

RC4 & Base64 - Encryption and Encoding Tools

Unique data encryption tools enabling encryption of specific, privacy-sensitive data fields (credit card number, account numbers, phone numbers, etc.), with a high degree of protection. Enables cloud computing for most data privacy-sensitive industries.

RC4 & Base64: How they work

The RC4 Data Encryption tool easily converts pre-selected data fields to unintelligible binary code. RC4 was designed to alleviate our clients' privacy and data-integrity concerns, when transmitting data via the Internet (cloud computing). RC4 supports massive scale processing and analyses that run infrequently, such as weekly or monthly.

The Base64 Encoding Tool converts binary characters to alphabetical, numerical, and a quantity of other special characters - rendering the field encoded. It provides a one-time cipher which has billions of combinations, so each combination is only used once.

Sample scenario

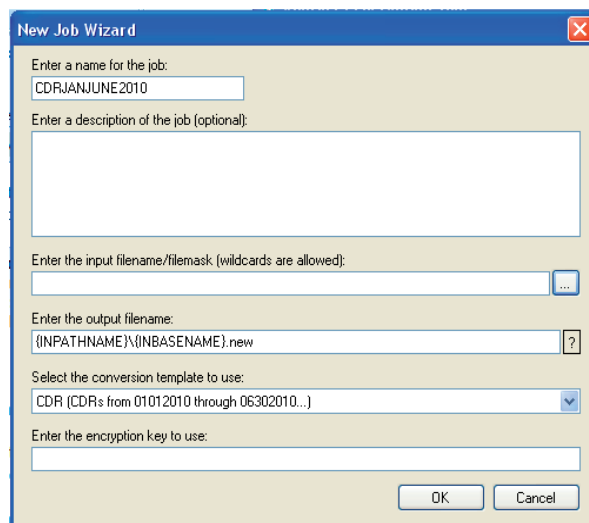
When a client sends a file to Aperio CI, our proprietary encryption tools may be implemented to enable identification, encryption, and encoding, of sensitive data fields.

For example, to hide account numbers and phone numbers within a data file, the client sets RC4 to scramble these two fields into unintelligible binary data. The rules for encryption are set up through the RC4 user interface, which enables the client to select an input file, assign an output file name, and create a rule template.

Aperio processes the data in its encrypted format and never sees the private information. Aperio sends the processed, encrypted file back to the client - who then decrypts the data using a unique key, created during the encryption process.

In order to reduce file size and enable quality assurance testing, Base64 encodes the encrypted binary fields with manageable text-field content identifiers. These identifiers are random letters, numbers, and symbols.

RC4 may be used alone, or in combination with the Base64 Encoding Tool.



Technical notes

There are 3 components of the encryption/encoding process:

- An input file (customer file)
- A template (An INI file telling the program what to encrypt – one template per file type.)
- An output file (an encrypted or decrypted[encoded] file)

At the front end, we provide a simple graphical user interface, used to set up the encryption job. You may create as many templates as you wish, and select your source file using the user interface. (The process can support multiple input files.)

For files of the same format, only one template is needed. One job can handle many files of the same type.