Exploring Password Authenticated Key Exchange Algorithms

Final Year Project Screencast

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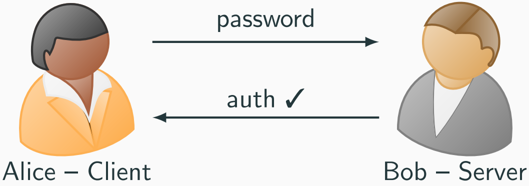
Intro

Motivation



Motivation

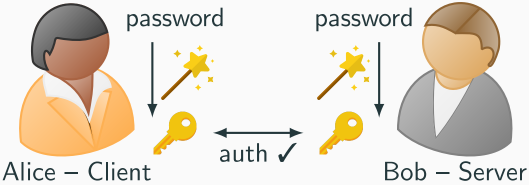
PAKEs are a radically different solution to this problem.

Project Summary

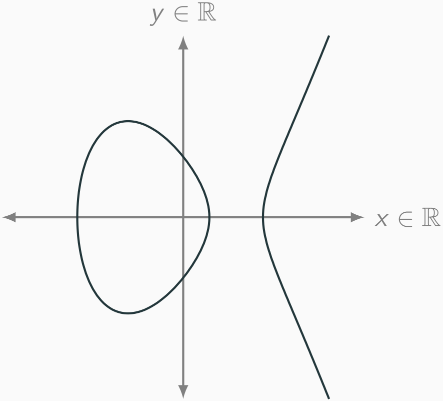
I made an awesome PAKE in Rust

Context

What are PAKEs?

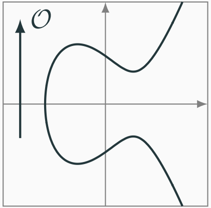


Elliptic Curves

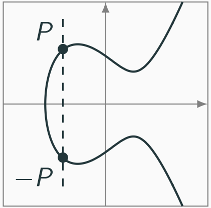


$y^2 = x^3 - 2x - 1$ over $\mathbb{R}$

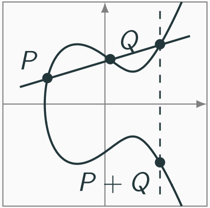
Point addition



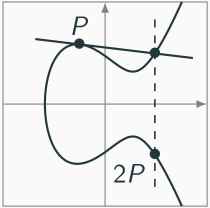
Neutral element $\mathcal{O}$



Inverse element $-P$



Addition $P + Q$
“Chord rule”



Doubling $P + P$
“Tangent rule”

Finite Fields

clock maths

Elliptic Curves Over Finite Fields

dotty curves

AuCPace

Augmented Composable what now?

Demo

Conclusion

I did a thing!

Thank you for watching!