

Advanced Remote Communications System (ARCSys)

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This thesis proposes the Advanced Remote Communications System (ARCSys). ARCSys is a communications system that is based on the popular Signal Private Messenger (Signal), extending Signal's security to email. ARCSys provides a Simple Mail Transfer Protocol (SMTP) as well as a Post Office Protocol version 3 (POP3) interface, which email clients can connect to for sending and receiving email messages. This allows the email clients to leverage the secure channel established by the Signal client. Both email addresses must be registered with ARCSys for this to work. Another feature ARCSys introduces is support for Completely Automated Public Turing test to tell Computers and Humans Apart (CAPTCHA) verification. Signal relies on phone numbers to verify the clients on their users' devices. Using CAPTCHAs, ARCSys can dispense with phone numbers and use email addresses instead. This further protects the user's privacy.

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