



# Encryption—The New Reality

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**W**e can all agree that Power Systems™ running IBM i (System i®, iSeries®, AS/400®) are very powerful machines. And, anyone can back up IBM i data, secure it, and restore it. No argument there. But, in today's security-conscious world, backing up data and storing it in a "secure" vault may not be enough. Companies today are required to comply with numerous government and industry regulations that define *how* confidential information is stored and transferred. And, the amount of data is increasing every day. So, how do you ensure that your data is protected? Encryption of critical data can help you deal with both the scope of today's data security requirements and the magnitude of your data.

Currently, more than 40 states have "security breach notification statutes" that require businesses to notify customers if their credit card or personal information might have been compromised. However, these laws offer an exception if the information was encrypted. For example, a 2008 Nevada law requiring encryption of customer personal information states, "...*businesses in this State (Nevada) shall not transfer any personal information of a customer through an electronic transmission other than a facsimile to a person outside of the secure system of the business unless the business uses encryption to ensure the security of electronic transmission.*"

In early 2010, Massachusetts made it illegal to transmit unencrypted sensitive personal information of Massachusetts residents, or to store it on portable devices. This information includes social security numbers, driver's license numbers, credit card numbers, and other financial account numbers. The requirement applies to any business in Massachusetts or any business that has customers in Massachusetts. Failure to comply can be quite costly: penalties of up to \$50,000 per improper disposal, the Massachusetts Attorney General empowered to sue the offending company, and courts permitted to triple damages if the violation was willful. Plus, these penalties don't reflect other costs such as lost business, dealing with irate customers, or related mailings.

As these examples indicate, encryption is quickly moving from a recommended practice to a legal obligation. And, the greater the volume of data, the greater the need for encryption. We've all heard horror stories on the news about "Computer tapes and laptops lost! Millions of personal data records compromised." Disaster recovery best practices dictate that you rotate backup tapes to an off-site location for protection in case of disaster. But, when these tapes leave the building, they're out of your control and the data is most vulnerable. Encrypting the data on these tapes is a critical part of any disaster recovery plan to protect your employees, your customers, your company, and yourself.

## WHY SOFTWARE TAPE ENCRYPTION?

Tape encryption is a process of scrambling and unscrambling the data that is written to tape. Scrambling the data makes it unreadable without the proper key(s). On the System i, you can encrypt objects at the hardware level or at the software level. Cryptographic hardware resides between the operating system and your backup device. Hardware solutions provide encryption as the data is placed on tape. However, cost becomes a hindering factor because you need the same hardware at your hot site, or anywhere else you might need to restore the data.



Software tape encryption solutions are less expensive, offer more flexibility, and tend to be easier to use. There are no extra hardware costs and you can selectively encrypt files. However, encrypting a backup *will* take longer than a regular backup, and some software encryption solutions are faster than others. Robot/SAVE®, the backup and recovery solution from Help/Systems, has been benchmarked to perform better than typical methods. In addition, some software solutions offer just the encryption/decryption process—you must write code to use them. **Robot/SAVE** manages the entire encryption environment, plus the backup and tape management process:

- **Easy**—You don't have to remember a long procedure to recover data because Robot/SAVE handles it automatically.
- **Flexible**—Robot/SAVE lets you back up directly to tape, or back up first to a save file and then from save file to tape. You decide the method that works best for you.
- **Organized**—Robot/SAVE tracks which tapes contain encrypted objects and what tapes you used for each backup.
- **Thorough**—Robot/SAVE can encrypt data using the Data Encryption Standard (DES) or the Advanced Encryption Standard (AES) algorithms—AES128 and AES256—that the government requires. And, Robot/SAVE manages the encryption keys automatically.
- **Secure**—Robot/SAVE can secure who has permission to change an encryption key.

## WHAT SHOULD YOU ENCRYPT?

The most obvious reason companies use encryption today is to protect sensitive data in the event of stolen or lost tapes. National legislation and privacy laws, such as the Sarbanes-Oxley Act, Health Insurance Portability and Accountability Act (HIPAA), and the Payment Card Industry Data Security Standard (PCI DSS); and regulations in Massachusetts, Nevada, and other states, have really forced companies to take notice.

Consider what data you really need to encrypt. Encrypting data to tape adds time to your backup processes, and most software solutions require extra disk space. Encrypting unnecessary objects (such as application programs, logical files, query definitions, and SQL packages) just increases your backup time for no useful purpose.

Ideally, you should encrypt at the object level, selecting specific files to shorten the save time. Using a Robot/SAVE object list reduces the time and disk space needed. This granular approach allows you to encrypt just the data you need to protect. Backing up encrypted data to tape makes your system available more quickly for users. Robot/SAVE's combination of object lists, encryption, and direct backup process, minimizes your save times.

## ENCRYPTION LEVELS AND KEY MANAGEMENT

You can perform encryption at various levels. The tradeoff is time—the more secure the encryption, the longer it takes to complete. Robot/SAVE offers four levels of encryption: Proprietary, DES (Data Encryption Standard), AES128 (Advanced Encryption Standard), and AES256. The Proprietary level uses an internally defined algorithm to offer the lowest level of encryption and the quickest backup time. At the other end of the spectrum, AES256 is the most secure level and takes the most time.



An encryption solution must create and manage keys (or passwords). Robot/SAVE makes key management painless by managing all the keys for you. Encryption keys are stored in their own library, which is encrypted and saved whenever encryption is enabled. The library is saved at the highest level of encryption, no matter what level the product is set to. To restore your data, you need to know the password.

### SIMPLIFIED, SECURE MANAGEMENT AND RESTORATION

When you need to restore encrypted data at your site, you don't have to remember which encryption key you used—Robot/SAVE “knows” the key and decrypts the data during the restoration process, automatically. But, if the tape falls into the wrong hands, the encrypted files are unreadable and cannot be restored without the key.

And, it's no problem if you need to send secure, encrypted data to other locations that don't have Robot/SAVE. You can use Robot/SAVE to create an encrypted file containing all of the information needed to restore the data, except the encryption key. To restore the information, the remote location must know the encryption key. So, for example, it's easy to send encrypted, confidential financial data to the IRS.

### SUMMARY

The process of encryption has actually been around longer than computers. Today, more than ever, companies are taking a close look at encryption solutions as a part of their total data protection processes. You should consider the flexibility and usability of a software solution for your encryption needs, both for backups and restorations. Robot/SAVE is an easy-to-use, automated, integrated, and flexible solution.

**To learn more about Robot/SAVE**, contact Help/Systems at **952-933-0609** and talk to a Regional Sales Manager to schedule a FREE Webinar demo or receive a FREE 30-day trial.

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