

Key Distribution and Management

Cryptography

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keys.tex, r1969

Contents

Recommended Key Sizes

Comparing Key Lengths Across Symmetric and Public Key Algorithms

- ▶ Various governments, standardisation organisations and researchers have analysed security level of cryptographic mechanisms
- ▶ Provide recommendations for:
 - ▶ Ciphers to use
 - ▶ Key lengths or hash lengths
 - ▶ Security level
- ▶ BlueKrypt website summarises recommendations: www.keylength.com
 - ▶ E.g. from NIST, German BSI, NSA, ECRYPT project, ...
- ▶ ECRYPT-CSA Project 2018 report on Algorithms, Key Size and Protocols (PDF)

Recommend Key Lengths from ECRYPT-CSA 2018

Protection	Symmetric	Factoring Modulus	Discrete Logarithm Key	Discrete Logarithm Group	Elliptic Curve	Hash
Legacy standard level <i>Should not be used in new systems</i>	80	1024	160	1024	160	160
Near term protection <i>Security for at least 10 years</i>	128	3072	256	3072	256	256
Long-term protection <i>Security for 30 to 50 years</i>	256	15360	512	15360	512	512

Credit: BlueKrypt www.keylength.com, CC-BY-SA 3.0