Vendor of the products: D-Link

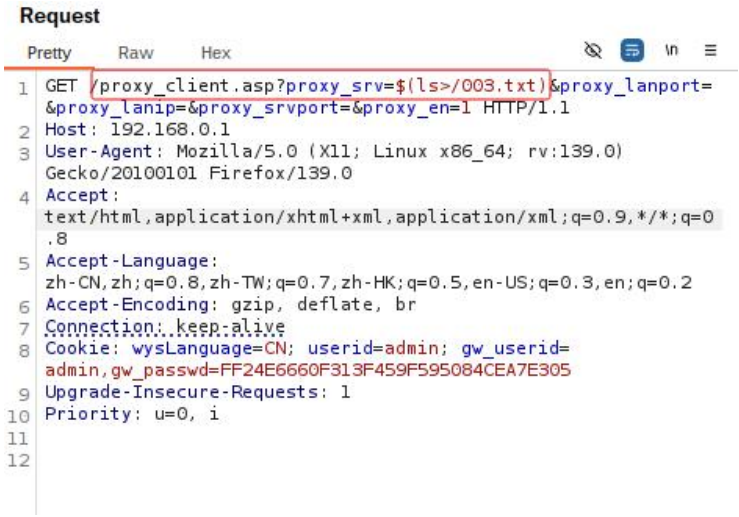
Affected Device: D-Link DI-7300G+

Version: DI-7300G+ V19.12.25A1

Firmware Download: http://www.dlink.com.cn/techsupport/ProductInfo.aspx?m=DI-7300G%2B

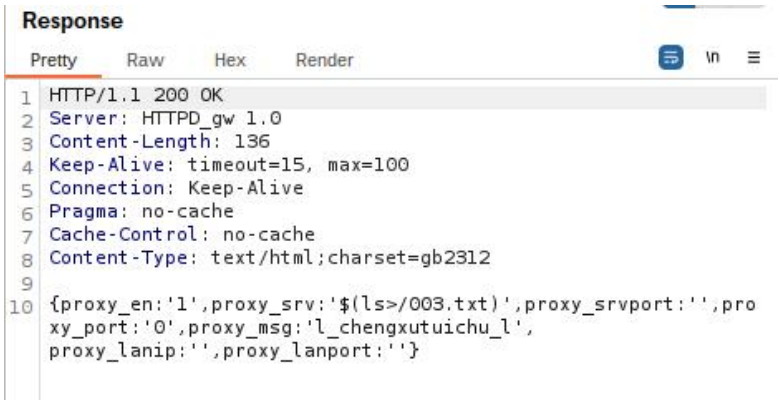
Vulnerability Description: A command injection vulnerability was discovered in D-Link DI-7300G+ V19.12.25A1, triggered by the proxy_srv, proxy_lanport, proxy_lanip, and proxy_srvport parameters in proxy_client.asp. Attackers can exploit this vulnerability by crafting malicious packets to execute arbitrary commands, thereby achieving full control over the target device.

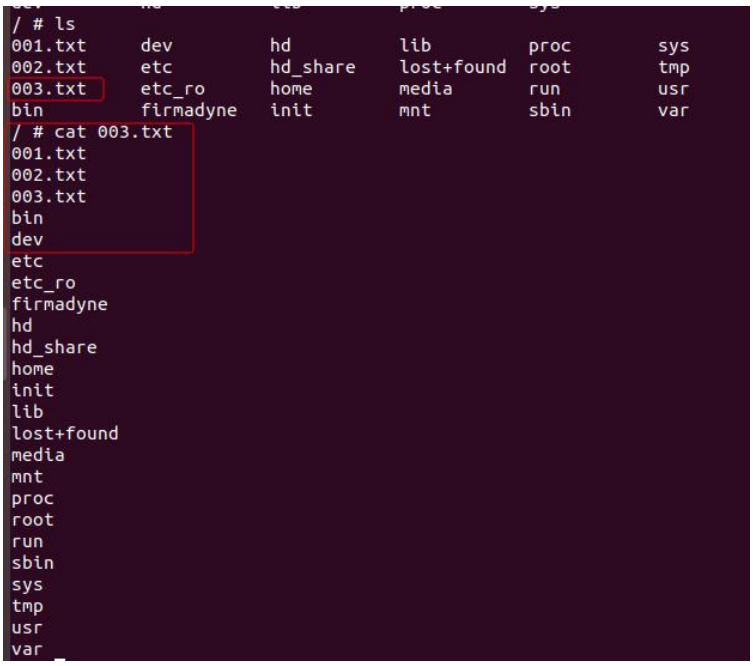
POC:



Vulnerability Effect:

It can be observed that the router receives the request and successfully executes the command.





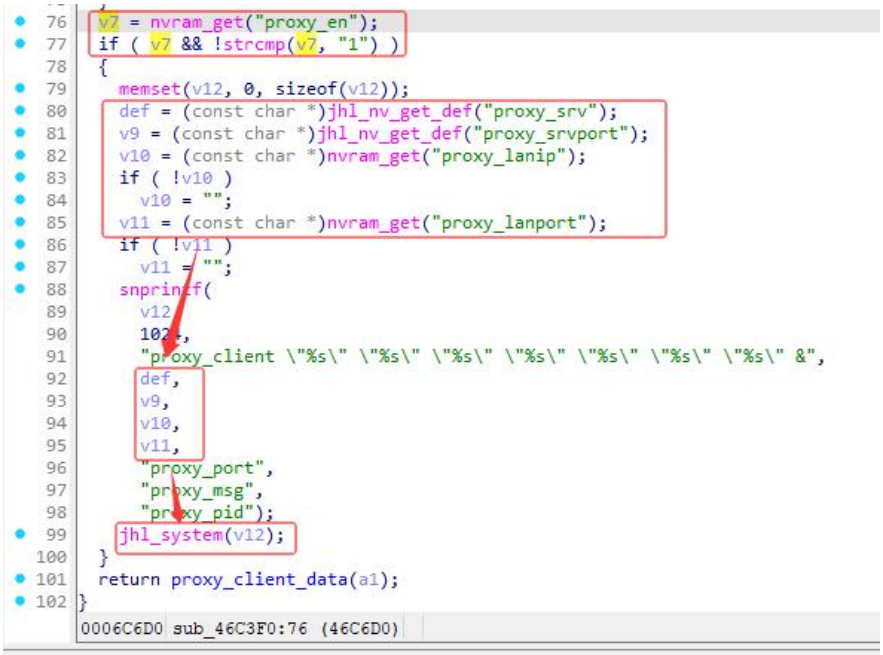
Further, the proxy_srv, proxy_lanport, proxy_lanip, and proxy_srvport parameters can all trigger command injection vulnerabilities.

Vulnerability Cause:

The issue resides in the jhttpd component. In jhttpd, the program invokes the sub_46C3F0 function to handle requests related to proxy_client.asp. The program first retrieves user-input parameters proxy_srv, proxy_lanport, proxy_lanip, and proxy_srvport via httpd_get_parm. When these parameters exist and differ from the values stored in NVRAM, it updates the parameter values in the NVRAM configuration.

```
21  parm = httpd_get_parm(a1, "proxy_en");
22  v14 = httpd_get_parm(a1, "proxy_srv");
23  v15 = httpd_get_parm(a1, "proxy_srvport");
24  v16 = httpd_get_parm(a1, "proxy_lanip");
25  v2 = httpd_get_parm(a1, "proxy_lanport");
26  v17 = 0;
27  v3 = httpd_get_parm(a1, "proxy_port");
28  memset(v12, 0, sizeof(v12));
29  if ( parm && !nvram_match_def("proxy_en", parm) )
30  {
31    v17 = 1;
32    nvram_set("proxy_en", parm);
33  }
34  if ( v14 && !nvram_match_def("proxy_srv", v14) )
35  {
36    v17 = 1;
37    nvram_set("proxy_srv", v14);
38  }
39  if ( v15 && !nvram_match_def("proxy_srvport", v15) )
40  {
41    v17 = 1;
42    nvram_set("proxy_srvport", v15);
43  }
44  if ( v16 && !nvram_match_def("proxy_lanip", v16) )
45  {
46    v17 = 1;
47    nvram_set("proxy_lanip", v16);
48  }
49  if ( v2 && !nvram_match_def("proxy_lanport", v2) )
50  {
51    v17 = 1;
52    nvram_set("proxy_lanport", v2);
53  }
54  if ( v3 && !nvram_match_def("proxy_port", v3) )
55  {
56    nvram_set("proxy_port", v3);
57  }
58  else if ( !v17 )
59  {
60    return proxy_client_data(a1);
61  }
62  _1 = (const char *)nvram_get("proxy_pid");
63  if ( !_1 )
64    _1 = "-1";
65  v6 = J_atoi(_1);
66  if ( v6 > 0 )
67  {
68    v18 = v6;
69    memset(v12, 0, sizeof(v12));
0006C824 sub_46C3F0:41 (46C824)
```

When the proxy_en parameter exists and its value is 1, the program retrieves the values of proxy_srv, proxy_lanport, proxy_lanip, and proxy_srvport from NVRAM. These values are concatenated via the sprintf function and directly passed to the system function for execution. Since no security checks are performed during this process, it leads to a command injection vulnerability. Attackers can execute arbitrary commands and fully control the device by constructing malicious parameters.


76 v7 = nvram_get("proxy_en");
77 if (v7 && !strcmp(v7, "1"))
78 {
79 memset(v12, 0, sizeof(v12));
80 def = (const char *)jhl_nv_get_def("proxy_srv");
81 v9 = (const char *)jhl_nv_get_def("proxy_srvport");
82 v10 = (const char *)nvram_get("proxy_lanip");
83 if (!v10)
84 v10 = "";
85 v11 = (const char *)nvram_get("proxy_lanport");
86 if (!v11)
87 v11 = "";
88 snprintf(
89 v12,
90 1024,
91 "proxy_client \"%s\" \"%s\" \"%s\" \"%s\" \"%s\" \"%s\" \"%s\" \"%s\" &",
92 def,
93 v9,
94 v10,
95 v11,
96 "proxy_port",
97 "proxy_msg",
98 "proxy_pid");
99 jhl_system(v12);
100 }
101 return proxy_client_data(a1);
102 }
0006C6D0 sub_46C3F0:76 (46C6D0)