Backup and Recovery Technical Document

New or existing backup systems should meet all business requirements, such as:

- Data retention (3 years)
- Saving all data required by the division
- Save window (How long a system can be backing up data before it interferes with business operations)
- Type of implemented save rotation (Full, Differential, Incremental)
- Ad-Hoc save and restore requirements
- Restore requirements (Full restore of gaming data/individual file restore)
- Security (Encryption, Physical Security, Media Management/Destruction)

Choosing the schedule and type of backup plan the casino will implement is based on system requirements. Full, Differential, and Incremental backups each have their own weaknesses and strengths. Full backups are typically the longest save to finish, but are the fastest to restore from, Differentials are the middle ground, and Incrementals are the fastest save but the slowest from which to restore.

The casino must document what information will be saved in order to comply with Division requirements. The documentation must include where the data is located and how the casino verifies that all data required by the Division is saved.

Saving files such as databases while a system is writing to them may compromises the integrity of the save. The backup system must be able to save gaming data when it is not being updated. The system must be able to finish within a required backup window. Saves running during business operating hours may also have the unintended effect of making the system less responsive. If the save does not finish within the backup window, the casino must create an entry in the RAMP log and resolve the issue.

When the backup system is not functioning the casino's data is at a high level of risk. A response plan must be in place that states that the IT department must immediately troubleshoot the problem to ensure that it is not a critical system failure. The plan must also include a policy that states if two backups in a row or four non-contiguous backups in any calendar month are missed or non-usable, an IT staff member or the person responsible for the IT function must take immediate corrective action. The problem and corrective action must be documented in a designated log.

The backup recovery unit must be able to restore from media within the Division's retention requirements. If the media is no longer recognized by the system due to retention parameters configured within the system, the licensee must have a process to recover data from this media.

Testing the restore function of the system is required quarterly at a minimum. The results of the restore test must be documented and made available upon request. The test must be repeated until a restore has been completed on gaming data and the data can be read by the gaming system. All live restores must be recorded in a designated log.

Security standards apply to both the system and the media. Security requirements for the backup system should include an area where only authorized personnel can enter, and requiring a password to access the backup/restore software. Media security can include encrypting the data on the media. The media should be destroyed at the end of its life. The casino must physically manage the media so that no gaming data is lost. For example

- Media storage within the casino
- Secure transport offsite
- Accurately labeled
- Correct handling of media
- Media storage at the off-site facility

Media management is a critical part of a backup and recovery plan. The casino should have formal documented procedures for media rotation, labeling, maintenance, storage and lifecycle management. Media should be organized in save sets that are labeled so that the media is easily recognizable as a save set. A save set can include multiple media units from the same save, or the full and differential/ incremental media units that make up a complete save for the configured period of time. For example if full saves are run every Sunday and incrementals are run the other 6 days, all 7 of the media units should be labeled as a set and easily recognized. Media should also be accurately labeled in order to identify the correct version of the data that the media contains. All media should have a unique identifier and inventoried so that it can be tracked to prevent data from leaving the business in an unauthorized fashion.

Another part of media management is tracking the lifecycle of the media and not using it past its stated number of uses. All maintenance tasks should be performed as recommended by the manufacturer such as media cleaning or retensioning. Media should be stored in an environment that is within the guidelines the manufacturer has specified.

Gaming data must be retained by the casino for three years as required by CLGR 47.1-1607. When the casino decides to upgrade their system they must have a way to recover data from the media the old system used. For example if the new system only uses LTO Ultrium cartridges and the old system used DLT cartridges, the old and new systems would be incompatible. The casino

must be able to recover data from the DLT cartridges within the timeframe requested by the Division or required by CLGR 47.1-1607.