

The Cramer-Shoup example shows:

- 1) The creation of a Dlog Group that is known only at runtime via the DlogGroupFactory.
- 2) The creation of a Cryptographic Hash that is known only at runtime via the CryptographicHashFactory.
- 3) The generation of a random Group element of the Dlog Group created above.
- 4) The creation of a Cramer-Shoup encryption scheme object, which receives in its constructor the Dlog Group instance and Cryptographic Hash instance created above.
- 5) How to generate a pair of public-private keys for Cramer-Shoup and how to set the encryption scheme with the key pair.
- 6) How to encrypt a Group Element using the Cramer-Shoup encryption scheme. To do so it also shows how to wrap the Group Element to be encrypted with the relevant Plaintext class.
- 7) How the Cramer-Shoup scheme decrypts a ciphertext (that was encrypted with Cramer-Shoup) and obtain a GroupElementPlaintext.
- 8) How to compare if two group elements are equal. (Use the equals function and not == operator).