Foundstone
Professional Services A DIVISION OF McAFEE

Mobile Application Security Testing

Gursev Kalra

Dec 5, 2009

Agenda

- Introduction
- Browser Based Mobile Applications
- Installable Mobile Applications
- Intercepting Application Traffic
- Various Traffic Interception Schemes
- Mobile Traffic and SSL
- Conclusion

Introduction

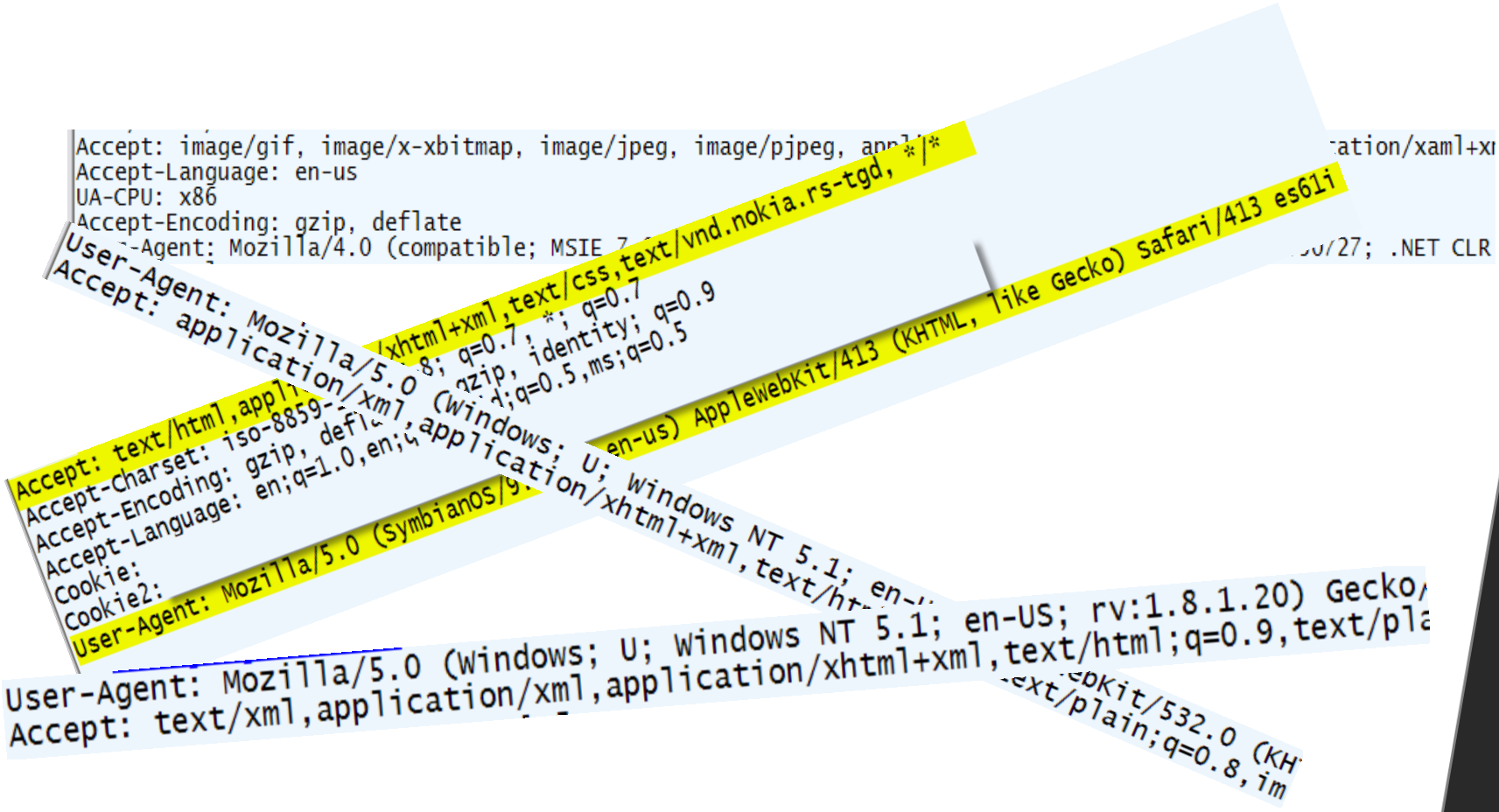
- Who am I?
  - Senior Security Consultant – Foundstone Professional Services
  - Web Applications, Networks…

Introduction

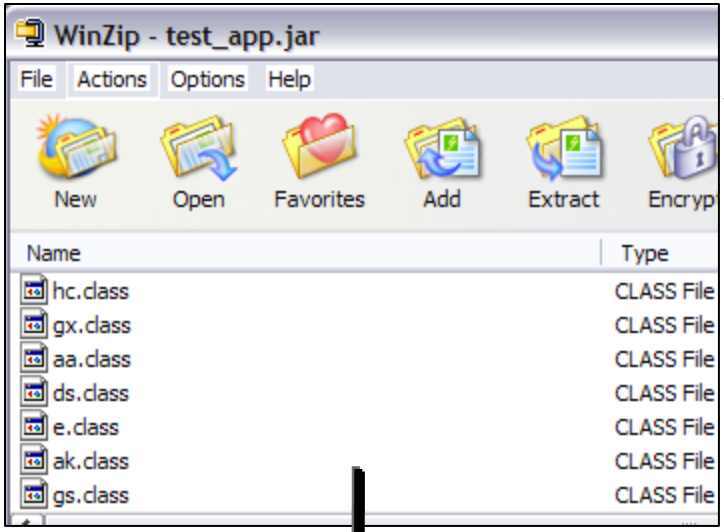
- Mobile Applications
  - Tremendous growth in consumer and business mobile applications
  - Many new players
  - Security aspects might get overlooked

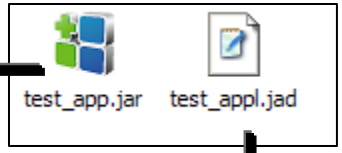


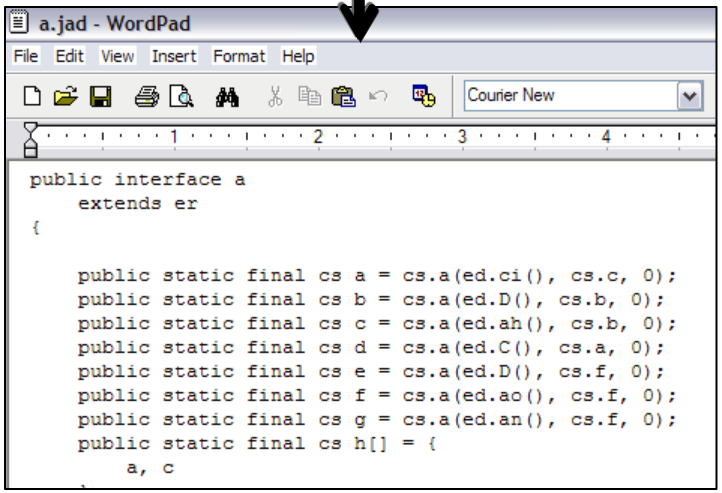

Browser Based Mobile Applications

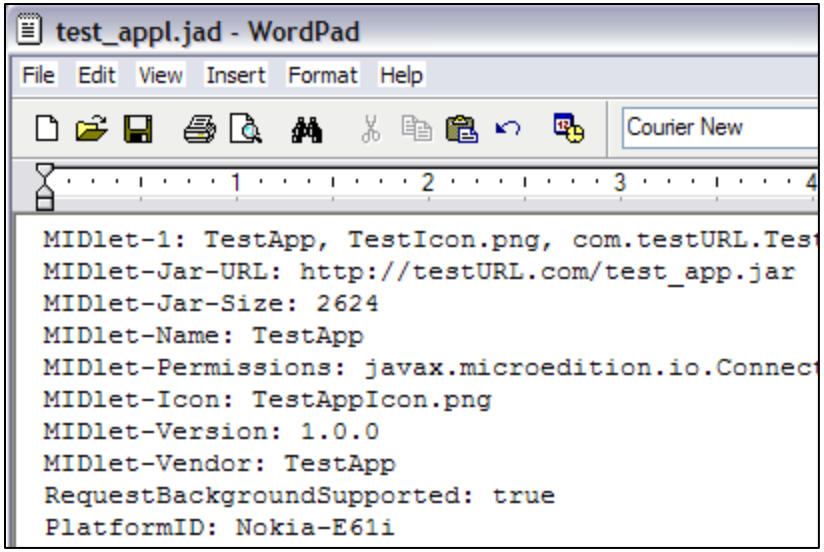


Installable Mobile Applications









Intercepting Application Traffic for Nokia S40 Series Phones

- Set up a custom web proxy and obtain its IP and port
- Edit the configuration WML and change proxy IP and port to the custom web proxy
- Compile WML to a provisioning (WBXML) file
- Transfer the new settings to S40 mobile phone
- Activate custom settings and access the Internet using new settings

Intercepting Application Traffic for Nokia S60 Series Phones

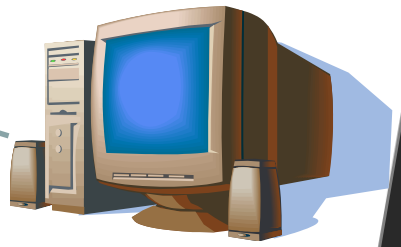
- Set up a custom web proxy and obtain its IP and port
- Create duplicate of existing Access Point settings
- For the copy created, change the proxy IP and port to the custom proxy
- Access Internet using custom proxy settings

Proxy With Public IP Address

- Phone with Application
- Access Point: Service provider default settings
- Proxy Server Address: W1.X2.Y3.Z4 (Public IP)
- Port Number: 8888

Internet

- Public IP: W1.X2.Y3.Z4
- Paros/Fiddler/Burp/Charles: Web Proxy running on port 8888



W1.X2.Y3.Z4

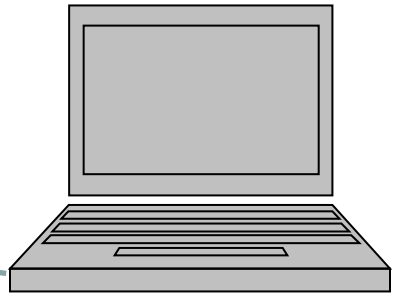
Proxy On WLAN

- Phone with Application
- WLAN Netw. Name: PenTest
- WLAN Mode: WPA2
- Proxy Server Address: 192.168.30.102
- Port Number: 8888

192.168.30.101

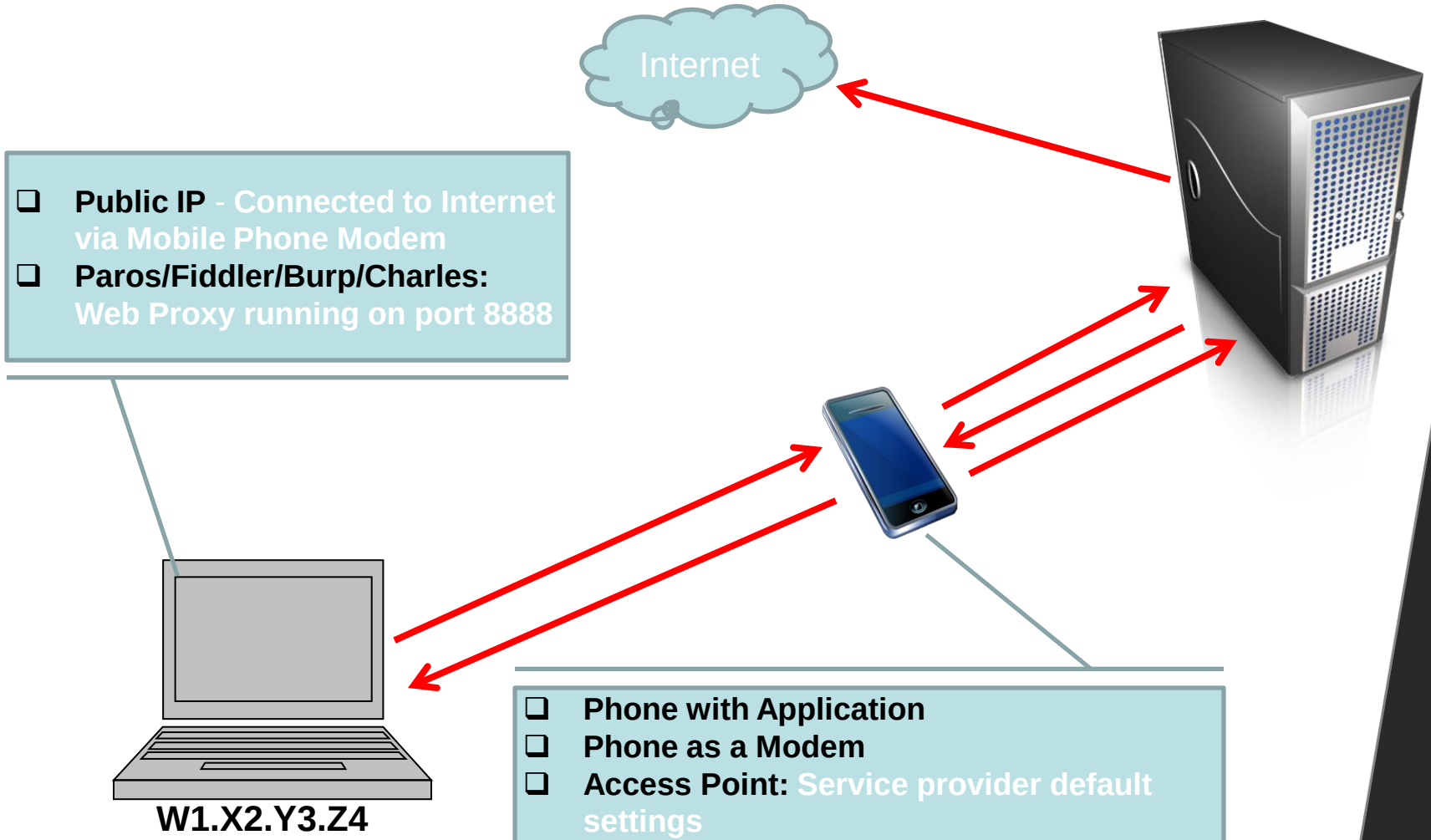
SSID: PenTest
IP: 192.168.30.100

- Paros/Fiddler/Burp/Charles: Web Proxy running on port 8888



192.168.30.102

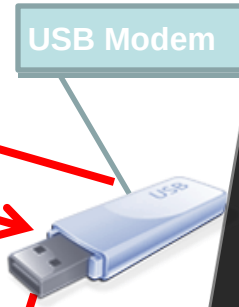
Proxy With One Phone



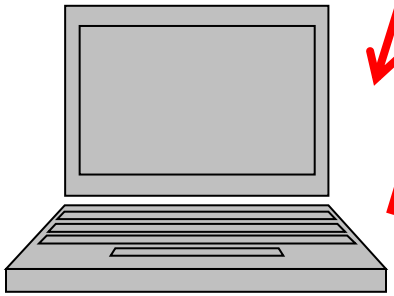
Foundstone Professional Services A DIVISION OF McAFEE

Proxy With External Internet Connection

- Phone with Application
- Access Point: Service provider default settings
- Proxy Server Address: W1.X2.Y3.Z4
- Port Number: 8888



- Public IP - Connected to Internet via Mobile Phone Modem
- Paros/Fiddler/Burp/Charles: Web Proxy running on port 8888



W1.X2.Y3.Z4

Mobile Traffic Interception and SSL

- Export your web proxy's certificated in DER format
- Copy the certificate file to a web server
- Set the MIME type of the directory to which the certificate is copied to `application/x-x509-ca-cert`
- Use the mobile web browser to browse to the certificate file
- Import the certificate when prompted
- Delete the un-trusted certificate after testing

Conclusion

- Mobile applications extend traditional network boundaries and introduce new avenues of attack
- They often have access to sensitive business and personal information
- They are constantly challenging and extending their reach
- Security is critical and should be part of SDLC!!

Thank You

Gursev Kalra
gursev(dot)kalra(at)foundstone(dot)com