

The Diffie-Hellman-Merkel key exchange protocol











- I. Generates public numbers p and g such that g if co-prime to p-1
- 2. Generates a secret number a 3. Sends $A = g^a \mod p$ to Bob

	Generates	a secret number b
) -•	Sends B =	gb mod p back to Alice

3. Calculates the key $K = A^b \mod p$

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A, p, g

- 1. Generates a secret number b
- 2. Sends $B = g^b \mod p$ back to Alice
- 3. Calculates the key $K = A^b \mod p$

B

4. Calculates the key $K = B^a \mod p$

Diffie-Hellman-Merkle in practice

- g is small (either 3, 5 or 7 and fixed in practice)
- p is at least 2048 bits (and fixed in practice)
- private keys a and b are 2048 bits as well
- → So the public values A and B and the master key k are 2048 bits
- → Use k to derive an AES key using a Key Derivation Function (usually HKDF the HMAC-based Extract-and-Expand key derivation function)