

Annual games test audit

Template - June 2018

Introduction

**Purpose**

This template is for use by Gambling Commission approved testing houses to complete as part of any annual games testing audits they conduct.

**Aim of the audit:**

The audit is to assess the gambling software development, testing and release processes for applicable licensees to determine whether:

* The processes conform with the good practice guidelines outlined in section 6 of the Testing Strategy.
* Classifications have been made and documented for any updates to RNGs and the gambling products they serve. Any updates classified as major have been resubmitted for external testing, a reviewed sample of updates classified as minor concurs that they were minor[[1]](#footnote-1).
* Appropriate and effective processes have been developed to monitor the performance of live games.
* The list of games maintained in the licensee’s eServices Games register accurately reflects the games offered under their Commission licence.
* If applicable, any other specific aspects determined by the Commission on a case by case basis.

**Applicable licensees**

Licensees in scope for the games testing audit have been approached by the Commission and allocated to one of four pools to denote the due date for their annual audit. Generally this audit applies to licensees who hold a gambling software licence (remote and or non-remote) and any of the following remote licences: casino, bingo, virtual betting. The primary focus of the audit is to ensure that those who develop games and those who procure the required external testing do so in a well-controlled environment. The focus of the audit is therefore only on RNG driven products.

There may be instances where a game has been developed by more than one licensee. Where this is the case it is generally the company who owns the game and is responsible for its operation in the field who will be audited. An example along with the potential audit approach:

*Game content entity develops the client while the hosting entity develops or adapts the game engine. It will likely be the entity who obtains the testing for the game on that platform which will be audited. Test lab should determine whether the scope of game testing audits has covered the pertinent game development activities of both entities. (This might mean for example that the larger B2B entity is covered by a separate audit, perhaps by a different test house. Or it might require that access to the required information held by the other entity is granted to the test house in order for them to assess the aspects they’re responsible for).*

Test house instructions for use

While test houses will maintain their own working papers to evidence the audits they conduct, we require the below template to be completed so as to ensure a consistency across the audit reports submitted to the Commission. Test houses are free to either complete the below template, or to ensure that the same content is reflected within their existing audit report format.

All findings must be documented in a succinct yet complete and transparent manner directly related to the question. The general format for each finding is to outline what was observed along with the evidence measures[[2]](#footnote-2) obtained and assessed to support the finding outcome. Test houses should consider the intent of each question / area when assessing and give an opinion as to the adequacy of what was in place.

Although the audit is not designed for operators to fix non-conformities during the review, the Commission recognises that in some instances issues may be resolved before the audit is completed. Where the licensee has rectified a failing during the audit, this can be recorded as Compliant so long as the original issue is recorded in the finding along with the action taken to rectify it.

**Submission**

Once completed, reports must be submitted through the eServices portal under the Games Testing Annual Audit tab. This can be done by either the operator or test lab (if authorised). A management response to any non-resolved findings is required, either within the report or as a separate attachment. Any further attachments documenting the evidence measures may also be submitted but we are expecting a properly completed audit template as sufficient to stand on its own.

Audit particulars

In addition to the template questions and the entered findings and outcome the audit report must state the following:

* The operator’s name;
* The test house name as well as the staff who conducted the audit;
* The date(s) of the audit, locations, operator staff involved (names and titles);
* Report issue date;
* Overview of company audited, suppliers, supplied entities, overview of games stable, software development lifecycle approach;
* An executive summary. The executive summary must include a high level overview of the work undertaken and the control environment operating;
* Audit must be counter signed by the relevant PML holder or specified person (smaller scale Operators) and submitted to the Commission directly or via the approved test house that conducted the audit.
* Aside from the report detailing the assessment results for each item, an auditor's opinion about whether the licensee’s overall environment is effective for the areas outlined in the requirement;
* Management plan to resolve issues that were identified (this response by the operator’s management may be a separate document);
* Other relevant factors such as whether­­­ the operator/systems are compliant/have been audited against other requirements.
* Any evidence that is captured as part of the documentation supplied should be version controlled and the date published should be easily identifiable.

Section 1 – Review of in-house development, testing and release processes

Development processes (this review covers the gambling software source code/systems):

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| Q | Assess each of the following and select the result observed: [Compliant], [Improvements recommended], [Minor Non-compliance] and [Major Non-compliance] | | General comments and description of what was observed; suggested improvements (if applicable): |
| 1.1 | Source code control – Is there a secure register to store source code? Are there defined access controls and do developers use uniquely identifiable login credentials? | | |
| Select result: | | General comments and description of what was observed; suggested improvements (if applicable): | |
| 1.2 | Does the source code register record a time stamped log of all access and modification made to source code? | | |
| Select result: | | General comments and description of what was observed; suggested improvements (if applicable): | |
| 1.3 | Can updates made to critical source code be tracked, and can previous versions of code be reproduced (either via the source code register or other robust means)? | | |
| Select result: | | General comments and description of what was observed; suggested improvements (if applicable): | |
| 1.4 | Have appropriate segregation of duties controls been implemented for source code control as well as in the various development and testing environments to ensure any incompatible functions are not held by one individual, or where they are then adequate mitigating controls are in place?  *The aim here is to reduce the likelihood of malicious changes being made to gambling software by granting one person end-to-end update ability. For example sometimes the base game modules underpinning all games of the same generation (such as the RNG calling and mapping processes) are locked down to prevent any modification by general game development staff. It is noted that sometimes a senior position might hold full access however their use should be abnormal, in either case ensure adequate audit logs / review processes are in place.* | | |
| Select result: | | General comments and description of what was observed; suggested improvements (if applicable): | |
| 1.5 | Are the build processes and system architecture such that specific software updates are as best as possible modular in nature to minimise the impact on the wider code base?  *This is looking to see sufficient modularity so updates to parts of the game code do not require wider game code (particularly critical game code) to be updated / recompiled if they are not being touched. Full compliance with this, as with some other aspects of this audit, is not expected from day one. Some companies will be more advanced than others, aim is to ensure constant improvement year on year.* | | |
| Select result: | | General comments and description of what was observed; suggested improvements (if applicable): | |

Documentation (evidence for some of the following section will be apparent during external testing processes where a Testing House will be more reliant on technical documentation to explain the gambling software functionality):

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| Q | Assess each of the following and select the result observed: [Compliant], [Improvements recommended], [Minor Non-compliance] and [Major Non-compliance] | | | General comments and description of what was observed; suggested improvements (if applicable): |
| 2.1 | Is critical gambling software accompanied by up-to-date design and technical documentation to support and explain the software’s function?  *Adequacy of technical documentation will be noticeable during pre-release game testing stage, however the audit will be looking to see that documentation is developed along with the gambling software.* | | | |
| Select result: | | | General comments and description of what was observed; suggested improvements (if applicable): | |
| 2.2 | Does the source code contain sufficient commenting to explain file/class/function purpose?  *Here you are looking to see that there is adequate transparency in the operation of software to enable peer developers and independent testers to understand the purpose of each module. Updating large back catalogues of game source code to comply is not expected, however updates and new games should be progressively raising standards where deficiencies exist.* | | | |
| Select result: | | | General comments and description of what was observed; suggested improvements (if applicable): | |
| 2.3 | Is source code sufficiently legible and structured to permit static code analysis and for the review of its functionality to be conducted with confidence? | | | |
| Select result: | | | General comments and description of what was observed; suggested improvements (if applicable): | |
| 2.4 | Do development processes require for changes to critical game aspects to be peer reviewed by an equally qualified but independent staff member? Is there evidence to support this process?  *The aim of this control is to ensure changes made to gambling software have been reviewed by people independent of those who made the change to validate the appropriateness of the changes*. *This will be linked to the independent tester point below.* | | | |
| Select result: | | | General comments and description of what was observed; suggested improvements (if applicable): | |
| 2.5 | | Documentation created by development team/s includes the published version. Any updates are recorded accurately and a new version of the document is generated. Sign off is visible in the document. | | |
| Select result: | | | General comments and description of what was observed: | |
| 2.6 | | Documentation created by QA Manager, Test Leads, Testers includes the published version. Any updates are recorded accurately and a new version of the document is generated. Sign off is visible in the document. | | |
| Select result: | | | General comments and description of what was observed; suggested improvements (if applicable): | |

Internal testing and software migration processes (this is a review of the in-house testing performed on gambling software before it makes it to pre-release external testing house review):

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| Q | Assess each of the following and select the result observed: [Compliant], [Improvements recommended], [Minor Non-compliance] and [Major Non-compliance] | | General comments and description of what was observed; suggested improvements (if applicable): |
| 3.1 | Is the environment that is utilised for development isolated from the testing environment? | | |
| Select result: | | General comments and description of what was observed; suggested improvements (if applicable): | |
| 3.2 | Do separate staff to those that developed perform the testing (in an agile development environment testing staff may be within the same team as developers testing iteratively alongside them)? | | |
| Select result: | | General comments and description of what was observed; suggested improvements (if applicable): | |
| 3.3 | Is outsourced development monitored, controlled and reviewed periodically? Is the current process adequate? | | |
| Select result: | | General comments and description of what was observed; suggested improvements (if applicable): | |
| 3.4 | Do testing staff perform an independent assessment of changes made by the developers in order to verify that all changes appear relevant and have been documented in the change documentation?  *Look for evidence of source code / file comparison programs being used by testing staff to quickly identify all changes.* | | |
| Select result: | | General comments and description of what was observed; suggested improvements (if applicable): | |
| 3.5 | For aspects of the RTS that can be tested in-house is there evidence of testing and compliance signoff?  *As per the Testing Strategy, licensees who comply with section 6 of the strategy can rely on internal testing only for RTS aspects denoted in green of table 1 of the Testing Strategy (Else external test houses would need to test all aspects of RTS compliance). This step looks for evidence of licensee testing against the entire RTS (Nb. It is accepted that while the red aspects of RTS will be tested internally and externally for each game, the green aspects might only be tested periodically as this functionality (eg Auto-play) does not tend to change between versions).* | | |
| Select result: | | General comments and description of what was observed; suggested improvements (if applicable): | |

Change management (this is a review to ensure the overall development, testing and release process for gambling software is controlled by a change management plan, and that responsibility for compliance with the plan resides with the relevant manager/PML)

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| Q | Assess each of the following and select the result observed: [Compliant], [Improvements recommended], [Minor Non-compliance] and [Major Non-compliance] | | General comments and description of what was observed; suggested improvements (if applicable): |
| 4.1 | Is there a documented change management plan which covers gambling software development? | | |
| Select result: | | General comments and description of what was observed; suggested improvements (if applicable): | |
| 4.2 | Is responsibility for the plan and process held with a PML holder (or in the case of a small scale operator the relevant qualifying person)? | | |
| Select result: | | General comments and description of what was observed; suggested improvements (if applicable): | |
| 4.3 | Is there signed authorisations obtained before proceeding through each critical gateway?  *Signoffs to ensure required development, testing and release processes have been followed and that product complies with required regulations*. | | |
| Select result: | | General comments and description of what was observed; suggested improvements (if applicable): | |

Section 2 – Major/minor updates to gambling software

Request the change logs for all updates performed in the 12 month period under audit, the test house is to select their own sample[[3]](#footnote-3) of updates – to include some defined as major requiring external retesting as well as changes deemed as minor (and therefore covered by internal testing only). The aim in this review is to ensure that updates to games and RNGs are appropriately assessed for the potential impact on fairness and that any updates which may impact fairness are re-tested by an approved test house.

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| Q | Assess each of the following and select the result observed: [Compliant], [Improvements recommended], [Minor Non-compliance] and [Major Non-compliance] | | General comments and description of what was observed; suggested improvements (if applicable): |
| 5.1 | Verify that for each RNG/game change, the change documentation records:   * unique change ID * game number/RNG identifier * delivery channel(s) * description of change * whether the modification is classified as major or minor (as per Testing Strategy definition) * justification for above classification * for minor changes: confirmation they have been internally tested and the changes documented * for major changes: confirmation of adequate external testing house assessment * relevant manager’s authorisation for change * other particulars as required by the licence holder’s internal change management requirements.   Were all sampled changes compliant with the above? | | |
| Select result: | | General comments and description of what was observed; suggested improvements (if applicable): | |
| 5.2 | For a sample of minor changes, review in more detail to form an independent opinion as to whether the changes were minor in nature. This should involve comparing the change documentation and technical design specifications against the game source code. | | |
| Select result: | | General comments and description of what was observed; suggested improvements (if applicable): | |
| 5.3 | Outline the review process followed to sample the above, including the total number of changes made during the period (both major and minor), total number of games, and a rationale for the sample size selected. Summarise the results of the review including any suggested improvements. | | |
| General comments and description of what was observed; suggested improvements (if applicable): | | | |

Section 3 – Performance monitoring processes and sample

This section reviews the performance monitoring processes that have been developed to ensure the live performance of games is within the designed parameters. Please refer to section 5 of the [Testing Strategy](http://www.gamblingcommission.gov.uk/for-gambling-businesses/Compliance/Sector-specific-compliance/Remote-and-software/Remote-technical-standards-testing-strategy.aspx) and the accompanying [website guidance](http://www.gamblingcommission.gov.uk/for-gambling-businesses/Compliance/Sector-specific-compliance/Remote-and-software/Live-RTP-performance-monitoring.aspx) for an explanation of the expected processes.

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| Q | Assess each of the following and select the result observed: [Compliant], [Improvements recommended], [Minor Non-compliance] and [Major Non-compliance] | | General comments and description of what was observed; suggested improvements (if applicable): |
| 6.1 | Describe the performance monitoring process in place for the gambling software under review. | | |
| General comments and description of what was observed: | | | |
| 6.2 | Are the responsibilities for monitoring (particularly in B2B / B2C arrangements) outlined in contractual arrangements or similar?  *It is usually the case that where the B2B holds aggregated data they will perform monitoring processes. Where the B2C holds their own data and are supplied with tools and instructions on how to monitor their own games then the audit should review the tools / instructions as provided by the B2B to form an opinion as to whether they are adequate for a B2C to perform their own monitoring. [\*List the B2Cs supplied who will be responsible for monitoring the products provided by auditee]* | | |
| Select result: | | General comments and description of what was observed; suggested improvements (if applicable): | |
| 6.3 | Frequency of measurements and data set sample sizes: Is the frequency of monitoring adequate to identify faults in a timely manner? Is the volume trigger for each measurement adequate to ensure the sample size is appropriate and refreshed over time? | | |
| Select result: | | General comments and description of what was observed; suggested improvements (if applicable): | |
| 6.4 | Volatility – Does game volatility form part of the measuring calculations and is it from the designed volatility as contained in the supporting maths and par sheet for the game?  *Ensure the volatility ratings are from the game’s design, where a game does not have the volatility in its designs provide the reason (eg some older games may not have had sufficient volatility information and have instead used actual data sets to determine the volatility).* | | |
| Select result: | | General comments and description of what was observed; suggested improvements (if applicable): | |
| 6.5 | Granularity of measurements – Are the game transactions segregated to isolate the base game performance from progressive jackpots (if applicable)?  Does the measuring divide game data into the different available bet levels? | | |
| Select result: | | General comments and description of what was observed; suggested improvements (if applicable): | |
| 6.6 | Review the retained evidence for some recent measurement calculations, recalculate the actual performance (RTP) and see that for the volume of play sampled the actual and expected RTP are within acceptable tolerances in accordance with the game’s volatility. | | |
| Select result: | | General comments and description of what was observed; suggested improvements (if applicable): | |
| 6.7 | Provide approximate statistics for how many measurements were made for the year under review. Note:  Any instances where the measurements indicated a potentially faulty game;  Any special investigations initiated from escalated customer (player or B2C) complaints comparing a specific customer’s activity against the overall game’s design and aggregated activity; and  Any instances where there was a faulty game (resulting in a reduced RTP) that was live and whether the monitoring processes identified the fault or if not how it was identified | | |
| General comments and description of what was observed: | | | |
| 6.8 | If not already addressed above provide any other observations on the adequacy of performance monitoring including recommended improvements. | | |
| Select result: | | General comments and description of what was observed; suggested improvements (if applicable): | |

**Section 4 – Remote Games Register**

The Remote Games Register is a new implementation to eServices. The service will replace the manual notification process to the ‘gamestesting’ inbox of notifying the Commission of new RNG/Game releases. The new functionality will include the ability to add, withdraw, reinstate and bulk change entries.

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| Q | Assess each of the following and select the result observed: [Compliant], [Improvements recommended], [Minor Non-compliance] and [Major Non-compliance] | | General comments and description of what was observed; suggested improvements (if applicable): |
| 7.1 | The Remote Games Register is utilised to inform the Commission of newly released games and RNGS. The Operator will need to perform a demonstration of the journeys (Add, Withdraw, reinstate and bulk processing entries) in the Remote Games Register. | | |
| General comments and description of what was observed: | | | |
| 7.2 | Demonstrate that providers (B2Cs) supplied with games developed by the operator are given the relevant information to complete their own games registers. | | |
| Select result: | | General comments and description of what was observed; suggested improvements (if applicable): | |
| 7.3 | Demonstrate that the Register is kept up to date with internal logs. Compare operator’s records against what the commission holds. | | |
| Select result: | | General comments and description of what was observed; suggested improvements (if applicable): | |

Gambling Commission June 2018

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1. principles for what constitutes a major/minor update are contained in the Testing Strategy [↑](#footnote-ref-1)
2. Evidence obtained during the audit to substantiate results would include the documents that were reviewed (including version / dates), staff interviewed, details of the walkthroughs performed, samples reviewed to verify compliance etc. [↑](#footnote-ref-2)
3. We are expecting the sample to be sufficient enough to give a reasonable level of assurance that the process is followed for all changes [↑](#footnote-ref-3)