



# DigitalAgent

*VISION AND DEVELOPMENT ROADMAP*

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## PRIVACY IN THE DIGITAL AGE

Privacy is something that is often taken for granted, and in the modern digital age, the lack of privacy is also being taken for granted. For example, someone may understand that various corporations and governments are engaging in transactions directly involving the use of their personal data, but this person may feel that it's par for the course in today's world or even necessary for some greater good.

However, in December of 1948, the United Nations General Assembly proclaimed the Universal Declaration of Human Rights, in which Article 12 states:

*" No one shall be subjected to arbitrary interference with his privacy, family, home or correspondence, nor to attacks upon his honour and reputation. Everyone has the right to the protection of the law against such interference or attacks. " 1*

The always-on and highly connected nature of the information age means that we are constantly faced with threats to the privacy and security of our identities, sensitive information, online social interactions, and virtually every other aspect of modern life.

Therefore, it's now more important than ever to identify root causes of privacy and security issues, and take proactive steps towards solving them in a way that not only mitigates the immediate risk of theft, fraud, or other abuse, but also encourages good practices in general and ultimately reduces the value of online financial cybercrime to criminals and would-be criminals. A stronger and more educated and empowered public will be less of a resource for would-be threat actors, and presents more of a risk since cybercriminals who must work harder and target higher numbers of victims to get a reward are much easier to track down and hold liable for their actions.



## COMMON PROBLEMS

The most common problems surrounding privacy today are:

- **Online Tracking** - Using various methods and techniques such as cookies and device fingerprinting, large corporations and governments are able to identify individuals across the internet and collect a vast amount of information about each individual ranging from health and finance data to personal preferences and interests, all which can be, and often is, sold for a profit to be used in targeted advertising or even phishing campaigns.
- **Identity Fraud and Theft** - The large amount of information about people that is floating around the internet has made it increasingly easier for malicious actors to compromise someone's identity. The more info a malicious party has on a potential target, the easier it is for them to compromise their victim, which can create a financial disaster that has devastating consequences for the victim and their family and community. In a 2018 study by Javelin Strategy & Research, a record high of 16.8 billion dollars was stolen in 2017 through online theft and fraud.<sup>2</sup>
- **Phishing Scams** - An increasingly popular method of online fraud is phishing, which is an attempt to "phish" for credentials and other important information by fooling someone into giving it up. An especially dangerous form of phishing is spear phishing, in which the attacker uses the victim's personal information to elicit trust from the victim or forge a message that appears to come from a legitimate source.
- **Spyware / Adware** - With millions of applications available for download, it's easy to unintentionally install something that collects your information for malicious purposes, or relentlessly serves you advertisements.
- **Social Concerns** - Cleaning up the fallout from a fraud incident, or having to apologize to your friends for being spammed from your email address, are frustrating circumstances that have an overall negative impact on life.

## MISSION STATEMENT

At the core of the largest online scams and other threats are everyday people, who could just as easily be protected and confident in their security as they could be helpless victims.

DigitalAgent aims to mitigate the financial and social damage caused by loss of privacy and personal security by employing methods and strategies that have a far-reaching impact on the public:

- **Education** - Basic concepts and principles of keeping one's identity and privacy safe will be available for anyone to learn on [digitalagent.io](https://digitalagent.io) and notifications such as hints and simple reminders will be provided through the app.
- **Empowerment** - The DigitalAgent suite of tools and resources as a whole aims to empower everyday people to take back control of their online privacy and greatly reduce the risk of becoming a victim of fraud or abuse.
- **Encouragement** - Developing the habit of keeping one's identity and privacy more secure and less likely to be compromised is a psychologically healthy activity and strengthens the ability to form good boundaries and a more solid sense of self, and reduces the risk of becoming a target of fraud, online harassment, and other threats.

### INTENDED MARKETS

DigitalAgent is intended for the following markets and contexts:

- **General Public** - Both free and professional versions of DigitalAgent are intended for anyone with an email address and a smartphone or tablet running Android or iOS, or a personal computer running Windows, Mac OSX, or Linux.
- **Businesses** - The professional version of DigitalAgent opens up features useful for businesses and working professionals, such as creating and enforcing group policies on devices and auditing social media accounts.
- **Enterprise** - The enterprise version of DigitalAgent allows for custom branding, custom feature development, isolated data stores and APIs, technology and source code licensing, brand partnerships, and priority support.
- **Education** - The professional version of DigitalAgent is available to academic professionals and students at no cost.

### FEATURE HIGHLIGHTS

Features available in free, pro, and enterprise versions:

- **Best Practices** - Simple guides and information such as how to create secure passwords and more
- **Fingerprint Auth** - On mobile devices, device-level authentication is required to unlock the application
- **Account Creation** - Creating an account enables managing settings and retrieving community data
- **Temp File Cleaner** - Find and remove temporary files such as cache and old application data
- **Process Optimizer** - Show all running applications and shut down apps that are not being used
- **App Details** - View additional information about apps such as cache usage and more
- **Device Settings** - Check device settings for any potential configuration issues or vulnerabilities
- **Settings Profiles** - Create profiles to change multiple settings such as enabling or disabling device features
- **Scheduler** - Clean temp files and change settings or settings profiles at scheduled times or intervals

Features available only in professional and enterprise versions:

- **Social Media Tools** - Connect to popular social media accounts such as LinkedIn and Facebook to update settings or audit accounts for security issues
- **Device Registration** - Register smartphones, computers, and tablets to enable group policy administration
- **Group Policies** - Create groups of devices, even across different platforms, to manage multiple devices simultaneously and create profiles that work well for groups of devices such as public computers or kiosks
- **Remote Admin** - Securely and efficiently perform administration tasks across groups of devices remotely

## FREE TIER

The free tier version of DigitalAgent is to be available free of charge on both Apple App and Google Play stores, and from [digitalagent.io/download](https://digitalagent.io/download) for Windows, Mac, and Linux. The free and pro versions are the same binary and therefore pro features can be enabled or disabled based on account standing and subscription status.

Standard local device features such as file cleaners and process optimizer are available upon installation and do not require an account on [digitalagent.io](https://digitalagent.io). Generally speaking, any feature which does not require database or API interaction via [api.digitalagent.io](https://api.digitalagent.io) will be available without either an account or even a network connection.

To access network-enabled features, a free account can be created on [digitalagent.io](https://digitalagent.io) using either the client application itself or through the website directly. This account can be used to receive technical support, participate in community forums, add or update profile information, retrieve crowd-sourced information about apps, and receive security hints and reminders. A free account can be used to upgrade to pro or enterprise versions.



## PRO TIER

A subscription to DigitalAgent Professional unlocks application features best suited for power users, professionals, and small business owners or managers. The cost of a professional subscription and corresponding license is \$9.99 per month, and allows for adding up to 20 total devices, making this an ideal solution for families, small businesses, or any professional with a phone, tablet, and laptop. Any organization planning to register over 20 devices should look into upgrading to the Enterprise Tier which is designed for large groups of devices and users.

DigitalAgent Professional adds priority support and features for organizing devices into groups, such as for managing a set of kiosks or public computers, and also social media tools for auditing and updating social media accounts.

## ENTERPRISE TIER

The Enterprise Tier includes all features of the Professional version and allows registering an unlimited number of devices. Additionally, Enterprise Tier customers have access to the following options:

- Custom feature development and custom versions
- Custom branding and licensing
- Priority support

Pricing for Enterprise Tier is determined on a case-by-case basis depending on the number of client licenses required, and whether any custom licensing or development options are required.

The default client application for Enterprise is the same as the free and professional versions.

## OVERVIEW

DigitalAgent consists of a set of client applications for Windows, Mac, Linux, iOS, and Android, backed by an API developed in Elixir and NodeJS, a PostgreSQL database, a web front-end, and multiple custom research and maintenance tools developed in a variety of languages and environments. The following lists provide further detail:

### CLIENTS - REACT NATIVE

- Android
- iOS

### CLIENTS - ELECTRON / C++

- Windows
- Mac OSX
- Linux

### CLIENTS - WEB

- DigitalAgent website
- System Admin

### API LAYER

- Accounts
- Authentication
- Scan Definitions
- Ratings
- Devices
- Profiles
- Social
- Analytics
- Web Content
- Community
- System Admin

### DATA STORES

- PostgreSQL
- Redis
- S3

### SERVICES

- System Health
- SMS / Voice
- Notifications
- Email
- Logs
- Data Processing
- Administration

## ENVIRONMENTS

DigitalAgent utilizes a variety of environments, frameworks, and tools for development, testing, deployment, and maintenance. Environments for each purpose are listed below:

### DEVELOPMENT

- Source Control - Git
- Tools / Utilities - NodeJS
- Mobile Client UX - React Native
- Mobile Client Services - Java / Swift
- Desktop Client UX - Electron
- Desktop Client Services - C++ / Swift
- Website UX - React / HTML5 / CSS3
- Website Server - NodeJS / Elixir Phoenix
- API / Services - NodeJS / Elixir
- Databases - PostgreSQL / SQLite3

### DEPLOYMENT

- AWS EC2 - API / Website
- AWS ECS - Services
- AWS S3 - Object Storage
- AWS Aurora - PostgreSQL

## DATA

The central data store for DigitalAgent will be a PostgreSQL database, chosen for its excellent feature set and industry-proven reliability. Additionally, Redis is used as a cache, and Amazon S3 is used for basic object storage.

### DATABASE TABLE OVERVIEW

- User Accounts
- Registered Devices
- System Profiles
- Ratings Information
- App Information
- Scan Definitions
- Website Data
- Analytics
- Payment Info
- Billing
- Logs

### REDIS

- Session Data
- Cache
- Temp

### AWS S3

- Images / Media
- Client Log Files
- Static Content



## API LAYER

The API for DigitalAgent will be implemented using a combination of Elixir and NodeJS. Elixir builds on the proven Erlang VM which is used heavily in the telecom industry due to its ability to handle many simultaneous connections with ease. NodeJS will be used for tool development, rapid prototyping, and non performance-critical APIs.

### APPLICATION APIS

- Authentication
- Accounts
- Devices
- Profiles
- Scan Definitions
- Ratings / Info
- Social Tools

### TOOLS / WEB / MAINTENANCE APIS

- System Health Check
- Data Maintenance
- System Admin
- Community Forums
- Web Content
- Analytics / BI
- QA / Support

## SCAN ENGINES

Cleanup of temporary or otherwise unwanted files is accomplished by a scanning engine, which will share common interfaces across platforms but have slightly different methods of implementation due to differences in operating systems, file systems, and environments across platforms.

For desktop clients, the core scan engine will be developed using C++ and the Boost libraries.

For mobile clients, the core scan engine will be developed in Java (Android) and Swift (iOS).

The overall purpose and operation of each scan engine will be similar and follow similar conventions, and scan definitions and overrides will be in the same format for all platforms. Scanner APIs will also be similar across platforms.