Wireshark OTG, Extend your Wireshark with extcap, iPad and Pi

--TIPS and tricks of extcap and make use of Wireshark everywhere, any capture sources

#sf21vus

Megumi Takeshita
Ikeriri network service

Megumi Takeshita, packet otaku

- Founder, ikeriri network service co., ltd
- Reseller of CACE technologies in 2008
- Worked SE/IS at BayNetwork, Nortel
- Wrote 10+ books about Wireshark
- Instruct Wireshark to JSDF and other company
- Reseller of packet capture / wireless tools
- One of contributors of Wireshark
  Translate Wireshark into Japanese

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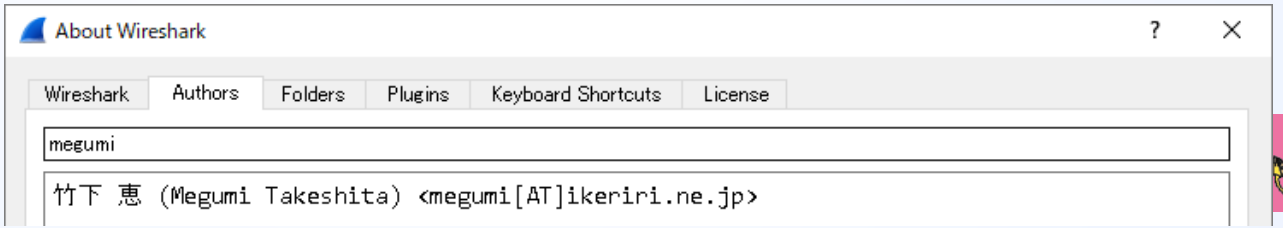

Session Details

Do you imagine your tablet can run Wireshark, Yes you can get Wireshark OTG.

Megumi show you TIPS and tricks to use Wireshark with iPad Pro and Pi #sf21vus

You may not install many extcap interface that is not installed in default settings,

It's time to make use of extcap interface such as sshdump.

We can create our own customized extcap interface in easy way on Windows environment.

Actual demonstration extend your Wireshark's extcap interface!!

Note

Megumi uses iPad Pro, Raspberry Pi and Windows10 environment.

Linux bash and Windows command prompt programming skills help you understand the session well.

#1 Wireshark OTG
Bring your Witeshark without PC
Witeshark everywhere with iPad Pro

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We need

- An iPad or other tablet
- A Raspberry pi 4 or zero
- A USB-C to USB-C cable
  transferring both power and data

Burn the latest raspberry pi os using official imager application to microSD card.

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- We use official raspberry pi imager to install the latest OS
- https://www.raspberrypi.org/documentation/installation/installing-images/README.md

Using wired Ethernet connection to setup raspberry pi at the first

- I recommend to use Raspberry pi 4 because there are 1 RJ-45 as well as wireless lan (supports monitor mode) and many USB ports

Set raspberry pi as USB Gadget mode

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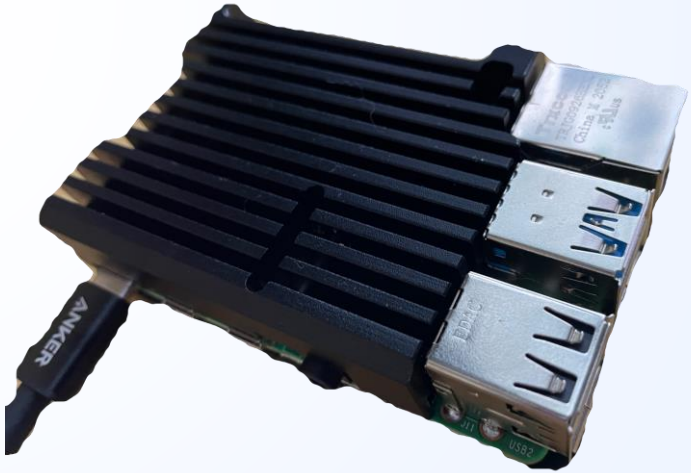
- USB Gadget mode is a kind of USB OTG(On-The-Go),
- Your Pi works as USB host instead of USB devices.
- Note: Raspberry Pi zero and 4 support gadget mode.
  I recommend to choose Pi4 because Wired LAN, many USB port and fast



Edit /boot/config.txt and /cmdLine.txt

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- Set up Pi as USB Gadget mode, that supports USB-C as power and network
- ls /boot To find boot option setting file /boot/config.txt and /boot/cmdLine.txt
- At the last line of /boot/config.txt, add dtoverlay=dwc2
- /boot/cmdLine.txt is a long one line file
  We need to insert string after “rootwait quiet”
  Find “rootwait quiet” and insert string “modules-load=dwc2,g_ether”

SSH/DHCP server setting

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- We need to set up Pi4 act as SSH/DHCP server
- “touch /boot/ssh” to create blank file for ssh login
- “nano /etc/modules” to open modules file and add “libcomposite” to define USB3 device.
- Install DHCP server “apt-install isc-dhcp-server” and add “`denyinterfaces usb0`”
  Install dnsmasq with “sudo apt-get install dnsmasq”
  Create /etc/dnsmasq.d/usb and edit
  Create /etc/network/interfaces.d/usb0 and edit

/etc/dnsmsq.d/usb

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```
interface=usb0
dhcp-
range=10.55.0.2,10.55.0.6,255.255.255.248,
1h
dhcp-option=3
leasefile-ro
```

/etc/network/interfaces.d/usb0

```
auto usb0
allow-hotplug usb0
iface usb0 inet static
  address 10.55.0.1
   netmask 255.255.255.2
```

Create initialize script “/root/usb.sh” (1)

https://www.hardill.me.uk/wordpress/2019/11/02/pi4-usb-c-gadget/

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```
#!/bin/bash
cd /sys/kernel/config/usb_gadget/
mkdir -p pi4
cd pi4
echo 0x1d6b > idVendor # Linux Foundation
echo 0x0104 > idProduct # Multifunction Composite Gadget
echo 0x0100 > bcdDevice # v1.0.0
echo 0x0200 > bcdUSB # USB2
echo 0xEF > bDeviceClass
echo 0x02 > bDeviceSubClass
echo 0x01 > bDeviceProtocol
mkdir -p strings/0x409/configuration
```

Create initialize script “/root/usb.sh” (2)

https://www.hardill.me.uk/wordpress/2019/11/02/pi4-usb-c-gadget/

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```
echo 250 > configs/c.1/MaxPower
# see gadget configurations below
mkdir -p functions/ecm.usb0
HOST="00:dc:c8:f7:75:14" # "HostPC“
SELF="00:dd:dc:eb:6d:a1" # "BadUSB“
echo $HOST > functions/ecm.usb0/host_addr
echo $SELF > functions/ecm.usb0/dev_addr
ln -s functions/ecm.usb0 configs/c.1/
udevadm settle -t 5 || :
ls /sys/class/udc > UDC ifup usb0
service dnsmasq restart
```

Autorun USB initial script

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- We want to start up USB gadget mode, DHCP Server and other service every time we start up Pi4
  There are nice initial script from “Ben’s Place”
  https://www.hardill.me.uk/wordpress/2019/11/02/pi4-usb-c-gadget/
- Make /root/usb.sh executable with chmod +x /root/usb.sh
  Add /root/usb.sh before exit 0
- Set this script every time we power on Pi4
  so I use S01cron start script
  in /etc/rc3.d(CLI) and /etc/rc5.d (GUI)

“sudo halt” to power off raspberry pi, change connection from SSH via wired LAN to USBC

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- “sudo halt” to power off raspberry pi
- USE a USBC-USBC cable,
  connect between raspberry Pi4 and iPad Pro
- Pi4 start up with USB Gadget mode and DHCP server

```
16:51  Mon Aug 23
Welcome to Alpine!

You can install packages with: apk add <package>

You may change this message by editing /etc/motd.

iPad-Pro-11:~# ssh 10.55.0.1
The authenticity of host '10.55.0.1 (10.55.0.1)' can't be established.
ECDSA key fingerprint is SHA256:CnXbX7Z1o7iloHFPtdURa5KG0wU2gDH5AqZxsvor/3A.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '10.55.0.1' (ECDSA) to the list of known hosts.
```

Install ”ish“ from AppStore and packages

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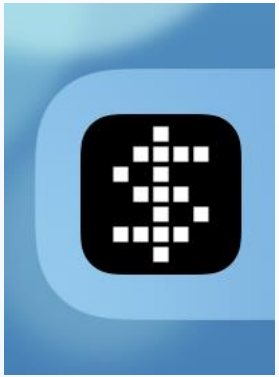
- open AppStore to look for “ish” app (free)
- “Ish” is a command line shell of iPad OS
- Open “ish” app and install openssh packages
- “apk add openssh” and other packages if you need
  ssh pi@10.55.0.1　to login Raspberry Pi 4 via SSH



SSH connection via USB Gadget mode install RDP server

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- Connect raspberry pi via USB Gadget mode
  Pi uses 10.55.0.1, and iPad gets 10.55.0.2 from dhcpd
  ssh 10.55.0.1, and enter username and password
  pi/raspberry and confirm the connection via USBC
- Also recommend to install XRDP (Remote Desktop Protocol server) if there are not installed
  apt-get install xrdp
- Now you can use your Wireshark cli tools such as dumpcap, tshark, mergecap, editcap, capinfos etc.

Connect via Microsoft RDP client

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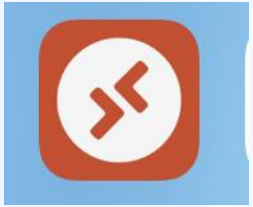
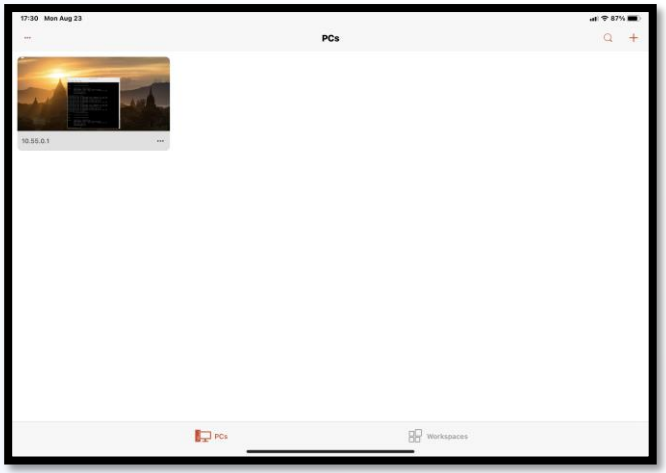
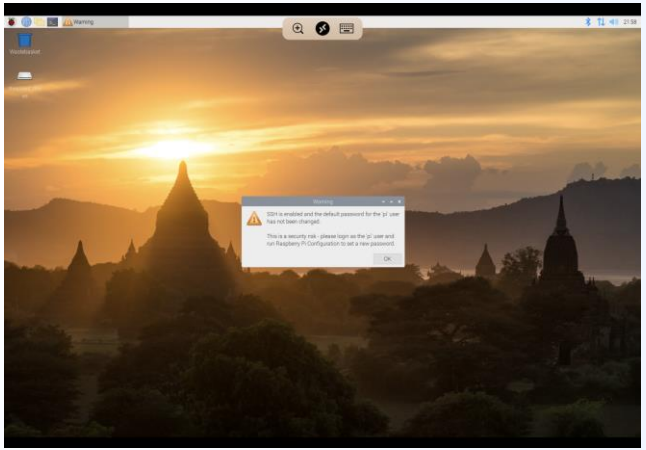
- Install Microsoft RDP iOS client app
- Open 10.55.0.1 and login as the same as CLI







Bring your Wireshark everywhere

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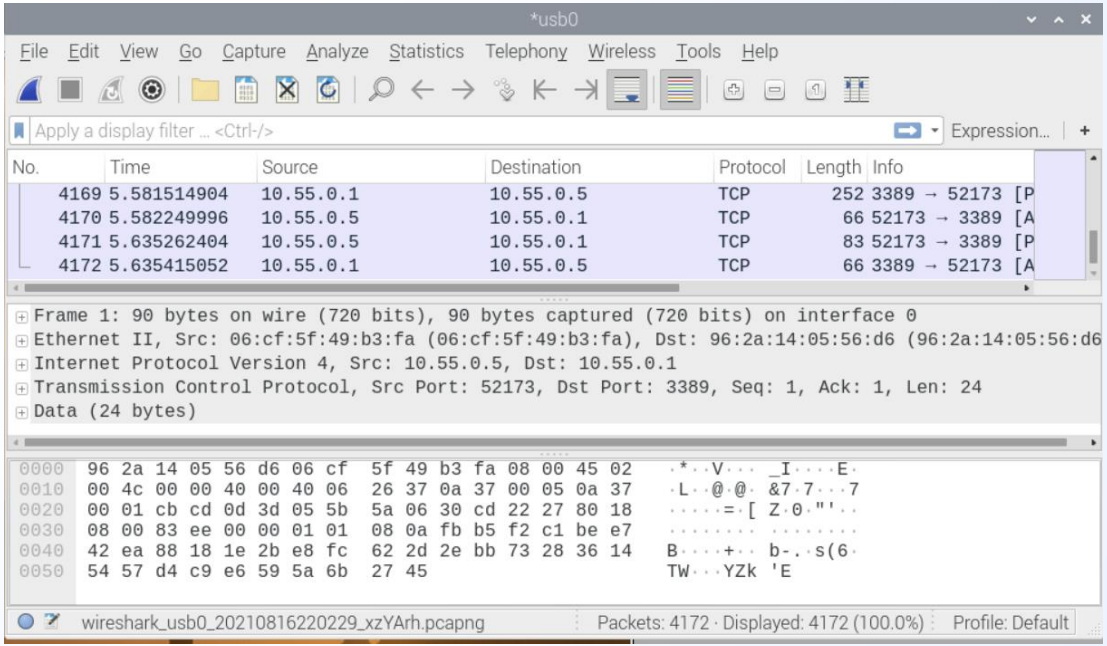
- Install Microsoft RDP client
- Create shortcut of 10.55.0.1 via USB-C
- Username pi
- Password raspberry
- Wireshark works at reasonable speed. (Pi4 with 8GB RAM)



Change Wireshark permission settings

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- We need administrative privilege to capture packet, though Raspberry Pi OS works as user mode.
- We need to change Wireshark permission to be able to capture packets in user mode.
- “sudo dpkg-reconfigure wireshark-common”
- Choose YES to capture packets in user mode
- “sudo adduser wireshark pi”
  to add user pi into wireshark group
- Restart Raspberry Pi4 and login as pi again

For wireless capturing

- Capturing wireless network using external WiFi adapter that supports monitor mode (unfortunately Pi internal Wireless LAN card cannot be changed into monitor mode at default setting)
- You may use Kali Linux ARM image instead of Raspberry Pi OS.
- Open ish and check wireless card “sudo iwconfig”
- “sudo airmon-ng check kill” to stop all wireless related process
- “sudo airmon-ng start wlan1” to change into monitor mode
- ”iwconfig” again to check wlan1 was changed into wlan1mon (monitor mode interface)
- Choose “View>Wireless tool bar” to show wireless settings

#2 Extcap brings the external capture **source**

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- The extcap interface is a versatile plugin interface that allows external binaries to act as capture interfaces directly in Wireshark.
- It is used in scenarios, where the source of the capture is not a traditional capture model (live capture from an interface, from a pipe, from a file, etc). The typical example is connecting esoteric hardware of some kind to the main Wireshark application.and data
- Extcaps may be any binary or script within the extcap directory. Please note, that scripts need to be executable without prefacing a script interpreter before the call.

Example extcap interface: SSH remote capture

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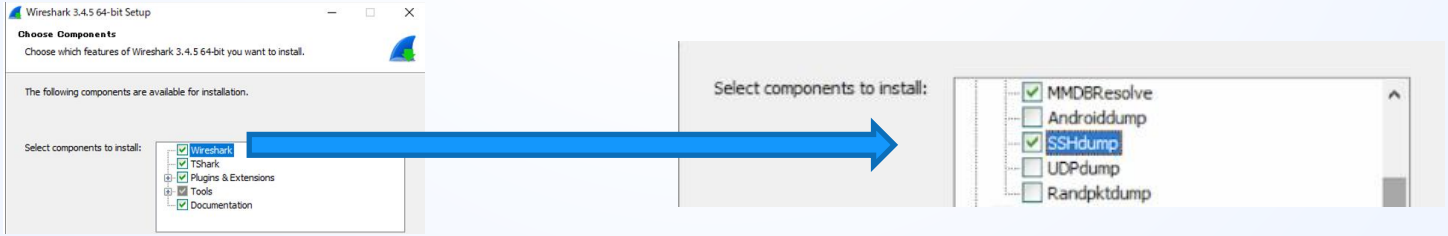
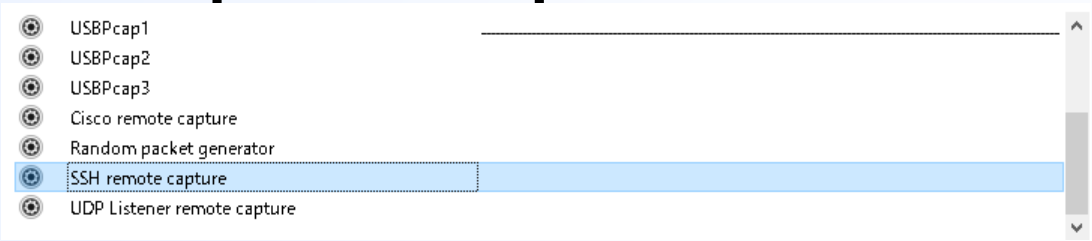
- Let’s try sample extcap interface, SSH remote capture
- SSH remote capture is provided by SSHDump, is option component with Wireshark,
  so you need to check Tools>SSHDump
  Choose Components dialog during Wireshark installation.



Example extcap interface: SSH remote capture



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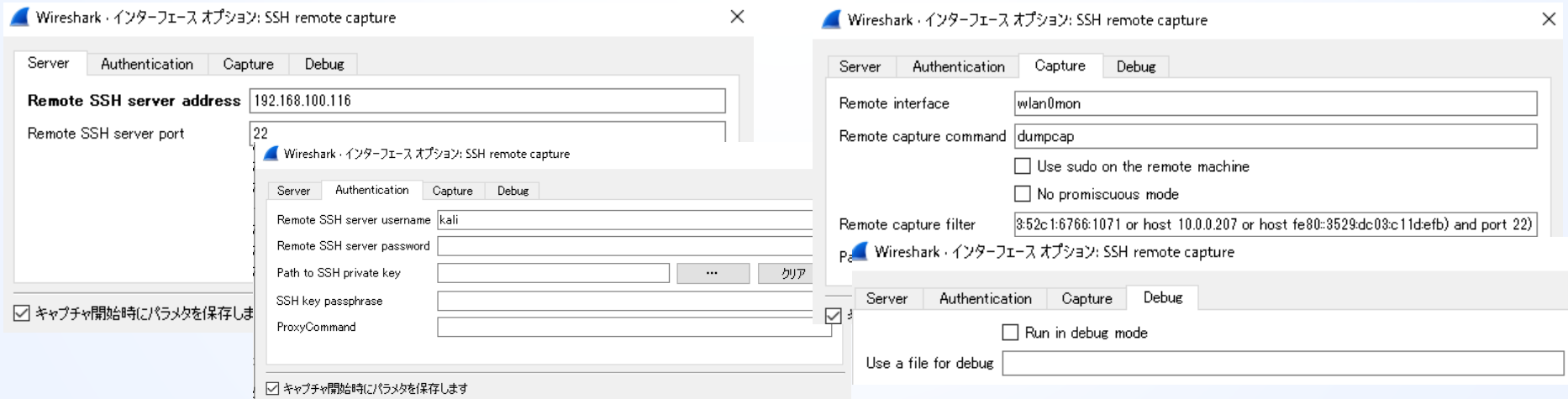
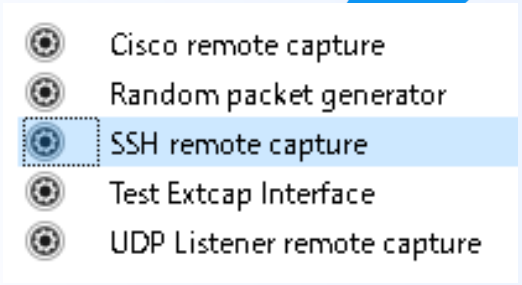
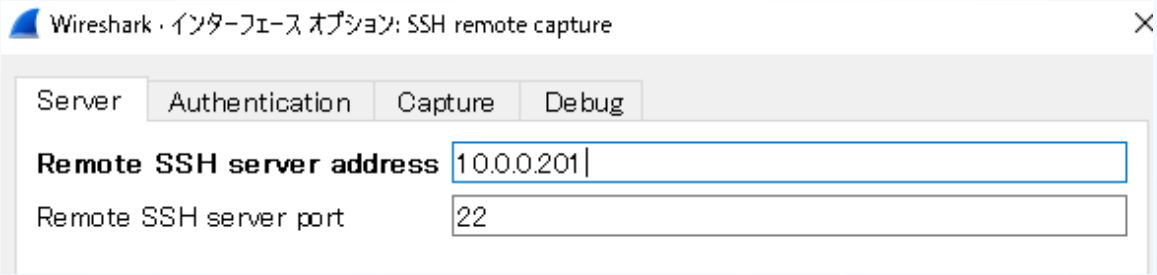
- There are default “SSH remote capture” extcap in Wireshark (you may check Tools>SSH remote capture during install process)
- Double click extcap icon (left side) to edit option



Test SSH remote capture Extcap interface

1. Start Wireshark
2. Choose “SSH remote capture” interface
3. Click option icon
4. Set Remote SSH server address as some Linux host this time we use Raspberry Pi IP address 10.0.0.201
5. Set Remote SSH port number as 22 in the Server Tab





Test SSH remote capture Extcap interface

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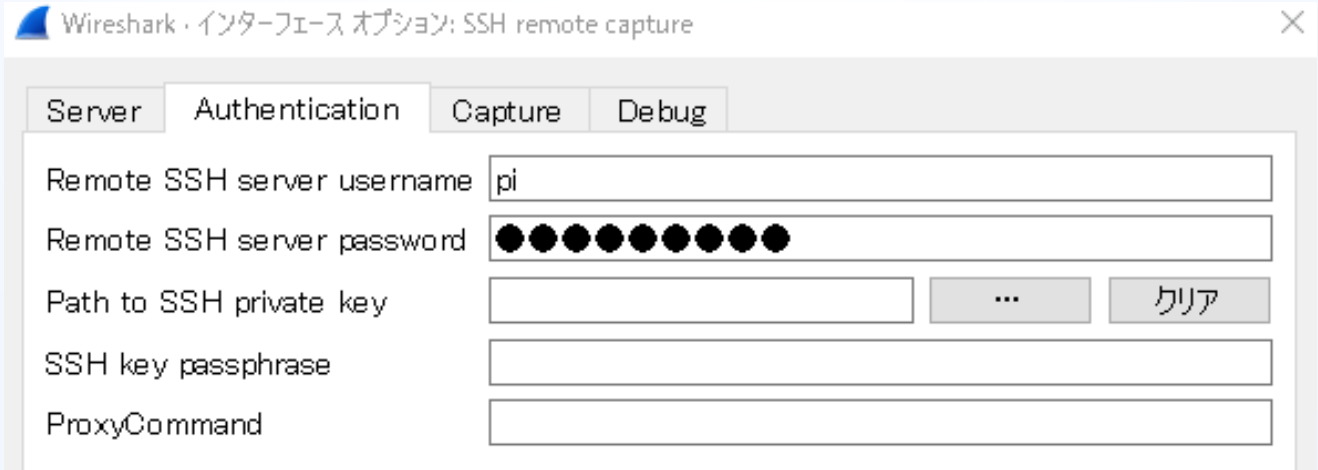
6. Click Authentication tab, enter Remote SSH server username (this time we use “pi”)
7. Enter Remote SSH server password (this time “raspberry”) Note: you may fail at the first time to connect to save the host’s public key as known host



Test SSH remote capture Extcap interface

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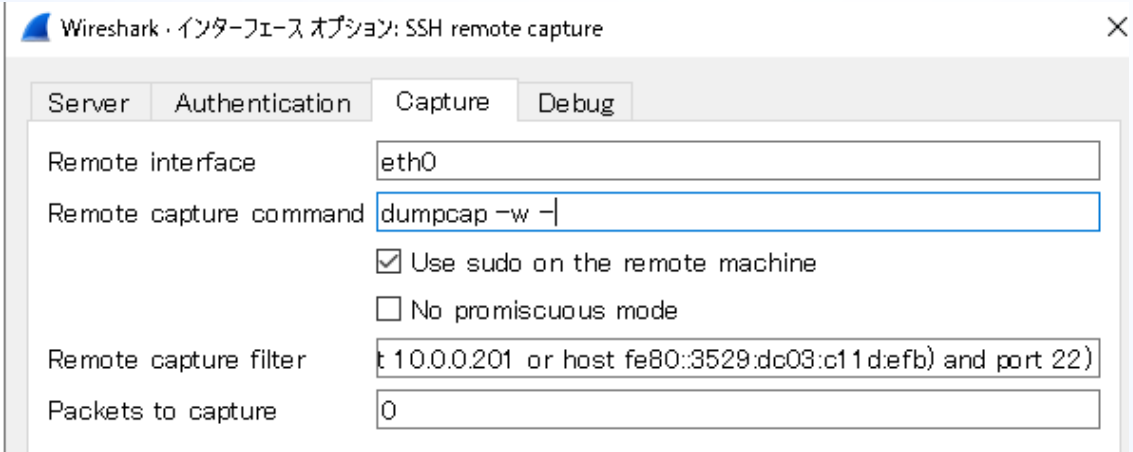
8. Click Capture tab, enter Remote interface
   Enter Remote capture command (dumpcap -w -)
   (this time we use dumpcap command, output pcap not to file but to standard output "-w -" option
9. Check “Use sudo on the remote machine”
   Note Remote capture filter is set automatically



Test SSH remote capture Extcap interface

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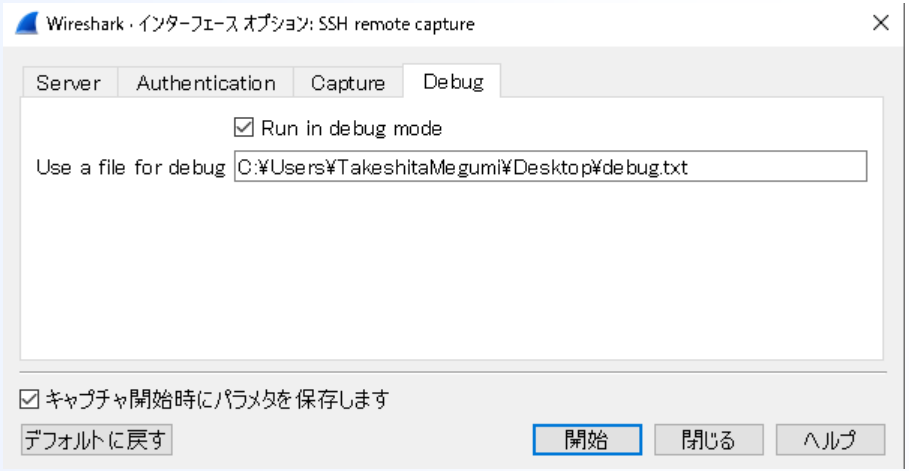
11. You can set debug file in case of failure
    check “Run in debug mode” and set path in “Use a file for debug” text box



Test SSH remote capture Extcap interface

12. Click Start to capture packet at remote SSH host
13. You can get the trace at the Pi's side remote LAN interface

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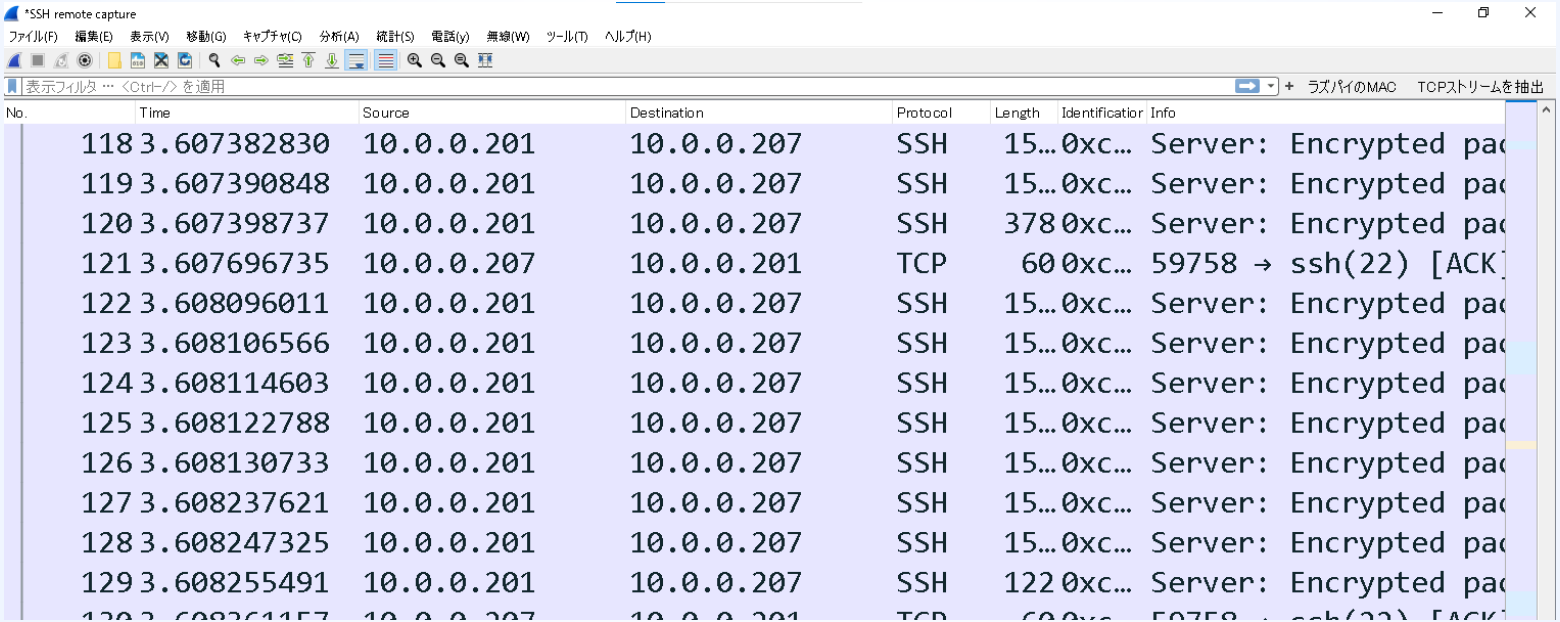

No.	Time	Source	Destination	Protocol	Length	Identificatior	Info
118	3.607382830	10.0.0.201	10.0.0.207	SSH	15…	0xc…	Server: Encrypted pac
119	3.607390848	10.0.0.201	10.0.0.207	SSH	15…	0xc…	Server: Encrypted pac
120	3.607398737	10.0.0.201	10.0.0.207	SSH	378	0xc…	Server: Encrypted pac
121	3.607696735	10.0.0.207	10.0.0.201	TCP	60	0xc…	59758 → ssh(22) [ACK]
122	3.608096011	10.0.0.201	10.0.0.207	SSH	15…	0xc…	Server: Encrypted pac
123	3.608106566	10.0.0.201	10.0.0.207	SSH	15…	0xc…	Server: Encrypted pac
124	3.608114603	10.0.0.201	10.0.0.207	SSH	15…	0xc…	Server: Encrypted pac
125	3.608122788	10.0.0.201	10.0.0.207	SSH	15…	0xc…	Server: Encrypted pac
126	3.608130733	10.0.0.201	10.0.0.207	SSH	15…	0xc…	Server: Encrypted pac
127	3.608237621	10.0.0.201	10.0.0.207	SSH	15…	0xc…	Server: Encrypted pac
128	3.608247325	10.0.0.201	10.0.0.207	SSH	15…	0xc…	Server: Encrypted pac
129	3.608255491	10.0.0.201	10.0.0.207	SSH	122	0xc…	Server: Encrypted pac

Then let’s test your own extcap interface

- Extcap is useful so you can extend capture source.
- There are some nice hardware, such as Bluetooth dongle and open source capture devices to capture via extcap interface.
- At first, let’s test your own extcap interface.
  Man page of extcap (https://www.wireshark.org/docs/man-pages/extcap.html)
- We do not need to create binary, but just a bit of batch file to test extcap interface

Check your extcap path
Help>About Wireshark>Folder

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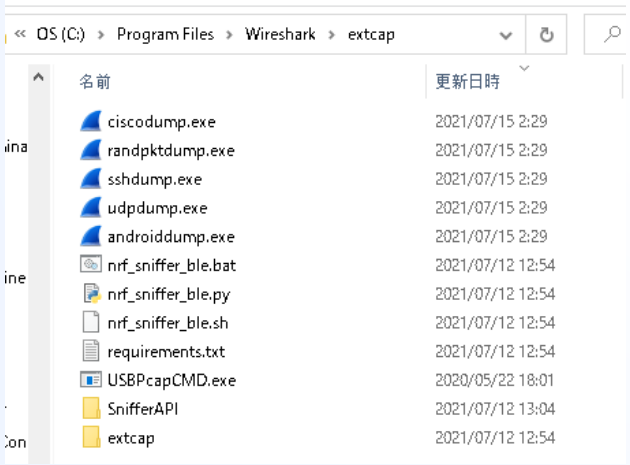
- Personal Extcap Path in Windows Default
  C:¥Users¥user¥AppData¥Roaming¥Wireshark¥extcap
- Global Extcap Path in Windows Default
  C:¥Program Files¥Wireshark¥extcap



Extcap man page (https://www.wireshark.org/docs/man-

elements	
arg (options)	argument for CLI calling
number	Reference # of argument for other values, display order
call	Literal argument to call (--call=...)
display	Displayed name
default	Default value, in proper form for type
range	Range of valid values for UI checking (min,max) in proper form
type	Argument type for UI filtering for raw, or UI type for selector: integer unsigned long (may include scientific / special notation) float selector (display selector table, all values as strings) boolean (display checkbox) radio (display group of radio buttons with provided values, all values as strings) fileselect (display a dialog to select a file from the filesystem, value as string) multicheck (display a textbox for selecting multiple options, values as strings) password (display a textbox with masked text) timestamp (display a calendar)
value (options)	Values for argument selection arg Argument # this value applies to

Create example.bat and copy into Personal Extcap Path

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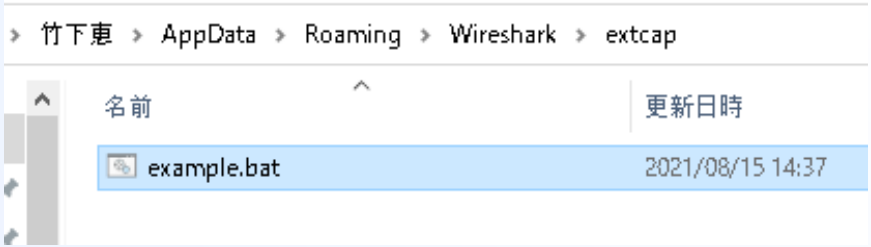
Example.bat

```
echo interface {value=test}{display=Test Extcap Interface}
echo dlt {number=147}{name=test}{display=Layer2 DLT}
echo arg {number=1}{call=--host}{display=Filter Hostname}{type=string}
{tooltip=hostname}{required=true}{default=10.0.0.201}{group=Host}
echo arg {number=2}{call=--port}{display=Filter Port number}
{type=unsigned}{tooltip=port}{range=1,65535}{default=22}{group=Port}
```



Open Wireshark and Capture>Option to check Extcap Interface

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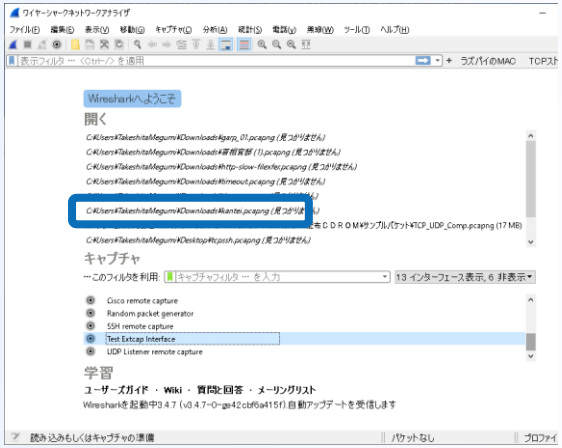
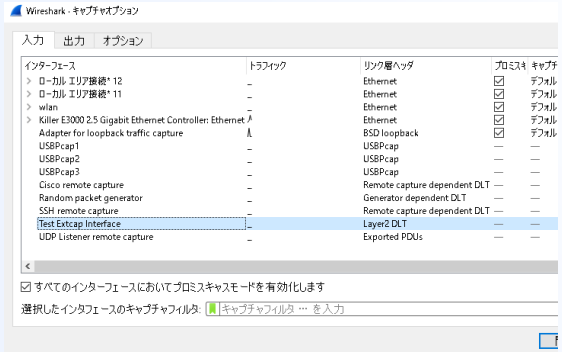




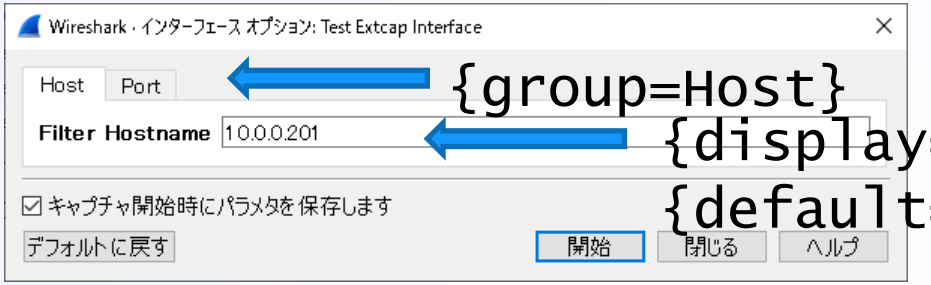

```
interface {value=test}
{display=Test Extcap Interface}
```

You can find your Extcap interface at Interface list in your Wireshark startup screen

```
dlt {number=147}{name=test}{display=Layer2 DLT}
```

Select Capture>Option and look the Link layer header Column to check your extcap data link type value

Click option button ( ) to find your extcap dialog(1)

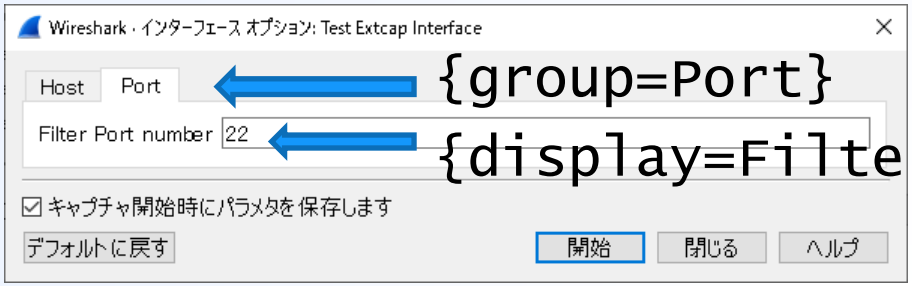


#sf21vus

```
echo arg {number=1}{call=--host}{display=Filter Hostname}{type=string}
{tooltip=host}{required=true}{default=10.0.0.201}{group=Host}
```

You can create your Extcap Option GUI using script
Set number to set reference number and display order
Set call to call function (this time do nothing)
Set display to set the display name
Set type to set the type definition (this time is string)
Set tooltip to set tooltip string
Set required to set this value is necessary
Set default to set default value
Set group to set the tab name

Click option button (⚙) to find your extcap dialog(2)



#sf21vus

```
echo arg {number=2}{call=--port}{display=Filter Port number}{type=unsigned}
{tooltip=port}{range=1,65535}{default=22}{group=Port}
```

You can create your Extcap Option GUI using script
Set number to set reference number and display order
Set call to call function (this time do nothing)
Set display to set the display name
Set type to set type definition (this time is unsigned)
Set tooltip to set tooltip string
Set range to set the range of the value (this time is from 1 to 65535)
Set default to set default value
Set group to set the tab name

Then check SSHDump command

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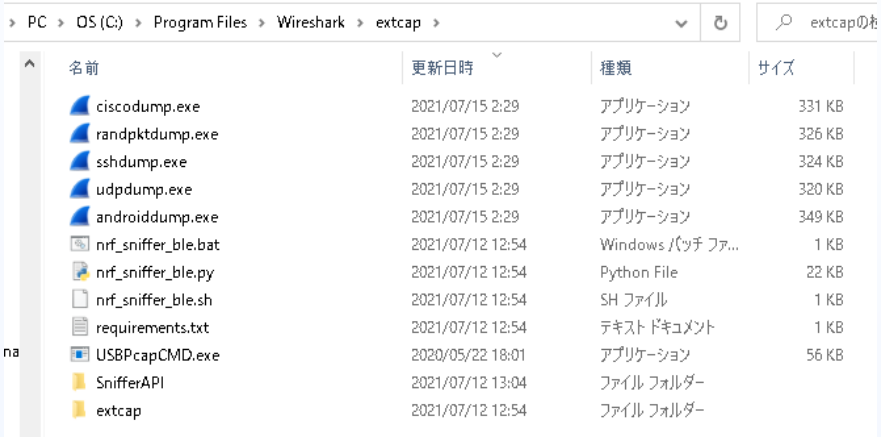
- Open Global Extcap Path in explorer
  in Windows Default C:¥Program Files¥Wireshark¥extcap
- Check sshdump.exe is in Global Extcap path
- Open command prompt and execute sshdump.exe



sshdump.exe command

- Check online help of sshdump.exe

```
C:¥Program Files¥Wireshark¥extcap>sshdump.exe

Wireshark - sshdump.exe v1.0.0

Usage:
 sshdump.exe --extcap-interfaces
 sshdump.exe --extcap-interface=sshdump.exe --extcap-dlts
 sshdump.exe --extcap-interface=sshdump.exe --extcap-config
 sshdump.exe --extcap-interface=sshdump.exe --remote-host myhost --remote-port 22222 --rem
ote-username myuser --remote-interface eth2 --remote-capture-command 'tcpdump -U -i eth0 -
w -' --fifo=FILENAME --capture
```

- There are many options for sshdump

sshdump.exe options

#sf21yus

--extcap-interfaces: list the extcap Interfaces
--extcap-dlts: list the DLTs
--extcap-interface <iface>: specify the extcap interface
--extcap-config: list the additional configuration for an int
--capture: run the capture
--extcap-capture-filter <filter>: the capture filter
--fifo <file>: dump data to file or fifo
--extcap-version: print tool version
--debug: print additional messages
--debug-file: print debug messages to file
--help: print this help
--version: print the version
--remote-host <host>: the remote SSH host
--remote-port <port>: the remote SSH port
--remote-username <username>: the remote SSH username
--remote-password <password>: the remote SSH password.
If not specified, ssh-agent and ssh-key are used
--sshkey <public key path>: the path of the ssh key
--sshkey-passphrase <public key passphrase>:
the passphrase to unlock public ssh
--proxycommand <proxy command>:
the command to use as proxy the the ssh connection
--remote-interface <iface>: the remote capture interface
--remote-capture-command <capture command>:
the remote capture command
--remote-sudo: use sudo on the remote machine to capture
--remote-noprom: don't use promiscuous mode
on the remote machine
--remote-filter <filter>: a filter for remote capture
(default: don't listen on local interfaces IPs)
--remote-count <count>: the number of packets to capture

Check debug.txt created by sshdump.exe

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- We make use of sshdump.exe to create our own extcap interface

debug.txt - メモ帳

ファイル(F)　編集(E)　書式(O)　表示(V)　ヘルプ(H)

```
cmdline: C:¥Program Files¥Wireshark¥extcap¥sshdump.exe --capture --extcap-interface sshdump.exe --
fifo ¥¥.¥pipe¥wireshark_extcap_sshdump.exe_20210816093352 --remote-host 10.0.0.201 --remote-port 22
--remote-password XXXXXXXXX --debug --remote-sudo --remote-capture-command dumpcap -w - --debug-
file C:¥Users¥TakeshitaMegumi¥Desktop¥debug.txt --remote-username pi --remote-interface eth0 --
remote-filter not ((host 169.254.164.117 or host fe80::1d02:3dd9:9b24:a475 or host 192.168.116.1 or
host fe80::a8ac:e7e4:6749:fa85 or host 192.168.13.1 or host fe80::10a:9e56:dbd6:113d or host
169.254.180.167 or host fe80::8002:a1a4:8f84:b4a7 or host 169.254.74.211 or host
fe80::4111:b7e0:7087:4ad3 or host 169.254.16.113 or host fe80::1933:52c1:6766:1071 or host
10.0.0.201 or host fe80::3529:dc03:c11d:efb) and port 22) true
```

sshdump.exe command

- we need to create the command like below

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```
"C:¥Program Files¥Wireshark¥extcap¥sshdump.exe" -capture
 --extcap-interface sshdump.exe --fifo %fifo% --remote-host
10.0.0.201 --remote-port 22 --remote-password raspberry
 --debug --remote-sudo --remote-capture-command
 "dumpcap -P -w -" --debug-file
C:¥Users¥TakeshitaMegumi¥Desktop¥debug.txt
 --remote-username pi --remote-interface eth0 true
```

So let’s create example2.bat file to create your own extcap interface to make use of SSHDump

example2.bat (initialization)

```
set ″capture=0″
set ″extcap_interfaces=0″
set ″extcap_interface=″
set ″extcap_dlts=0″
set ″fifo=“
```

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Initialization of command variables such as capture, extcap_interfaces, extcap_interface, extcap_dlts, fifo

Flag 0:off 1:on

example2.bat (parse)

%~1 is the first parameter without quarts, %~2 is the second.

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```
:parse
REM check command line parameters
if "%~1"=="" goto :main
if /i "%~1"=="--capture" set "capture=1" & shift & goto :parse
if /i "%~1"=="--extcap-interfaces" set "extcap_interfaces=1" & shift &
goto :parse
if /i "%~1"=="--extcap-interface" set "extcap_interface=%~2" & shift &
shift & goto :parse
if /i "%~1"=="--fifo" set "fifo=%~2" & shift & shift & goto :parse
if /i "%~1"=="--extcap-dlts" set "extcap_dlts=1" & shift & goto :parse
shift
goto :parse
```

If there are no parameter, jump to the main function.

Check command line parameters, and if the parameter matches the option, set the flag as 1, use shift to adjust parameter and jump parse again (shift decrease the position of the parameter and save.

example2.bat (main)

Main function check each flags and jump at corresponding labels

```
:main
REM - Process request for interface list from Wireshark
if "%extcap_interfaces%"=="1" call :extcap_interface_func & goto :end
REM - Process request for dlts list from Wireshark
if "%extcap_dlts%"=="1" call :extcap_dlts_func & goto :end
REM - Process capture request
if "%capture%"=="1" call :capture_func & goto :end
exit /B 1
```

Check command line parameters, and if the parameter matches the option, set the flag as 1 and jump parse again

example2.bat (extcap_interface_func)

#sf21vus

```
:extcap_interface_func
echo interface {value=test2}{display=Capture from Pi}
exit /B 0
```

Show extcap interface as the request for interface list from Wireshark and exit

example2.bat (extcap_dlts_func)

```
:extcap_dlts_func
echo dlt {number=147}{name=test2}{display=Layer2 DLT}
exit /B 0
```

Show datalink header type as the request for dlts from Wireshark and exit

example2.bat (capture_func)

#sf21vus

```
:capture_func
"C:¥Program Files¥Wireshark¥extcap¥sshdump.exe"
 --capture --extcap-interface sshdump.exe --fifo %fifo%
--remote-host 10.0.0.201 --remote-port 22
--remote-password raspberry --debug --remote-sudo
--remote-capture-command "dumpcap -P -w -"
--debug-file C:¥Users¥TakeshitaMegumi¥Desktop¥debug.txt
 --remote-username pi --remote-interface eth0 true
exit /B
```

Call sshdump.exe with adequate parameters

example2.bat (end)

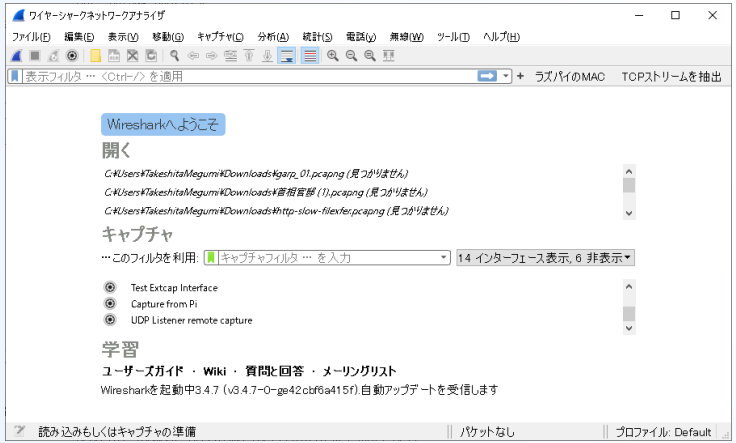
```
:end
exit /B
```

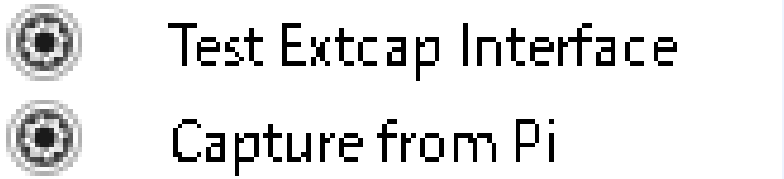
“exit /B” do not terminate the command but just quit preserving variables.

Let’s try your customized extcap interface

#sf21vus

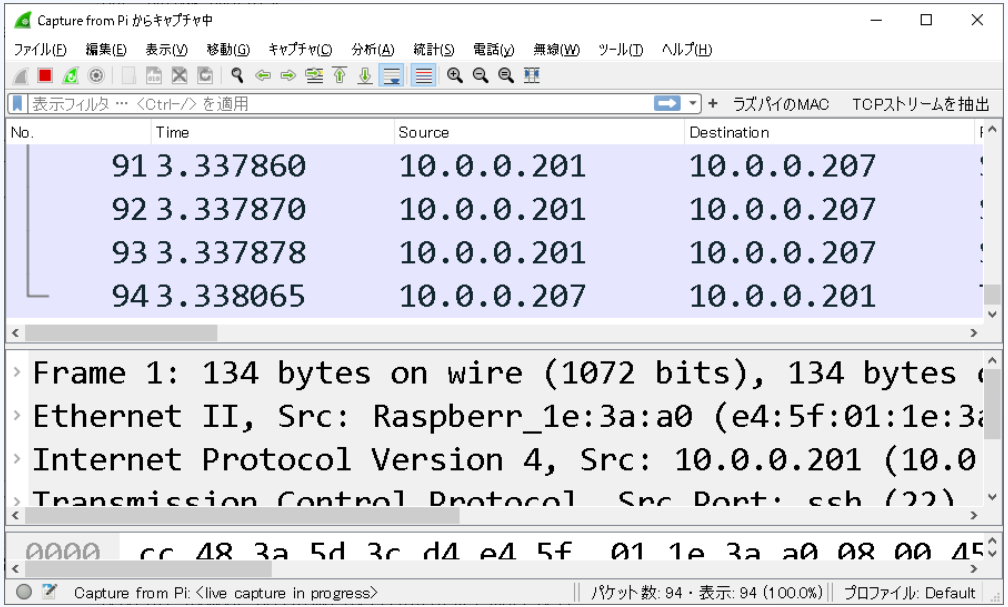
1. Copy example2.bat to the personal extcap path (C:¥Users¥username¥AppData¥Roaming¥Wireshark¥extcap)
2. Close and open Wireshark and check your own extcap interafaces (Capture from Pi)
3. Double click “Capture from Pi” and get the trace





Let’s try your customized extcap interface

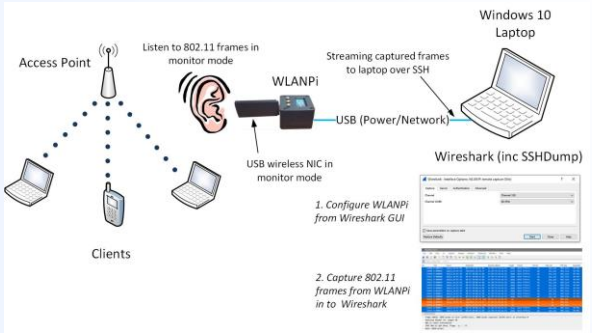
#sf21vus



- Just a double click of your own extcap interface, you can get traces from remote host using Wireshark

Reference :Windows 10 Wireshark Plug-in for WLANPi Wireless Captures (wlan-extcap-win)

- Instead of batch file programing, You may also use nice batch file, wlan-extcap-win by wifinigel
  https://github.com/wifinigel/wlan-extcap-win
- It is nice batch file script based on Adrian Granados' original python scripts on the wlan-extcap project (macOS)
- We can use Raspberry Pi’s monitor mode Wi-Fi interface as one of extcap interfaces to make use of SSHDump



Download wlanpidump.bat and save to Extcap path

#sf21vus

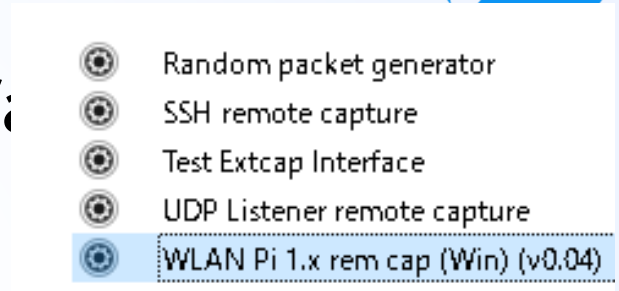
- Download batch file “wlanpidump.bat” and save to personal Extcap path (C:¥Users¥user¥AppData¥Roaming¥Wireshark¥extcap)
- Edit wlanpidump.bat and find “set capture_cmd” section

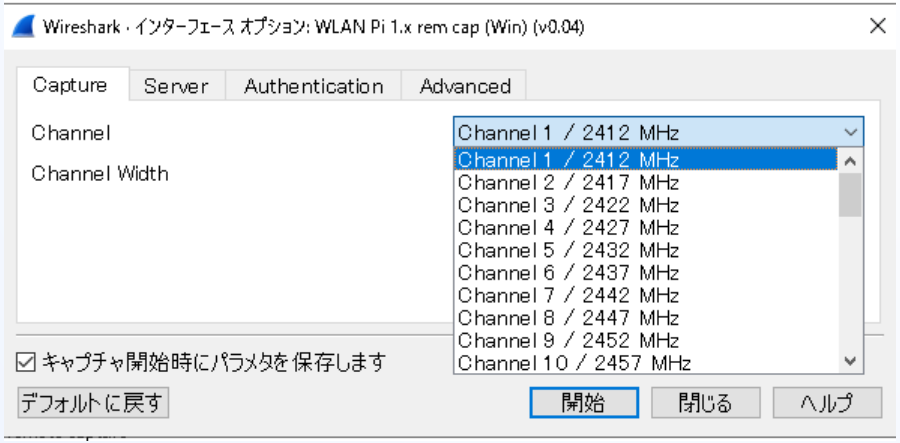
```
        set capture_cmd="%kill_old_instances_cmd% %time_cmd% %if_down% %set_moni
tor% %if_up% sudo /usr/sbin/iw %remote_interface% set channel %remote_channel% %
remote_channel_width% > /dev/null && /usr/sbin/tcpdump -i %remote_interface%  %f
ilter_statement% -s %frame_slice% -U -w - "↓
        ↓
        call "%sshdump_path%" --extcap-interface sshdump --remote-host %host% --
remote-port %port% --remote-capture-command %capture_cmd% --remote-username %use
rname% --remote-password %password% --fifo %fifo% --capture↓
```

The batch file create GUI of wireless settings, set parameters, set wireless interface as monitor mode, create capture command and call SSHDump to capture wireless packet via ssh connection from Raspberry Pi

Use wlan-extcap-win extcap interface

1. Close and open Wireshark again
2. You can find WLAN Pi extcap interf
3. Click Option icon 
4. Choose Channel and Channel Width in Capture TAB
   (this time we use Channel 1 and 20MHz bandwidth)

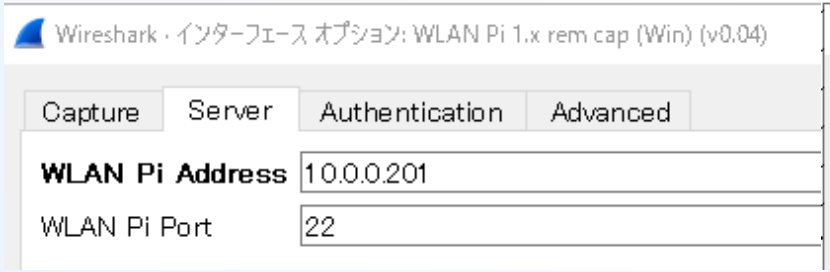


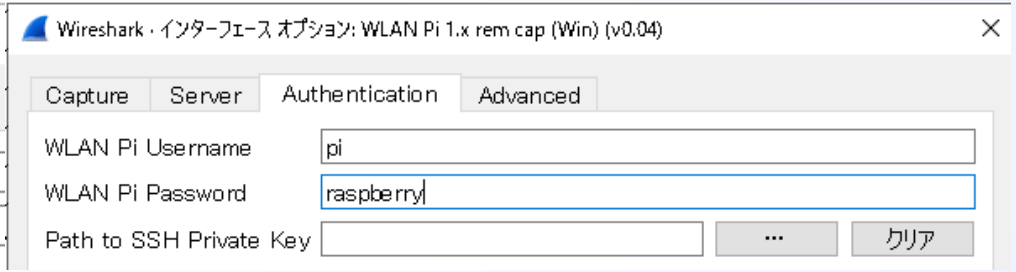


Use wlan-extcap-win extcap interface

#sf21vus

5. Set Remote host IP address and Port in WLAN Pi Address and WLAN Pi Port fields in Server tab (used for SSHDump parameter)
6. Set Remote host username and password in Authentication tab





Use wlan-extcap-win extcap interface

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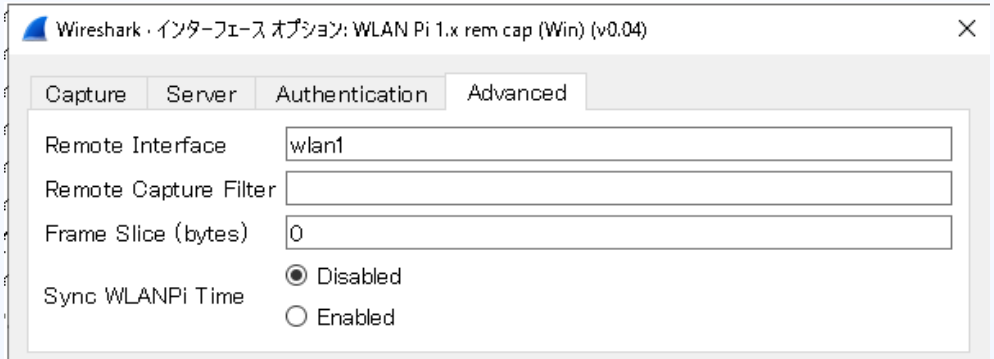
7. Set remote interface, capture filter (option), Frame Slice, and Sync WLANPi Time option in advanced tap (we use wlan1 as remote interface, no capture filter, capture all frames using 0 as Frame Slice and disabled Sync WLANPi Time)
8. Click Start to capture wireless packet via Raspberry Pi



USE WIRESHARK

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Thank you for watching !!

Please complete the SharkFest Europe app-based survey

Supplemental file

http://www.ikeriri.ne.jp/sharkfest

ikeriri network service

http://www.ikeriri.ne.jp