Testing & Evaluation Sheet	
Bitwarden Password Manager Desktop	

1. Tool Overview

Name:	Bitwarden
Category:	Security, Password Management
Purpose:	Password Generation, Password Storage, Secure Authentication, Encryption
Date	3/27/25
Status:	Deployed ☑ Operational - Actively running/maintained ☐ In Testing - Currently being evaluated or piloted ☐ Inactive/Deprecated - No longer maintained or functional
Deployment Architecture:	☐ A standalone software - Runs entirely locally (e.g., runs on computer and doesn't depend on external server) ☐ A locally hosted service with separate server and client component - Run both backend/frontend yourself (e.g., backend could be on a local network, or self-hosted on cloud) ☐ A service with a local client that's hosted by a third party - You install a client on your device, but it connects to and depends on a remote server (e.g., Signal: install app (client), but Signal's servers handle message relaying, etc.) ☑ A service that is hosted by a third party but can also be self-hosted
Version:	v2025.3.1

2. Installation & Setup

OS Compatibility	Windows, MacOS, Linux, iOS, Android
Installation Manual:	No
Installation Steps:	● Download Bitwarden ● Create an account ● Verify account through email ● Log into Bitwarden

Mention if command-line setup or special configurations are needed	● No command-line setup or special configurations are needed
Common Installation Issues & Fixes:	Some download options are not capable of automatic updates and are labeled
User Documentation:	Yes
Required Technical Knowledge	Beginner

3. Testing & Evaluation

Category	Details	Score
Operational Functionality:	**Functionality** ● *The key setback is the master password to access ones Bitward cannot be recovered if forgotten. The password comes with a hint of the user's choice but that is all.* ☐ The tool is mostly non-functional with many broken features and bugs. ☐ Several broken features or bugs ☐ Minor bugs or issues ☐ Mostly functional with few bugs or no bugs ☑ Fully functional with no bugs **Internet Dependence:** ● "Most functions of Bitwarden are accessible in offline mode, however you won't be able to make edits to or add vault items, attachments, or send or import new vault items." - Bitwarden Website ● Presumably works for a 2G/3G but might be slower **Localization & Language Support** ● 56 languages available ○ Japanese, Korean, Simplified Chinese, Traditional Chinese ● Has an active community working to build the language base **Mobile Accessibility** ● Available on App Store & Google Play. Also supports the F-Droid client app	4.7

	● Downloading and logging in took longer than expected ~10 minutes 　○ *This may have been due to slow internet	
Usability for Non-Technical Users	**Ease of Installation & Deployment** ● 4 steps are need to fully install the software ● Under 10 minutes to install ● Does not require command-line usage **User Onboarding Experience** ● Extensive manuals regarding using the software ● Bitwarden has a FAQ page **Technical Experience Level Required** ● Individuals with limited technical knowledge will be able to successfully navigate the tool ● The interface is menu driven	4.3
Security & Privacy Strength	**Encryption Standards** ● Zero-Knowledge Architecture: the service cannot access your vault contents. This ensures that only you can decrypt and access your stored data. ● Client-Side Encryption: All vault data is encrypted client-side before it is ever sent to Bitwarden's servers. This ensures that sensitive data remains encrypted at all times, providing an extra layer of security. ● Advanced Encryption Standards: Bitwarden uses AES-CBC 256-bit encryption for vault data, which is considered unbreakable with a strong key. Additionally, passwords are use Argon2 for stronger protection ● Bitwarden is unable to access user's vaults in an unencrypted state **Known Strength resilience** ● Is the tool usable in regions with heavy censorship or surveillance? 　○ Using: ChinaFirewall to test if the website is blocked. The Bitwarden website is available for people to use. ● Does not include circumvention tools ● *Note: Bitwarden had a security breach in 2023 . "...extension also auto-fills forms defined in embedded iframes, even those from external domains". They have since fixed this issue* **Comparison with Known Standards**	4.8

	● Comprehensive 3rd party security audits
	  ○ 2024 Web App and Network Security Assessment (Fracture Labs)
	  ○ 2024 Mobile Apps and SDK Security Assessment (Cure 53)
	Data Minimization
	● **Vault Data:** This includes everything *you* store in your Bitwarden account, like (passwords, secure notes, attachments)
	  ○ *This data is end-to-end encrypted. Bitwarden cannot see or access it—only you can.*
	● **Administrative Data** – This includes personal and account-related info, such as:
	● Name, Email address, Phone number (if provided), Payment details, Support requests, Number of items in your vault
	● *This data is used to manage your account, billing, and support. It's stored securely and deleted when you close your account, based on their data retention policy.*
	● **Using the Site:** "When you use the Site or communicate with us (e.g. via email) you will provide, and Bitwarden will collect certain Personal Information such as, "Name, Business name and address, Business telephone number, Email address, IP-address and other online identifiers"
	
	Privacy Policy Accessibility and Clarity
	● Yes, it has a clear privacy policy page[1]	

Maintenance/Sustainability	**Community support** ● The community spans over 180 countries and supports more than 50 languages, making it a truly global network. Whether you're in need of assistance or simply want to connect with fellow users, the community is available across multiple platforms, including forums, Reddit, and social media channels like Twitter, YouTube, and Instagram. ● **Bitwarden Subreddit:** The Bitwarden subreddit is a popular spot for users to share experiences, troubleshoot issues, and discuss the benefits of using Bitwarden.	4.7

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[1] https://bitwarden.com/privacy/

	○ *As one user notes, Bitwarden is "free, trustworthy, reliable, and simple," a sentiment echoed by many in the community.* **Development active status** ● Frequent updates ~ 2 every month ● Development team is responsive and they address the issues request **Funding and Sponsorship** ● Bitwarden has funding from investors, numbers vary surrounding the amount of current investors ● Raised $100M in a series C September 6th 2022 ● Software seems financially sustainable	

Performance / Effectiveness & Reliability	**Testing Environment Setup:**
	● **Device:** HP Zbook 11th Gen Intel(R) Core(TM) i7-11800H @ 2.30GHz
	● **OS:** Windows
	● **Network:** 4G
	User Experience Observations
	● Tool feels smooth with no noticeable lag
	Speed & Responsiveness:
	● Bitwarden performs efficiently across platforms, with fast vault syncing and low-latency access to stored credentials. Vaults typically unlock within milliseconds (often under 200ms on modern devices), and autofill operations in browser extensions or mobile apps are nearly instantaneous.
	    ○ Startup Time: 42 ms
	    ○ Average Latency: 165 ms
	Resource Usage:
	● Memory: 250.2 MB
	● CPU: 0.1%
	
	Network Performance:
	● Send (B/sec): 14
	● Receive (B/sec): 4
	● Total (B/sec): 18
	● *Note: Normal syncing*
	
	Reliability
	● Yes, there is a large community and it is generally considered to be a well liked and reliable software
		5.0

	● They receive 3rd party audits from security forms and publish the results on their website. [2]
Deployment Considerations:	**Open Source & Transparency:** ● Code is open-source software and is hosted on GitHub **Cloud vs. Local Deployment:** ● It can be run locally **Dependencies:** ● Does not require dependencies **Post-Deployment Maintenance** ● Tool is easy to maintain and there are automatic updates available for the desktop application ● The project is easy to fork and modify **Merge/Sustainability:** ● There is a guide and the language that they use is indicative that they want users help contribute ● They have a guide on how to contribute to the Github[3]

4. Testing Scenarios

Basic Functionality	● Able to automatically log in, when there is a website that you have saved a password to ● Able to add a new card, including a name, card number, expiration date ● Was able to both move tested item into the trash & permanently delete ● Able to send a text file with information

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[2] https://bitwarden.com/help/is-bitwarden-audited/

[3] https://contributing.bitwarden.com/contributing/

Import data from other password managers	● Able to import data from Google Chrome Password

5. Insights & Recommendations	

Key Findings	**Strengths:**
	● Local deployment is intuitive and quick
	● Minimal technical knowledge required to use software
	● Large community with many languages available & wide community support
	● Core features are free, unlimited storage of logins, notes, cards and identities
	● Provides options both for individual use and for organizations
	Weaknesses:
	● Website provides a lot of information and users could get lost in all of it
	● Some features not free
	   ○ Advanced 2FA
	   ○ Encrypted file attachments
	   ○ Emergency access
	   ○ Integrated authenticator
	   ○ Vault Health Reports
	   ○ Priority Support

Suggested Improvements	● Include Step-by-step installation guides ● Make all features free
Alternative Tools:	Passbolt, KeepassXC, LessPass
License	GPL-3.0

Cost/Resource Implications	**Total Cost of Ownership:**
	● Personal Plans
	   ○ Free
	   ○ Premium Plan ($10/year)
	   ○ Family Plan ($40/year)
	● Business Plan
	   ○ Team Organizations ($4 per user/month)
	   ○ Enterprise Organizations ($6 per user/month)
	   ○ *Can get a quote*
	● Few other resources or costs

Why is this useful to civil societies in authoritarian environments?	● Self-hosting available allowing organizations to avoid reliance on third-party servers ● Vaults can be accessed offline and changes are synced when connectivity is restored

	● Available in most regions, including China. However if it is blocked, then the self hosting version can be deployed within a country through VPNs