations
 - 4.10.3(a) Adjusted rule to add explicit reference to foreground downloading
 - 4.11.2 Added clarification that either the server or the client terminal can hold multi-game metering
 - 5.14.4 Adjusted rule to accommodate CSS functionality
 - 5.14.5 Added exception for control program media that is to be altered
 - 5.16 Added additional statement regarding critical memory residing at the CSS
 - 5.26.1 Fortified note to allow consolidation of coin acceptor error conditions
 - 5.26.2 Added concession for either a stacker full or stacker removed message
 - 5.36 Removed inaccurate references to EGD and replaced with client terminal
 - 6.3 Clarified secondary decision comment to mention random selection process instead of client terminal
 - 6.3 Added concession for other methods of preventing cryptanalytic attacks
 - 6.3.5 Removed reference to reseeding at the start of every game as CSS may share an RNG between many client terminals
 - 6.3.9(a) Added the statement that each RNG rescaling process will be evaluated on a case-by-case basis by the laboratory
 - 6.10.9 Updated meter section to clarify that meter maintenance may take place at the server or the client terminal and changed the rule to be a recommendation.

Revision 2.0

- In General:
 1. General reversion of the Standard to 2.0.
 2. Misc clean up for consistency and readability.
 3. Minimized cross-reference to other GLI standards by including applicable sections within GLI-21.

Revision 1.5

- In General:
 1. Changed all references of Game Download to Client-Server.
 2. Added 5.0 CSS Client Terminal Requirements.
 3. Added 6.0 Software Requirements.
- 1.5 Changed definition for Client Server Systems.
- 1.5.1 Amended definition of Server Based Game System.
- 1.5.2 Amended definition of System Supported Game System.
- 3.1.3 Added section regarding loss of communication.
- 3.4 Added section regarding Wide Area Network Communication.
- 4.1 Additional clarification to this section.
- 4.2 Added section regarding multiple servers.
- 4.3 Added section for Server general operation and security requirements.
- 4.4 Added section regarding Wireless Ethernet Communication
- 4.5 Amended Rev. 1.4 Section 4.2.

- 4.6 Amended Rev. 1.4 Section 4.3.
- 4.7 Amended Rev. 1.4 Section 4.4.
- 4.8 Added Server recall requirements.
- 4.9 Amended download data library requirements.
- 4.10 Amended Rev. 1.4 Section 4.6.
- 4.11 Amended Rev. 1.4 Section 4.7
- 4.12 Amended Rev. 1.4 Section 4.8

Revision 1.4

- In General:
 1. Changed all reference from ‘ SBCSS ’ to ‘CSS ’
 2. Changed all reference from ‘Central Server’ to ‘CSS Server’
- Added definition of a Client-Server System or CSS
- Added definition of Server Based Client-Server System (SBCSS)
- Added definition of System Supported Client-Server System (SSCSS)
- 2.2 Added reference to GLI-13 for communication protocol submission requirements
- 3.1.2 Removed reference to ‘unauthorized access’ of communication protocol. Instead kept requirement to prevent tampering of communication protocol. Made Data encryption a strong recommendation and removed DES equivalent standards for data encryption.
- Added definition of Remote Access.
- Added requirement that Remote Access must have either an automatic or manual log
- 4.2.2 Clarified recovery requirements by adding statement ‘where applicable’
- 4.6.2, 4.6.2(a), 4.6.2(b) Added statement for game program verification to cover applicable server side game components.

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- 4.6.2(b) Added statement for ‘embedded software’ may require demonstration to both lab and jurisdiction.
 - 4.6.2(d) Added requirement for game program verification for SSCSS
 - 4.6.2(f) Added requirement for when the client terminal must verify the game program.
 - 4.6.3 Added ‘where applicable’ statement and removed statement ‘which may occur at any time’.
 - 4.6.3(b1) Added ‘where applicable’ statement and requirement for archiving data 24 hours after game data is uploaded.
 - 4.6.3(b2) Added the client terminal as method to store the current game data.
 - 4.6.3 Added note that a forensic analysis must be possible.
 - Glossary changes:
 1. Changed definition of a control program
 2. Added definition of a ‘Program Library’

Revision 1.3

- In General: Various grammatical changes were made.
- 1.6.1 added the reference to the purpose of the On-Site test to reference the configuration of the security.
- 3.1.2 Further clarified that if the encryption method does not meet the rule, any alternative measures will be reviewed and must be approved by the regulator.
- 3.2.1 Changed the reference from the CSS requiring a firewall to the ‘CSS Server’ since that is the only element within the system that should be secure. Previously it may have been interpreted that a firewall would have to be placed between the Client Terminal and an associated system.
- 3.2.2 Added additional information that is to be recorded by the Firewall Audit Logs as recommended by the Missouri Gaming Commission.

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- 3.3.2 Added additional information that is to be recorded by the activity log for Remote Access as recommended by the Missouri Gaming Commission.
 - 4.2.1 Added a minimum requirement for the system backup scheme to be implemented once every day however, the backup scheme will still be reviewed on a case-by-case basis.
 - 4.4.1(b) Reformatted the ‘eg’ to better clarify that it is not a requirement for the hashing algorithm to use MD5, this was intended to be an example.
 - 4.4.1(d) Removed the requirement for the system to automatically validate the software installed in the Client Terminals however; the system still must have the ability to perform this task on demand.
 - 4.5.1 The requirement for changes to the Game Program Library was modified to allow for other methods, provided the regulator approves them. The rules still includes the original mandate for the access be controlled by the regulator, which is required to avoid having to receive individual approval for each jurisdiction.
 - 4.5.2(c) Removed the reference to the regulatory level alterations to the Game Program Library based on the changes to 4.5.1.
 - 4.6.2(c) Changed the rule to better clarify the intent that any verification method implemented shall not be commercially available software, unless it is intended to be used as a secondary verification method.
 - 4.6.2(d) Removed the requirement for the Client Terminal to verify the approved components every twenty-four hours since this regulation is redundant considering the control program integrity check requirements as outlined within GLI-11.
 - 4.6.3(b)(1) Clarified that the minimum time limit for storage of the uploaded game data is 24-hours, as this information may be needed to resolve player disputes. In addition, clarified that the information can be maintained in a log or script file.
 - 4.7.2 Changed the section title to refer to CSS’s that allow the system to change the payable and/or denomination on the Client Terminal. Previously it only referred to Multi-Paytable games.
 - 4.7.2(c) Clarified that the game shall maintain the master accounting meters in the lowest denomination for the local currency to accommodate international jurisdictions.
 - 4.7.2(d) Clarified that the payable/denomination can be changed via the system, provided the client terminal is in an idle state when the change actually takes effect.
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- 4.7.2(e) Added a rule to accommodate the altering of denominations of a client terminal via the CSS Server that would only permit such act when the change will not affect the integrity of crediting or paying the patron (i.e., games with fixed denomination hoppers/coin acceptors)
 - 4.7.3 Clarified that systems that do not require regulator control to clear a Client Terminals RAM must receive conceptual approval from the regulator.
 - 4.8.1 Better clarified that Client Terminals may utilize random values as generated by the CSS Server or the client terminal may function independently of the system.
 - GLOSSARY: Added additional References and Definitions.

Revision 1.1 → 1.2

The revisions from V1.1 and this release are too numerous and there were many regulations that were moved to another area, possibly embedded within a separate rule or omitted completely. It is our belief that giving the details of the changes would be confusing and not effective, although, we have added a summary of the changes that have occurred:

Clarified the intent of this regulation where the CSS Server downloads game programs, Random Values (with the exception of random outcomes), and/or any other Game Content that is received by the Client Terminal for the purpose of the Client Terminal to complete the game play operation. This change eliminates the method of using the ‘thin client’ technology, which will be addressed within a separate standard upon completion of GLI-21. In general:

- Updated requirements for Backup of systems;
- Further defined Software Verification requirements;
- Added ability of dual control of administrator access;
- Addressed the Regulatory Control game configurations for CSS 's;
- Added support for operator access to install new games, followed with regulator approval; and
- Added further clarifications to the Remote Access requirements.