

CRYPTO COMPLETE™



Crypto Complete™ provides automated field encryption and backup encryption with integrated key management

Encryption Suite for System i

Quick Facts

Crypto Complete capabilities:

- Automatically encrypt database fields without changing applications
- Protect credit card numbers, social security numbers, bank account numbers, wages, etc.
- Encrypt System i libraries, objects and files (backup encryption)
- Create, manage and protect Keys with Crypto Complete's integrated Key Manager
- Rotate Keys without having to re-encrypt existing data or change applications
- Encrypt using strong algorithms (AES256, AES192, AES128 or TDES)
- Decrypt values only for authorized users (either the full value or masked value)
- Produce comprehensive audit trails and reports

Crypto Complete protects sensitive data on the IBM System i (iSeries) using strong encryption, integrated key management and auditing. In the past, encryption was difficult and time-consuming to implement on the System i. Now Crypto Complete allows organizations to implement field encryption and backup encryption quickly and effectively with its intuitive screens and proven technology.

This innovative solution is vital for protecting confidential information and expediting compliance with PCI DSS standards, federal regulations (i.e. HIPAA, Sarbanes-Oxley) and state privacy laws.

Crypto Complete can be installed within a few minutes and requires no source code changes for encryption. The commands in Crypto Complete have comprehensive on-line help text and are accessible through intuitive native i5/OS menus.

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CRYPTO                               Main Menu

Select one of the following:

  1. Key Policy and Security Menu      (GO CRYPTO1)
  2. Master Key Menu                  (GO CRYPTO2)
  3. Symmetric Key Menu                (GO CRYPTO3)
  4. Field Encryption Menu             (GO CRYPTO4)
  5. Library/Object/File Encryption Menu (GO CRYPTO5)
  6. Source Examples Menu              (GO CRYPTO6)

10. Product Information Menu           (GO CRYPTO10)

Selection or command
====> _____
_____

F3=Exit  F4=Prompt  F9=Retrieve  F12=Cancel
F13=Information Assistant  F16=AS/400 main menu
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Crypto Complete's main menu.



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www.CryptoComplete.com

Satisfied Customers



Linoma Software: Serving Over 3,000 Customers Worldwide

Sample list of customers using Crypto Complete:

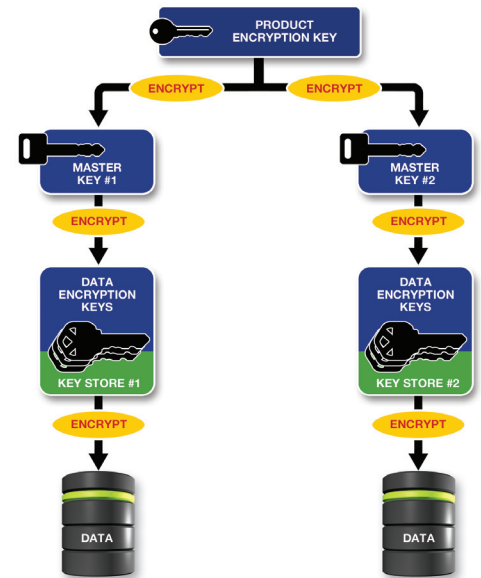
- BeautiControl Cosmetics
- Carolina Biological Supply
- Certegy
- City of Ketchikan
- City of Redding
- Consolidated Telephone Companies
- CU*Answers
- Discovery Toys
- EOG Resources
- Fairmount Minerals
- Fidelity Express
- The Geo Group Inc.
- Hermann Sons
- Ingram Industries
- KOA Kampgrounds of America
- Landau Uniforms
- Love's Travel Stops & Country Stores
- Mid-Continent Group
- Muscatine Foods Corporation
- Northwest Natural Gas
- Oneida Tribe of Indians of WI
- Permanent General Agency
- Rural Community Insurance Services
- Service Insurance Group
- Silverleaf Resorts
- Slomin's
- Sturm, Ruger & Company
- USA Mobility Wireless
- ViaTech Publishing Solutions

Symmetric Key Management

Symmetric Key Cryptology (also known as Secret Key or Private Key Cryptology) is a form of cryptology in which the same Key is used to encrypt and decrypt data.

Symmetric Keys must be strong enough for the intended application. Because the strength of the Symmetric Key is determined by its length, the longer the key, the harder it is to break the code. Within Crypto Complete, Symmetric Keys may be generated up to 256 bit lengths to provide a high level of protection.

The Symmetric Key values must be kept secret to prevent unauthorized decryption of sensitive data. Controls must therefore exist to protect the confidentiality and access to the Symmetric Keys. Crypto Complete provides an integrated and comprehensive Symmetric Key Management System to establish those controls.



Crypto Complete provides a secure multi-level hierarchy to protect Symmetric Keys on the System i.

A key is the information needed to control the detailed operations of the encryption algorithm. Computer-generated keys are more secure than human-generated passwords since they are represented as an obscure series of bits (1001110...).

Our Symmetric Key Management System allows organizations to:

- Establish policy settings on how Symmetric Keys can be created and utilized
- Indicate which users can create and manage Symmetric Keys
- Randomly generate strong Symmetric Keys
- Protect Symmetric Keys using Master Encryption Keys
- Protect the recreation of a Master Encryption Key by requiring passphrases from up to 8 users
- Organize Symmetric Keys into one or more Key Stores
- Restrict access to Key Stores using i5/OS object authority
- Restrict the retrieval of the actual Symmetric Key values
- Provide separation of duties (i.e. the creator of a Symmetric Key can be restricted from using the Key to encrypt and/or decrypt data)
- Control which users can utilize Symmetric Keys to encrypt and decrypt data
- Produce detailed audit logs

Field Encryption

Crypto Complete allows organizations to encrypt fields quickly and effectively using intuitive screens and proven technology. You can encrypt almost any System i database field with Crypto Complete. Field encryption examples:

- Credit card numbers
- Social security numbers
- Bank account numbers
- Health-related information
- Wages
- Financial data

With Crypto Complete's innovative Field Encryption Registry, you can simply indicate the database fields to encrypt within your database files. When a field is "activated" in the registry, Crypto Complete will perform a mass encryption of the current values for that field. Crypto Complete can then automatically encrypt the field values on an ongoing basis as new database records are added and when existing field values are changed. This automated feature saves significant time and money for customers, since applications do not need to be changed for data encryption.

You can optionally modify your applications to encrypt data through program (API) calls to Crypto Complete's encryption procedures and programs. Crypto Complete also includes stored procedures and SQL functions which can be called from within native applications or other external clients (i.e. graphical or web-based front ends) for encryption/decryption.

System i database fields can be protected using the strong AES and TDES encryption algorithms. For AES encryption, you can choose between the key lengths of AES128, AES192 and AES256.

Backup Encryption

Native System i (iSeries) commands are provided in Crypto Complete to encrypt and save (back up) libraries, objects and IFS files. Encrypted backups can be targeted to the IFS, a tape device and other physical and virtual backup devices.

Symmetric Keys or passwords can be used to protect the encrypted data. The AES encryption algorithm is implemented to provide strong protection for your backups. You can choose between key lengths of AES128, AES192 and AES256.

The System i backup encryption provided in Crypto Complete allows organizations to secure their backup media and comply with PCI DSS requirements and governmental regulations such as HIPAA and Sarbanes-Oxley.

Native commands are also provided to restore/decrypt libraries, objects and IFS files which were saved using Crypto Complete's backup commands.



Audit Trails



Crypto Complete includes comprehensive auditing for meeting the most stringent security requirements. Audit log entries are generated for the following events:

- When any Key Policy settings are changed
- When Key Officers are added, changed or removed
- When Master Encryption Keys (MEKs) are loaded or set
- When Key Stores are created or translated
- When Data Encryption Keys (DEKs) are created, changed or deleted
- When Field Encryption Registry entries are added, changed, removed, activated or deactivated
- When any functions are denied due to improper authority
- When data is encrypted or decrypted with a key that requires logging of those events

The audit log entries can be displayed and printed using a variety of selection criteria, including date/time range, user and audit type.

Technical Specifications

Operating System: i5/OS V5R2 or higher
Disk Space: 50 MB

IBM Server
Proven™



"We have found Crypto Complete to be very easy to use. In about an hour, we had our first field encrypted! Crypto Complete gives us the option to automatically encrypt data, which eliminates the need for us to make software changes for encryption. The staff at Linoma Software has been very knowledgeable and helpful."

– Brad Snapp, City of Owensboro

"Crypto Complete has been doing its job quietly for a couple of months now. Just a couple of weeks ago I needed to add the encryption of a field in a new file and the process was easily added. The software is well-designed. There are not a lot of software products that impress me, but I have to say that I really like the way Crypto Complete works. It was easy to implement and allowed us to meet all the requirements for securing our data to get PCI compliant. Thanks Linoma!"

– Will Crowe, Love's Travel Stops and Country Stores

Visit www.CryptoComplete.com
for more information or to download a free trial.



About Linoma Software

Founded in 1994, Linoma Software provides innovative technologies to consistently meet evolving data transmission, translation, encryption and compression needs. Linoma Software has a diverse install base of over 3,000 customers around the world including corporations, non-profit organizations and government entities. With its dedication to research, development and superior customer service, Linoma Software is recognized as a leader in software development.

Customer Support

The success of Linoma Software is largely due to our customer-centric approach to the markets we serve. Providing the highest level of customer support is our number one priority. We are able to efficiently respond to any issues or questions through phone, e-mail and live online assistance.



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