OIDC support for Windows using PuTTY

Diana Gudu, Marcus Hardt, Gabriel Zachmann, Jonas Schmitt
Karlsruhe Institute of Technology

gudu@kit.edu
Motivation

- Federated access to services via OpenID Connect
- Shell-based services
  - oidc-agent
  - SSH → motley-cue\(^1\)
- Windows support for SSH OIDC missing
  - PuTTY

\(^1\)See my talk tomorrow @11:30!

https://indico.egi.eu/event/5882/contributions/16682/
Approach

- Porting oidc-agent to Windows
- Adding support for oidc-agent in PuTTY
SSH Auth Flow

PuTTY

ssh user123@server
password?
password123
connection established

Server
SSH OIDC Auth Flow

PuTTY

```
//user/deploy (Access Token)
user123
```

Server

```
ssh user123@server
USERAUTH_INFO_REQUEST (Access Token)
USERAUTH_INFO_RESPONSE (token123)
connection established
```
Architecture

- **Plugin** system
  - Reusability → other use cases already known
  - No external dependencies in PuTTY core
Architecture

- **Plugin** system
  - Reusability → other use cases already known
  - No external dependencies in PuTTY core

- Protocol for communication
  - Co-designed with PuTTY main developer
  - Follows SSH auth flow → **keyboard-interactive**
  - PuTTY sends auth requests to plugin
  - Plugin handles auth specific code
SSH OIDC Auth Flow with Plugin

**Plugin**
- PLUGIN_INIT
- PLUGIN_INIT_RESPONSE(user123)

**PuTTY**
- /user/deploy (Access Token)
  - user123
- ssh user123@server
  - USERAUTH_INFO_REQUEST (Access Token)
  - USERAUTH_INFO_RESPONSE (token123)
- connection established

**Server**
Technical details

- PuTTY extension and plugin programmed in C
  - Other programming languages are possible
- Communication between PuTTY and plugin using anonymous pipes
- Builds natively on Windows
- Caching
Usability

- Supported from next PuTTY release
- oidc-agent installer → also ships:
  - oidc-plugin
  - Necessary libraries (DLLs)
Demo

https://youtu.be/OUaEcm1nbNW
More information

- Download oidc-agent for Windows & PuTTY
  
  ![QR Code for Download oidc-agent](#)
  
  https://repo.data.kit.edu/windows/oidc-agent

- Demo instance
  
  ![QR Code for Demo instance](#)
  
  https://ssh-oidc-demo.data.kit.edu/

- Contact
  
  ![QR Code for Contact](#)
  
  m-contact@lists.kit.edu