



New Directions in Password Management – Optimising CardSpace

1. Abstract

This poster presents a novel scheme, called PassCard, that allows CardSpace to be used as a password manager, thereby both improving the usability and security of password use and potentially encouraging CardSpace adoption. Usernames and passwords are stored in personal cards, and these cards can be used to sign on transparently to corresponding websites, no changes to which are required.

2. User Experience

A. User clicks on PassCard logo.



B. User selects a PassCard.



4. Protocol (2/3)

6. Plug-in pre-processes login page, e.g. it adds CardSpace support.
7. User clicks PassCard logo, & submits a card.
8. It intercepts the SAML token, and extracts username & password.
9. It auto-populates and auto-submits the form.

6. PassCard Features

- Benefits from CardSpace security features.
- Thwarts key loggers and shoulder-surfing attacks.
- Defeats phishing attacks (via automatic URL comparison).
- Transparent to websites, CardSpace, browser settings.
- Automatic form-filling.
- Immediate deployment.

3. Protocol (1/3)

1. A user navigates to a login page.
2. A browser plug-in scans the page for password-login form.
3. It highlights login fields, and adds the PassCard logo (see sec. 2).
4. It determines the communication protocol in use.
5. If 'HTTP' is used, it proceeds to sec. 4, however, if 'HTTPS' is in use it proceeds to sec. 5.

5. Protocol (3/3)

6. Plug-in obtains the HTTPS site's URL.
7. On clicking, user is redirected to HTTP site.
8. Steps 6-8(sec.4) occur.
9. It encrypts credentials, & redirects user back to target (HTTPS) site.
10. It recovers credentials, auto-populates and auto-submits the form.

7. Conclusions

A CardSpace-based password manager, PassCard, has been presented. Users store their usernames and passwords in personal cards, and use these cards to transparently sign on to corresponding websites. The scheme is based on a browser extension, and requires no changes to login servers, and, in particular, it does not require them to support CardSpace.