

AUDIT REPORT / RISULTATI DELLA VERIFICA

Game / Gioco:

“Tiger Rush”

client release 1.0.3

Game server: 1.0.0

RNG: 3.5.0

20 settembre 2018

INTRODUCTION / INTRODUZIONE

The findings reported in this summary are the results of a broader set of documents and testing activities results archived in QUINEL Limited's facilities. It is intended that the requester declares that

- all the files and modules,
- the database schemas and all the specific programming resources,
- all the parameters contained into any databases and/or configuration file

that have been subject to the audit process guarantee the same behavior of what is going to be published/deployed according to this audit results.

This certificate does not report any game code or platform code, so it will be considered valid at the discretion of ADM for the purpose of authorizing / licensing for any operators.

The Recipient, by accepting and using this Report, declares to be aware and accept unconditionally all the terms and conditions set forth. If the Applicant and / or the Recipient does not agree on the terms and conditions set forth, QUINEL Limited reserves the right to cancel the certification provided with this Report, it follows therefore that the Recipient must immediately return all copies to QUINEL Limited of this Report and cannot use them nor refer to.

SECTION 1

(audit reference information / informazioni generali che caratterizzano e contraddistinguono l'attività di verifica)

1. Audit ID / Identificativo della verifica

THK036GIO

2. Auditor / Ente di verifica emittente del certificato

QUINEL Limited
Marina Court, Flat 8, Triq Giuseppe Cali'
XBX 1421 Ta' Xbiex, Malta
Sito della verifica: Via Prampolini, 28 43044 Lemignano di Collecchio (PR)

3. Reference regulations / Riferimento alle Linee Guida utilizzate per la verifica

“Linee Guida per la certificazione della piattaforma di gioco – Versione 1.2 del 24 dicembre 2014 – Decreto direttoriale 2011/666/Giochi/GAD, Prot 2012/781/Giochi/GAD”

4. Audit subject / Nome e identificativo dell'oggetto verificato

Game: (HTML5 interface – desktop and mobile)
- ***Tiger Rush***
client release 1.0.3; server vers. 1.0.0; RNG vers: 3.5.0

5. Product type / Tipologia dell'oggetto verificato

Video Slot Game.

6. Product description / Descrizione dell'oggetto verificato

Remote Gaming System providing:

- Game and tournament management
- Symbols generation (RNG)
- Gaming functionalities
- Video Slot Games

7. Producer / Estremi del produttore dell'oggetto verificato

Thunderkick AB
Vasagatan 11, 111 20 Stockholm,
Sweden

8. Requester / Estremi del richiedente della verifica

Thunderkick Malta LTD
Level 5, The Mall Complex,
Floriana, Malta

9. Audit request date / Data di ricezione della richiesta di verifica

11/07/2018

10. Audit completion date / Data di completamento della verifica

20/09/2018

11. Audit result / Esito

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12. Notes / Altre annotazioni

The game (server side logic) and platform is developed entirely with the Java Language.

Games were provided through the following URLs on a QA environment:

- <https://quinel.thunderkick.com/games/> (player's interface)
- <https://qa-int-backoffice.thunderkick.com/> (Back office / Admin interface)
- <http://ext-qa-gameservice.thunderkick.com> (Runtime game configuration)

The QA environment relies on a Linux environment hosted by Amazon's cloud services and runs on Oracle Java JDK 1.7.0_09, Apache Tomcat application server 7.0.42

Live environment is reachable at the following IPs (primary site, secondary site omitted):

Game traffic: 37.114.73.113
API: 37.114.73.114
Back office 37.114.73.115
Firewall 37.114.73.120

Live environment servers are running Linux "Ubuntu 12.04.5 LT; Precise Pangolin", with Oracle Java JDK 1.7.0_51, Apache Tomcat application server 7.0.50.

The difference between the Java JDK is negligible considered the change log and that the source code inspection couldn't find any specific binding to those releases nor dependencies on system APIs. Same considerations apply with regards to differences between QA and Live environment.

Additional details in sect.3

RNG: The RNG supporting the games subject to certification was certified by QUINEL M. Ltd and its results are included in the compliance report with ID: "THK002RNG_20160325_CERT_SenzaSha.pdf" (SHA1: 6803a98ac6487f992e7d56f6b510037e8cb62be3).

SECTION 2

(HW component subject to audit / dettaglio dei componenti HW verificati)

1. Producer / Produttore

NOT APPLICABLE / NON APPLICABILE

2. Component Identifier / Identificativo del componente HW

NOT APPLICABLE / NON APPLICABILE

3. Description / Funzionalità che caratterizzano l'oggetto HW

NOT APPLICABLE / NON APPLICABILE

4. Reference to the specific tests / Riferimento alla verifica effettuata

NOT APPLICABLE / NON APPLICABILE

5. Notes / Altre annotazioni

NOT APPLICABLE / NON APPLICABILE

SECTION 3

(SW components subject to audit / dettaglio dei componenti SW verificati)

1. Producer / Produttore

Thunderkick AB
 Vasagatan 11, 111 20 Stockholm,
 Sweden

2. SW component description / Identificativo del componente SW

Platform: “Thunderkick”
Games: (HTML5 - Desktop & Mobile)
 • **Tiger Rush**
 Client version: 1.0.3
 Game server version: 1.0.0
 RNG: 3.5.0

3. Details and functionalities / Funzionalità che caratterizzano l’oggetto SW

The platform provides gaming functionalities (*piattaforma di gioco*) common to all the games which are deployed on as well as all the management and reporting features required by the current Italian regulation referred by this certificate.

The platform subject to the certification activities has been provided through the environment describe at Section 1.12

The gaming interface is designed in such a way to be embedded into a container (i.e. web page, downloadable client) which shall take care to provide accessible links to responsible gaming contents and information regarding the right of participation (“diritto di partecipazione”) assigned by the central systems of the ADM/AAMS.

The game client doesn’t own any game logic and only the specific data related to the player is sent over the communication channel.

The system provides effective tools to monitor any transaction and movement. Part of these tools are available on the back office interface of the RGS, where all the game management tools are located.

4. Software components

| SHA1 | Critical | Type (Game) | File name |
|-------|----------|----------------|---------------------------------------|
| ***** | Yes | Configuration | gp-game-s1-g18.json |
| ***** | Yes | Game logic | gp-game-s1-g18-core-1.0.0-RELEASE.jar |
| ***** | Yes | RNG | MersenneTwister32.java |
| ***** | Yes | RNG | RandomNumberGenerator.java |
| ***** | Yes | RNG | gp-rng-3.5.0-RELEASE.jar |
| ***** | Yes | RNG | gp-rng-api-3.5.0-RELEASE.jar |

5. Automatic verification process for critical file daily check

The following module implements the Signature Calculation tool which calculates the signatures of the critical modules deployed on the platform and stores the results into an XML file and let available to the integrating Operators in charge to send the relevant message (Message 830, PGDA Protocol) to the Authority's central system. This module provides an output upon http call. The following URLs were verified.

Games were provided through the following URLs on a QA environment:

- <https://quinel.thunderkick.com/games/> (player's interface)
- <https://qa-int-backoffice.thunderkick.com/> (Back office / Admin interface)
- <http://ext-qa-gameservice.thunderkick.com> (Runtime game configuration)

| File ID | Critical | SHA1 |
|-----------------------|----------|--|
| DigestUtilities.java | NO | 7b7282aceb84c1778b7c4eb9e4b402927044fedd |
| DigestUtilities.class | YES | ***** |

6. Payout and Return To Player / Eventuale % di RTP

| <u>Test Item / Game name</u> | <u>Theor. RTP [%]</u> |
|------------------------------|-----------------------|
| <i>Tiger Rush</i> | 96.3% |

7. Internal references / Riferimento alla verifica effettuata

JOB N° THK036GIO

8. Notes / Altre annotazioni

N.A

SECTION 4

(audit details)

1. Audit subject / Identificativo del prodotto

Refer to Section 1.4

2. Audit details / Verifica eseguita

The following requirement from Italian guidelines were evaluated:

- *Player and Hand History Verification*
- *Incomplete game plays management*
- *Game Instructions and information*
- *Bet display*
- *Game result display*
- *Game session information*
- *Information on individual game play*

Specific tests that have been executed:

- Machine Error/Event handling
- Source code review
- Artwork review
- Payout verification
- Pay table emulation

3. Audit result / Esito

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4. Notes / Altre annotazioni

N.A.

SECTION 5

(full list of satisfied requirements / elenco completo dei requisiti soddisfatti)

1. Game / Requisiti di gioco

| Requirement/Requisito | Esito/Evaluation | Ref./Rif. standard |
|---|------------------------|--------------------|
| Correttezza del Gioco | COMPLIANT / CONFORME | 2.6.1 |
| Inammissibilità del comportamento adattativo dei giochi | COMPLIANT / CONFORME | 2.6.2 |
| Inammissibilità del gioco forzato. | COMPLIANT / CONFORME | 2.6.3 |
| Requisiti della partita | COMPLIANT / CONFORME | 2.6.4 |
| Progettazione del gioco. | COMPLIANT / CONFORME | 2.6.5 |
| Partita | COMPLIANT / CONFORME | 2.6.6 |
| Disattivazione del Gioco | N.A.* | 2.6.7 |
| Partite non concluse | COMPLIANT / CONFORME | 2.6.8 |
| Istruzioni e informazioni | COMPLIANT / CONFORME | 2.6.9.1 |
| Visualizzazione della giocata | COMPLIANT / CONFORME | 2.6.9.2 |
| Visualizzazione del risultato | COMPLIANT / CONFORME | 2.6.9.3 |
| Giochi Multiutente | N.A. | 2.6.9.4 |
| Requisiti specifici per Gioco | COMPLIANT / CONFORME | 2.6.9.5 |
| Limiti giocabili per sessione di gioco (intesa come da definizione del decreto) | N.A.* | 2.6.10 |
| Requisiti Specifici per giochi di tipo "Mobile" | COMPLIANT / CONFORME * | 2.6.11 |
| Informazioni sulle singole giocate | COMPLIANT / CONFORME | 2.6.12 |
| Informazioni sugli eventi significativi | COMPLIANT / CONFORME | 2.6.13 |

(*) to be checked during game integration certification

2. Game Specific requirements / Requisiti specifici per il gioco

| Requirement/Requisito | Esito/Evaluation | Ref./Rif. standard |
|------------------------------|-------------------------|---------------------------|
| Giochi Slot/A rulli | COMPLIANT / CONFORME | Appendice C |

SECTION 6

(compliance information / informazioni relative alla dichiarazione di conformità)

CERTIFICATION / CERTIFICAZIONE**Recipient:**Thunderkick Malta LTD
Level 5, The Mall Complex, Floriana, Malta

Total number of pages/ Numero pagine: 12

Audited items:

Games: (HTML5 - Desktop & Mobile)

- *Tiger Rush*

Client release 1.0.3
Game server version 1.0.0
RNG version: 3.5.0

QUINEL Limited has verified that audited items meet the requirements set by the current regulations / QUINEL Limited ha verificato che il gioco sopra riportato è conforme alla normative vigente:

Reference regulations / Normativa di riferimento*Decreto Direttoriale del 10 gennaio 2011 Prot. N. 666/GIOCHI/GAD –**Linee Guida per la certificazione della piattaforma di gioco - Versione 1.2 del 24 dicembre 2014****Requisites/Requisiti: refer to section 5***

Issue date/Data: 20 settembre, 2018 (2018/09/20)

Signature / Firma:Davide De Nobile
Laboratory Technical Director
(QUINEL Limited)

CONDITIONS / CONDIZIONI

- 1) The communication with ADM/SOGEI was partially emulated. All the information related to participation ID shall be stored and made available where required by the integrating Operators.
- 2) All the testing activity on the databases were completed accessing remotely with supervision. At the time this certification is issued.
- 3) Since the Requester has the right to modify the non-critical files, he has the responsibility to maintain the tested game platform compliance against the requirements.
- 4) With reference to the current regulations (*Decreto Direttoriale del 10 gennaio 2011, Prot. n. 2011/666/Giochi/GAD*) it is responsibility of the licensee to guarantee the correct application of Article 5 - points 1 and 3.
- 5) Since the Requester has the right to modify the non-critical files, He has the responsibility to maintain the tested game platform compliance against the requirements.

**END
OF
COMPLIANCE
REPORT**