Ivan Kramarchuk

Principal Software Development Engineer

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Over 15 years of experience developing software in C++. Specialized in macOS endpoint protection and data loss prevention, with expertise in Swift and Objective-C. Develop native macOS applications and system components, combining research into macOS internals with secure system integration and release engineering. Additional experience includes mobile applications, enterprise software and data integration.

EXPERIENCE

Principal Software Development Engineer

Sep 2024 - Present

Zscaler Canada, Inc., Burnaby, BC, Canada

Implement anti-tampering controls using Endpoint Security AUTH/NOTIFY events, with response deadline management, muting and caching. Develop application controls, optimize performance and conduct threat modelling and security reviews. Secure XPC communication with code-signing requirements and develop privileged services using SMAppService and SMJobBless.

Screen recording for evidence collection. Create research and diagnostic tools to analyze macOS behaviour and troubleshoot issues.

macOS **Endpoint Security** **XPC** **SMAppService** **SMJobBless** **ScreenCaptureKit** **VP8 (libvpx)** **Anti-tampering** **Research tools**

Principal Software Engineer

Jul 2022 - Aug 2024

Zscaler Israel Ltd., Ramat Gan, Israel

Developed Clipboard Protection, Device Control and a Finder Sync extension. Implemented Endpoint Security AUTH/NOTIFY event handlers, response deadline management, secure XPC communication, LaunchDaemons and LaunchAgents.

Created the macOS DLP build system, integrating Artifactory, remote code signing and notarization. Developed installers and MDM profiles for Intel and Apple silicon. Developed a communication library that supports different versions of Zscaler Client Connector and DLP, and built diagnostic tools for engineering, QA and support.

Clipboard Protection **Device Control** **Finder Sync** **launchd** **MDM** **CI/CD** **Code signing** **Notarization**

Principal Software Engineer

Oct 2019 - Jul 2022

Forcepoint, Tel Aviv, Israel

Developed macOS installers and upgrade workflows for endpoint protection, including System Extensions and Network Extensions. Built privileged helpers and certificate workflows, and integrated Endpoint Security. Created a settings interface in System Preferences with PreferencePanes. Contributed to Apple Mail plug-ins and components built with Cocoa and WebKit. Supported MDM deployment.

Installers **Software upgrades** **System Extensions** **Network Extensions** **MDM** **Universal binaries**

EARLIER EXPERIENCE SINCE 2008

Software Engineer
Sep 2018 - Oct 2019

Freelance

Developed macOS and iOS applications to manage emergency notifications, plus a macOS application to monitor servers and websites. Built workflows to extract, transform and load data from websites and databases.

macOS **iOS** **Firebase Cloud Messaging** **Electron** **ETL**

Software Engineer
Jul 2016 - Sep 2018

Triplights, Raanana, Israel

Developed an iOS application that displays social events, concerts and lectures, with maps and analytics. Built service applications for macOS.

iOS **macOS** **MapKit** **AFNetworking** **Realm** **Firebase Analytics**

Software Engineer
Jan 2016 - Jun 2016

SocialSky, Herzliya, Israel

Created and updated iOS applications in Swift, Objective-C and C++.

iOS **Swift** **Objective-C** **C++**

Software Engineer
Apr 2012 - Feb 2015

Publisher LLC, Moscow, Russia

Developed enterprise applications, including CRM and ERP systems, using C#, Java EE and C++.

C# **Java EE** **C++** **CRM** **ERP**

Software Engineer
Apr 2008 - Mar 2012

LLC Intar business, St. Petersburg, Russia

Developed software to automate manufacturing processes and accounting workflows, and built websites.

Business Process Automation **Accounting Software Development**

SKILLS

Languages C++, Swift, Objective-C, Bash.

macOS integration XPC, launchd, LaunchDaemons, LaunchAgents, TCC/PPPC, App Sandbox, Keychain, entitlements, Disk Arbitration, IOKit.

Application APIs Cocoa, SwiftUI, WebKit, Security.framework, CryptoKit, AVFoundation, Core Data, GCD, OperationQueue.

Build and deployment Installers, code signing, notarization, Artifactory, Jenkins, GitHub; MDM profiles, Jamf Pro, VMware Workspace ONE.

Diagnostics and testing Xcode, Instruments, LLDB, sysdiagnose, core dumps, sanitizers, Unified Logging, GoogleTest, XCTest.

Research tools and virtualization Hopper, IDA Pro, class-dump, MachOView; VMware Fusion, Parallels Desktop.

EDUCATION

Diploma of Specialist in Business Management

St. Petersburg University of Management and Economics, 2011

Canadian equivalency: Master's degree (WES, 2023).