i³ International
White Paper on Water Marking – Video Encrypted
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i³ video recording system captures, digitizes, compresses, and stores video on a hard drive(s) and archives it for future use. Depending on a hard drive capacity, the video recordings are stored for a certain amount of days after which they may be overwritten based on first-in-first-out principle. The system can also be configured to stop recording once the storage limit has been reached.

There are two types of images that i³ International software is encrypted: single JPEG or BMP and i³ video format with the extension of *.i3d.

When a single picture is back up as JPEG or BMP, CRC is applied to each image. A cyclic redundancy check (CRC) is a non-secure hash function designed to detect accidental changes to raw computer data, and is commonly used in digital networks and storage devices such as hard disk drives. A CRC-enabled device calculates a short, fixed-length binary sequence, known as the CRC code or just CRC, for each block of data and sends or stores them both together. When a block is read or received the device repeats the calculation; if the new CRC does not match the one calculated earlier, then the block contains a data error and the device may take corrective action such as rereading or requesting the block be sent again.

CRCs are so called because the check (data verification) code is a redundancy (it adds zero information) and the algorithm is based on cyclic codes. The term CRC may refer to the check code or to the function that calculates it, which accepts data streams of any length as input but always outputs a fixed-length code. i³ encrypted video is analyzed mathematically for any changes and uses a higher form of CRC – any pixel changes will be calculated and notified users. It is excellent in detecting common errors caused by noise in transmission channels.

To check if the single image is legitimated executed software is imbedded in the i3Server software called "WaterMark.exe". User is asked to input the file name of the single image into the software and click on the "Check WaterMark" button. If the file is original then the result will be "match" otherwise it is corrupted or "NO Match!"

The other form of image is video format. When backing up with i³ encrypted video, the extension of "*.i3d" is added and it can playback in either i³ player or i³Server software.   Both software can only playback in original video.   There cannot be any changes to the original video.

AVI backup is also possible for end-users however this is a non secure form of backing up video; however, giving the audience the possibility of playback on any Window Media player. It is a non compress form and can only backup single camera view where as i³ encrypted video can backup up to 32 channels at any given time.

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