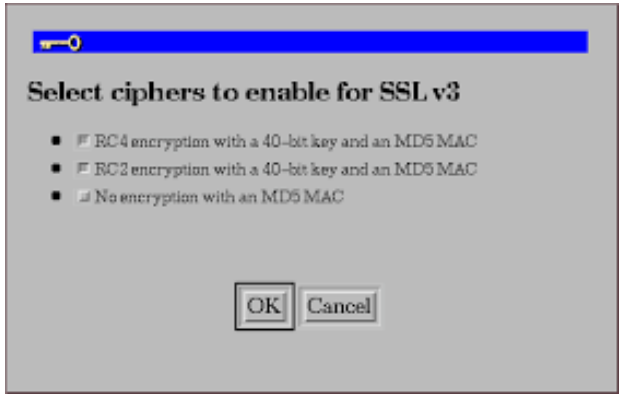
500 bits – Implementor's Lament

Lyrics: Daniel J. Bernstein, Tanja Lange

Performance: Daniel J. Bernstein, Geoffroy Couteau, Carl Ellison, Rémi Géraud (guitar), Becca Kreuter, Tanja Lange, Kristin Lauter, Christof Paar, Tom Roeder, Mike Rosulek (guitar)

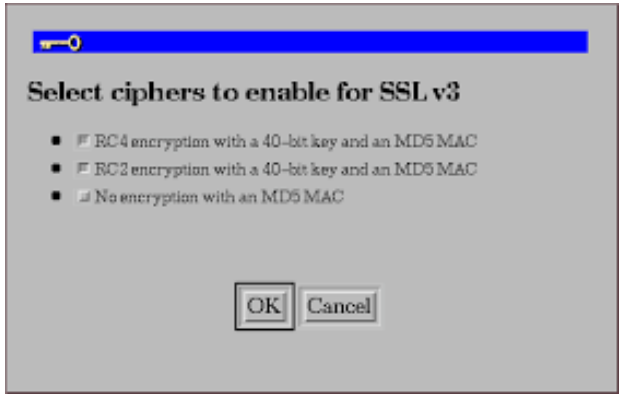
Original by: Hedy West

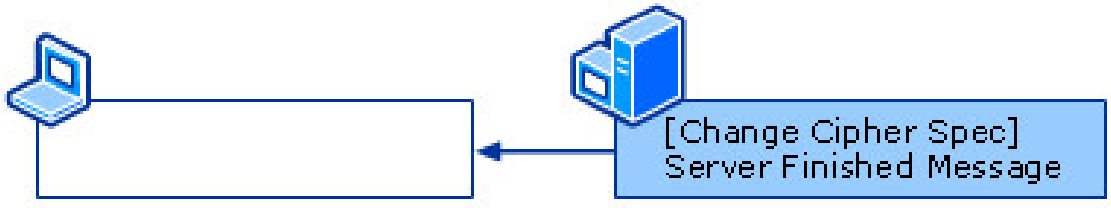
If you implement a stack
that allows downgrade attacks,
Eve will roll your key size back
to 40 bits.



If you implement a stack
that allows downgrade attacks,
Eve will roll your key size back
to 40 bits.

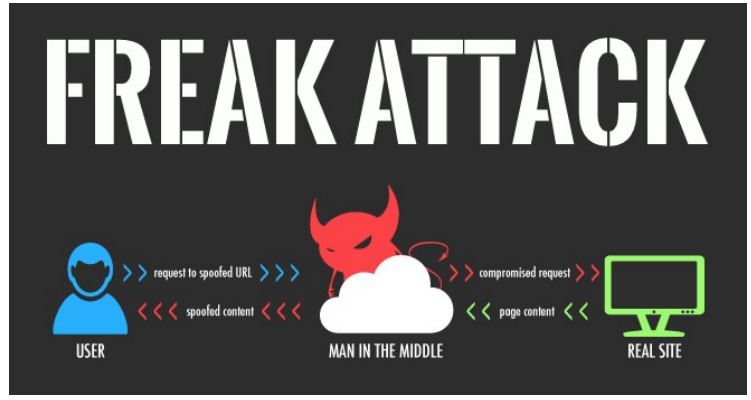
40 bits, 40 bits, 40 bits, 40 bits,
RC4 with 40 bits
is all you get.

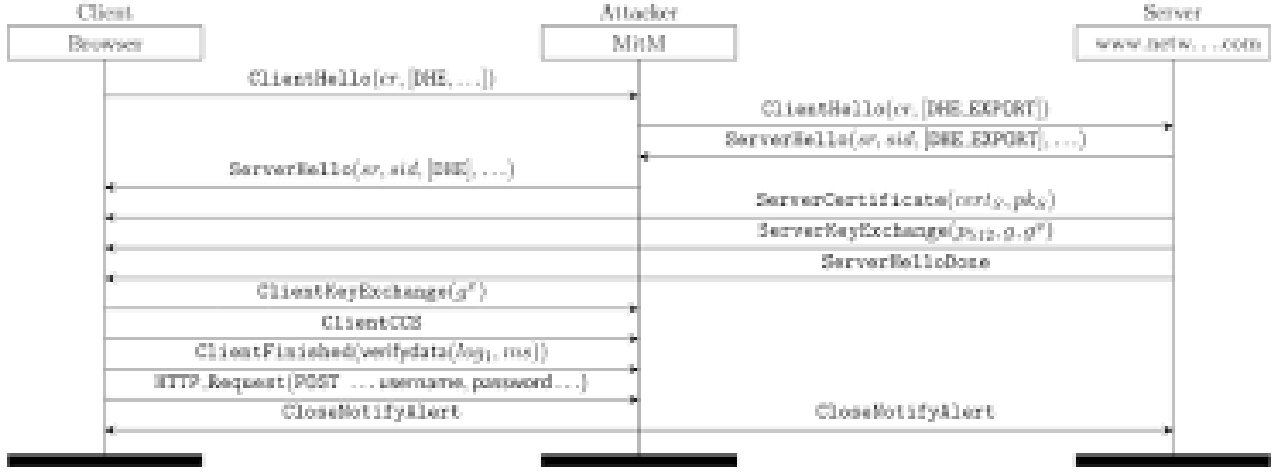




[Change Cipher Spec] is not a TLS handshake message but is an independent, TLS Protocol content type that helps the parties avoid a pipeline stall.

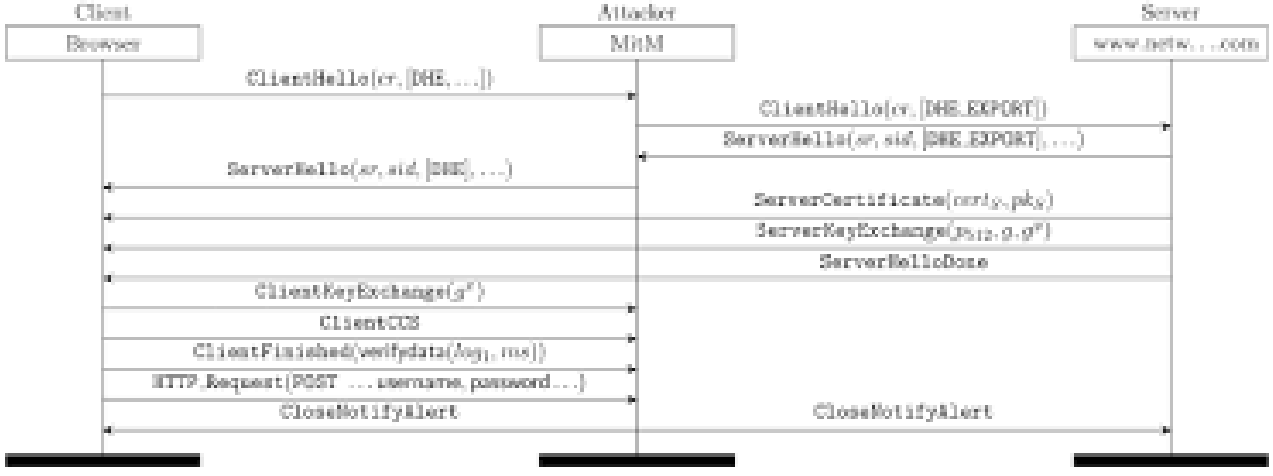
If your client check is weak
then you're vuln'rable to FREAK
say Hello to RSA
500 bits.





If your client check is weak
then you're vuln'rable to FREAK
say Hello to RSA
500 bits.

500 bits, 500 bits, 500 bits, 500 bits,
RSA 500 bits
is all you get.



Unauthenticated acks
give cross-protocol attacks.
LogJam breaks 500 bits
of DHE.

Unauthenticated acks
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LogJam breaks 500 bits
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500 bits, 500 bits, 500 bits, 500 bits,
DHE 500 bits
is all you get.

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that allows downgrade attacks,
Eve will roll your software back
to export suites.