

GUI-CMP CHANGE MANAGEMENT PROGRAM

FOR SYSTEMS WITHIN THE GAMBLING INDUSTRY

Version 1.0 – Published May 6th, 2020





1.	. n	NTRODUCTION	.3
	1.1.	Scope	.3
		Standards Consulted	
		Need	
2.	C	ERTIFICATION	.3
		Initial Certification	
	2.2.	Annual Certification	.3
	2.3.	Change Management Certification	.4
	2.4.	Quarterly Change Reports	.4
	2.5.	Security Audits	.4
3.	C	HANGE MANAGEMENT POLICY AND PROCEDURES	.4
	3.1.	Guidelines	.4
4.	C	RITICAL ASSET REGISTER (CAR)	.5
		Classification of Components	
		4.1.1. Classification Criteria	
		4.1.2. Relevance Code	
		Recording of Components in a CAR	
		Control Program Verification Listing	
5.		HANGE MANAGEMENT LOG (CML)	
	5.1.	Classification of Changes	
		5.1.1. Level 1 – No Impact	
		5.1.2. Level 2 – Low Impact 5.1.3. Level 3 – High Impact	0. 6
	52	Minimum Log Criteria.	
6.	-	CHANGE HANDLING OF LEVEL 2 AND LEVEL 3 CHANGES	-
0.		Notification	
	0.1.	6.1.1. Attestation	
		6.1.2. Control Program Verification Listing	
	6.2.	Testing of Changes	
		6.2.1. Testing Before Deployment	
		6.2.2. Testing After Deployment	
	<u> </u>	6.2.3. Hardship Waivers	
	6.3.	Emergency Rule	.7



1. INTRODUCTION

1.1. Scope

To provide best practice guidance on implementing a Change Management Program (CMP) to allow for Continuous Delivery, Agile Development, or similar practices that are employed as industry-standard within technology companies operating online or with wide diverse platforms. The CMP must extend enforcement of proper regulatory oversight and governance while modernizing the approach to the regulatory compliance process to meet the demands of new technology offerings. The goal of this document is to develop a framework of consistent and uniform criteria for the industry with regard to implementation of a CMP to allow for growth, innovation, and cost-efficiency in the development process rivaling non-gambling industries. At the same, the CMP process must be constructed such that a focus remains on the protection of integrity of gaming and the trust in all good faith institutions under the existing regulatory oversight architecture.

Guidance provided by this document is meant to clarify the following for licensed operators, their technology providers, and independent test laboratories.

- a. Minimum criteria for development of an official policy on Change Management at an organizational level;
- b. Guidelines for the implementation and operation under the Change Management Program; and
- c. Minimum uniform procedures, format, and archival requirements for all information to be captured by a Change Management Program.

1.2. Standards Consulted

This guide has been developed by reviewing and using portions of the following documents:

- a. Denmark Spillemyndigheden's Certification Programme Change Management Programme SCP.06.00
- b. Sweden Lottery Inspectorate's Regulation and General Guidelines on the technical requirements and accreditation of bodies performing the inspection, testing, and certification of gaming activities (LIFS 2018_8)
- c. Portugal Regulation No. 903-B/2015 Regulation defining the Technical Requirements of the Online Gaming Technical System
- d. United Kingdom Testing Strategy for Compliance with Remote Gambling and Software Technical Standards November 2018 & Annual Games Testing Audit – Template June 2018
- e. Indiana Change Management Directive
- f. Iowa 491—13.6(99F) Testing. 13.6(2) Change Control

1.3. Need

Modern platforms require vigilance for vulnerability or bugs that originate from exposure to continuous threats by way of attack, increased load, and/or interaction with hardware, network components, or operating systems and complementary software that are constantly updating. This can be true whether operating online or a platform that is used to manage one or more parts of an operation in a closed network environment. Both types of deployments are exposed to these same threats. Modern systems counter these threats through techniques for developing code in small efficient sprints to stay on top of the evolving environment. These techniques are designed to provide for improved reliability, productivity, and overall quality, but obstacles to this approach exist in highly regulated marketplaces such as gambling, where extensive testing is required prior to each release. The goal is not to remove oversight and testing from the process, but to align in such a way that gambling operations can function as other eCommerce operations to ensure a safe and stable environment with the latest features of operations in parallel industries.

2. CERTIFICATION

2.1. Initial Certification

The licensed operator and technology supplier where separate are responsible for ensuring all products deployed within gaming jurisdictions are certified in accordance to the rules and regulations of the jurisdictions and are accompanied by formal certification documentation noting as such.

2.2. Annual Certification



Unless otherwise specified by the regulatory body, at least once annually, each product operating under a Change Management Program must be fully certified to the rules and regulations of all jurisdictions operating therein and accompanied by formal certification documentation from an independent test laboratory with knowledge of the product. The licensed operator and technology supplier where separate shall be allowed to seek approval for extension beyond the annual approval if hardship can be demonstrated. Granting of a hardship waiver is the sole discretion of the regulatory body.

2.3. Change Management Certification

Unless otherwise specified by the regulatory body, the Change Management policies and procedures developed in accordance with this guide shall be approved by the regulatory body prior to deployment of the CMP and audited at an annual interval by the independent test laboratory.

2.4. Quarterly Change Reports

Unless otherwise specified by the regulatory body, quarterly reports are issued to an independent test laboratory with knowledge of the product for review to ensure risk is being assessed according to the certified CMP and all documentation for all changes are complete. A formal report shall be produced by the evaluating independent test laboratory noting the review as complete.

2.5. Security Audits

Unless otherwise specified by the regulatory body, an annual security audit shall be performed to compliment the testing and annual certification designated in req 2.2. The security audit covers the underlying operating system, network component, and hardware changes not included in the evaluation of the gaming software re-baselined per req 2.2.

3. CHANGE MANAGEMENT POLICY AND PROCEDURES

3.1. Guidelines

The licensed operator and/or technology supplier shall submit documentation outlining the change control processes and procedures to be deployed within the organization and adhered to covering all steps of deployment from initial development to build process and source code version controls to internal testing and signoff to deployment. It is expected that the change control processes and procedures be written specifically to the approach of the licensed operator and/or technology supplier to the development life cycle but include at a minimum coverage of the following:

- a. The acquisition and development of new software and/or hardware components;
- b. An appropriate software version control or mechanism for all software components, source code, and binary controls;
- c. Coding standards and practices followed by the organization;
- d. Internal testing standards and practices followed by the organization, including documented methods to:
 - i. Ensure that raw production data is not used in testing;
 - ii. Verify that test software is not deployed to the production environment;
- e. Separation of the production environment from the development and test environments, both logically and physically. When cloud platforms are used, no direct connection may exist between the production environment and any other environments;
- f. Separation of duties within the release process;
- g. If applicable, establish the delegation of responsibilities between the licensed operator and/or technology supplier;
- h. Procedures for the migration of changes to ensure that only authorized components are implemented on the production environment;
- i. A strategy to cover the potential for an unsuccessful install or a field issue with one or more changes implemented under the CMP:
 - i. Where an outside party such as an App store is a stakeholder in the release process, this strategy must cover managing releases through the outside party. This strategy may take into account the severity of the issue;



- Otherwise, this strategy must cover reverting back to the last implementation (rollback plan), including complete backups of previous versions of software and a test of the rollback plan prior to implementation to the production environment;
- j. A policy addressing emergency change procedures;
- k. All documentation relating to software and application development, including procedures to ensure that technical and user documentation is updated as a result of a change; and
- I. Identification of licensed individuals for signoff prior to release.

4. CRITICAL ASSET REGISTER (CAR)

4.1. Classification of Components

4.1.1. Classification Criteria

The technology supplier shall classify all components of the platform or product operated under the CMP against the following four criteria:

- a. Confidentiality
 - Confidential information relating to the platform's players. For example, identification/personal information of a player on the system or transactional information of players' data.
- b. Integrity
 - The integrity of the platform, specifically any components that affect the functionality of the platform or has an influence on how information is stored/handled by the platform.
- c. Availability
 - The availability of player information.
- d. Accountability
 - User activity, and how much influence the component in question has on the user's activity.
- 4.1.2. Relevance Code

Each component shall be assigned a relevance code on the scale below based on the component's role in achieving or ensuring each of the above classification criteria:

- a. 1 No relevance (the component can have no negative impact on the criteria);
- b. 2 Some relevance (the component can have an impact on the criteria); and
- c. 3 Substantial relevance (the criteria are related to or dependent on the component).

4.2. Recording of Components in a CAR

All defined components shall be recorded in a Critical Asset Register (CAR). The structure of the component register shall include hardware and software components and the inter-relationships and dependencies of the components. The following minimum items shall be documented for each component:

- a. The name/definition of each component;
- b. A unique ID that is assigned to each individual component;
- c. A version number of the component listed;
- d. Identifying characteristics (Platform Component, DB, Virtual Machine, Hardware);
- e. The Owner responsible for the component;
- f. The geographical location of hardware components; and
- g. Relevance codes on the classification criteria:
 - i. Confidentiality
 - ii. Integrity
 - iii. Availability
 - iv. Accountability

4.3. Control Program Verification Listing

The technology supplier shall maintain a report of all software files identified as critical control program components along with the corresponding digital signatures of the critical control program component(s), as a minimum, the digital signatures must employ a cryptographic algorithm which produces a message digest of at least 128 bits.

5. CHANGE MANAGEMENT LOG (CML)

5.1. Classification of Changes

5.1.1. Level 1 – No Impact

The change has no impact to regulated components of the platform. Examples:

- a. Installation or changes to backup software and/or hardware components;
- b. Adding or removing users;
- c. Database maintenance that modifies or deletes non-critical data in the database.
- d. Scheduled outages or maintenance to any network service provider infrastructure;
- e. Scheduled outages or maintenance to any electrical infrastructure (generator, ATS, UPS, PDU, etc.); or
- f. Installation of operating system security patches
- g. Background images, color schemes, or similar ancillary front-end client updates.

5.1.2. Level 2 – Low Impact

The change has a low impact on the integrity of the platform. This may also include hardware component changes. Examples:

- a. Firewall rule changes;
- b. Database maintenance;
- c. Changes to the physical location of regulated primary backup data;
- d. Any change or addition of physical hardware component; or
- e. Changes to non-game logic components of the overall platform that are not of a benign nature as described for Level 1 and with the exception of those representative of examples for Level 3 changes.

5.1.3. Level 3 – High Impact

The change has a high impact on regulated components or reporting of the platform. Examples:

- a. Implementation of a new gambling feature or a change to any logic impacting wagering or game logic;
- b. A change impacting required regulatory reports or data used for financial reconciliation;
- c. If applicable, a change implemented by the platform provider that substantially impacts geolocation services;
- d. If applicable, a change impacting the handling or storage of personally identifiable information; or
- e. A change to accommodate updated regulatory requirements.

5.2. Minimum Log Criteria

All changes must be documented in the CML. The technology supplier shall record installations and/or modifications to the platform in the CML. It is the responsibility of the platform provider to create and maintain the CML. The CML shall record at a minimum the following:

- a. Date and time that a change is internally approved for release;
- b. The component(s) to be changed including the unique identification number from the CAR, version information;
- c. Details of the reason or nature of the installation or change such as new software, server repair, significant configuration modification. If the component being changed is a hardware component, the physical location of this hardware component;
- d. Identification of the person responsible for authorizing the change;
- e. Identification of the person conducting the change;
- f. Anticipated release date of the installation or modification; and
- g. The level of the change (Level 1, 2, or 3).



6. CHANGE HANDLING OF LEVEL 2 AND LEVEL 3 CHANGES

6.1. Notification

For Level 2 or Level 3 changes, at least 3 business day advance notice prior to deployment must be provided to the regulatory bodies and independent test laboratory who performed the prior certification. The regulatory bodies or the independent test laboratory, if delegated by the regulatory bodies, reserve the right to request testing and potentially certification of the platform updates prior to implementation. If regulatory policy does not designate additional rules for handling of Level 2 or Level 3 changes and notice is not provided of a requirement for additional testing within 3 business days, passive approval is conveyed whereby the licensed operator and/or technology supplier are approved to introduce the change into production. Notification procedures are to be handled on a per jurisdiction basis.

6.1.1. Attestation

Included in the notification of deployment of any change shall be an attestation of confirmation in good faith based on internal development and testing practices and standards that the changes being introduced comply with all laws, rules, and regulations within each jurisdiction.

6.1.2. Control Program Verification Listing

Included in the notification of deployment of any change to a critical control program component shall be a Control Program Verification Listing report that details all control components of the platform and their latest digital signature.

6.2. Testing of Changes

6.2.1. Testing Before Deployment

In cases where certification of the Level 2 and Level 3 changes are needed prior to deployment, laboratory testing of these changes shall be certified to the rules and regulations of all jurisdictions operating therein and accompanied by formal certification documentation from an independent test laboratory with knowledge of the product.

6.2.2. Testing After Deployment

In cases where certification of the Level 2 and Level 3 changes are not needed prior to deployment, laboratory testing of these changes shall be completed within 90 days of introduction into the production environment. The testing process shall not preclude the licensed operator or technology supplier from continuing to develop and introduce changes under the change management program. Establishment of the CMP shall allow for notification of findings resulting from each testing cycle, which shall be reported via structures agreed to with each regulatory body.

6.2.3. Hardship Waivers

The technology supplier shall be allowed to seek approval for extension beyond 90 days if hardship can be demonstrated. Granting of a hardship waiver is the sole discretion of the regulatory body.

6.3. Emergency Rule

In emergency situations to deal with open threats or liabilities, a licensed operator or technology supplier may execute Level 2 or Level 3 changes immediately without prior consent. Notice shall be provided to the regulatory bodies as soon as possible and in accordance with any established emergency rule regulations. Notice shall include the necessity for employing the emergency rule and all details known at the time concerning the needed update. The regulatory bodies shall reserve the right to conduct analysis in each emergency instance to verify the necessity of the actions taken.