Gotty 未授权访问漏洞分析报告

漏洞介绍

Gotty是一个开源的简单的命令行工具，基于go语言实现Linux终端Web共享。

> Github: https://github.com/yudai/gotty Stars: 12681

现在很多公司的内网防火墙只允许http协议，从这样的网络去访问和控制云上的主机非常麻烦。GoTTY是一个用go语言开发的工具，它启动一个web应用服务，可以将任何指定的终端应用映射到指定的http端口，这样在防火墙内部的客户端就可以通过普通的浏览器Chrome, Firefox来访问。

影响范围

所有版本

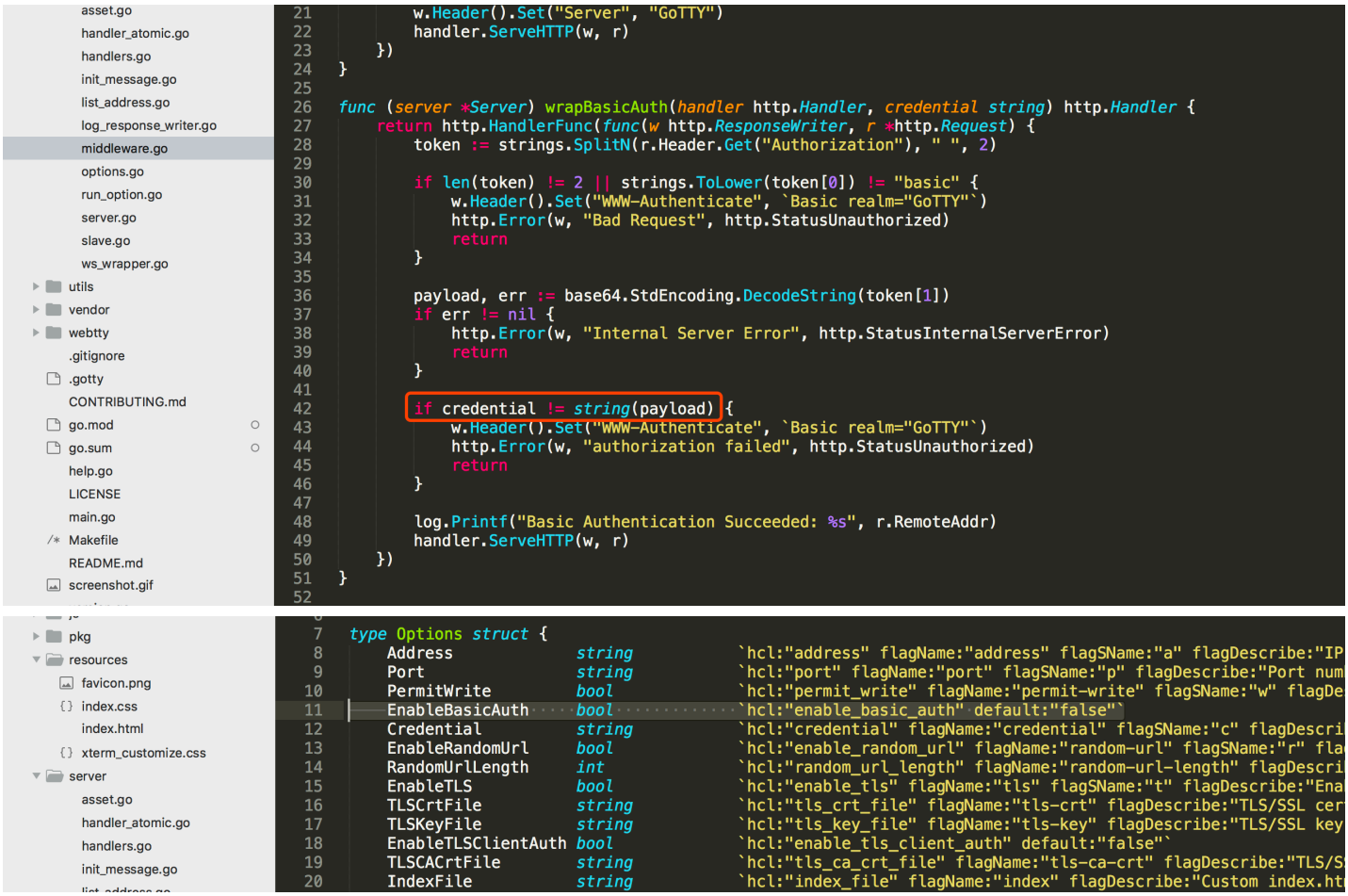
漏洞简析

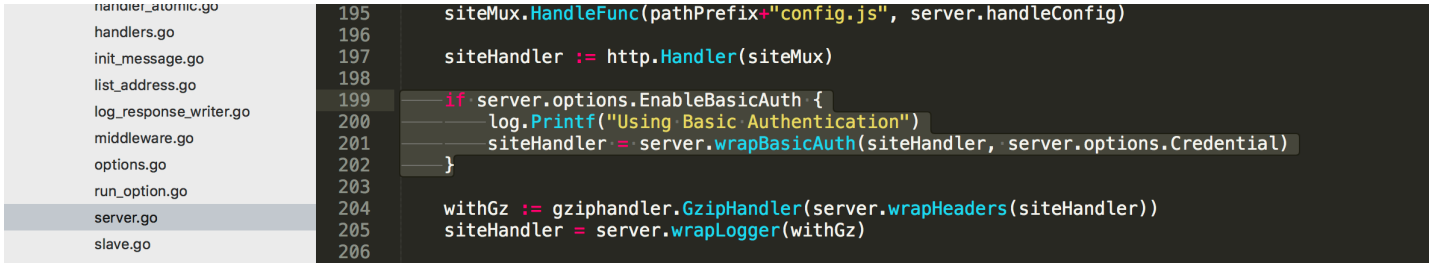
gotty中通过命令行参数 `--credential` 实现HTTP Basic认证，但是该方式默认是未开启的，如下图：

```
ubuntu@jiguang:/var/jiguang/terminal_file$ ./terminal_linux_amd64
NAME:
   gotty - Share your terminal as a web application

USAGE:
   gotty [options] <command> [<arguments...>]

VERSION:
   unknown_version+unknown_commit

OPTIONS:
   --address value, -a value     IP address to listen (default: "0.0.0.0") [$GOTTY_ADDRESS]
   --port value, -p value        Port number to liten (default: "8080") [$GOTTY_PORT]
   --permit-write, -w            Permit clients to write to the TTY (BE CAREFUL) [$GOTTY_PERMIT_WRITE]
   --credential value, -c value  Credential for Basic Authentication (ex: user:pass, default disabled) [$GOTTY_CREDENTIAL]
   --random-url, -r              Add a random string to the URL [$GOTTY_RANDOM_URL]
   --random-url-length value     Random URL length (default: 8) [$GOTTY_RANDOM_URL_LENGTH]
   --tls, -t                     Enable TLS/SSL [$GOTTY_TLS]
   --tls-crt value               TLS/SSL certificate file path (default: "~/.gotty.crt") [$GOTTY_TLS_CRT]
   --tls-key value               TLS/SSL key file path (default: "~/.gotty.key") [$GOTTY_TLS_KEY]
   --tls-ca-crt value            TLS/SSL CA certificate file for client certifications (default: "~/.gotty.ca.crt") [$GOTTY_TLS_CA_CRT]
   --index value                 Custom index.html file [$GOTTY_INDEX]
   --title-format value          Title format of browser window (default: "{{ .command }}@{{ .hostname }}") [$GOTTY_TITLE_FORMAT]
   --reconnect                   Enable reconnection [$GOTTY_RECONNECT]
   --reconnect-time value        Time to reconnect (default: 10) [$GOTTY_RECONNECT_TIME]
   --max-connection value        Maximum connection to gotty (default: 0) [$GOTTY_MAX_CONNECTION]
   --once                        Accept only one client and exit on disconnection [$GOTTY_ONCE]
   --timeout value               Timeout seconds for waiting a client(0 to disable) (default: 0) [$GOTTY_TIMEOUT]
   --permit-arguments            Permit clients to send command line arguments in URL (e.g. http://example.com:8080/?arg=AAA&arg=BBB) [$GOTTY_PERMI
T_ARGUMENTS]
   --width value                 Static width of the screen, 0(default) means dynamically resize (default: 0) [$GOTTY_WIDTH]
   --height value                Static height of the screen, 0(default) means dynamically resize (default: 0) [$GOTTY_HEIGHT]
   --ws-origin value             A regular expression that matches origin URLs to be accepted by WebSocket. No cross origin requests are acceptable
 by default [$GOTTY_WS_ORIGIN]
   --term value                  Terminal name to use on the browser, one of xterm or hterm. (default: "xterm") [$GOTTY_TERM]
   --close-signal value          Signal sent to the command process when gotty close it (default: SIGHUP) (default: 1) [$GOTTY_CLOSE_SIGNAL]
   --close-timeout value         Time in seconds to force kill process after client is disconnected (default: -1) (default: -1) [$GOTTY_CLOSE_TIMEO
UT]
   --config value                Config file path (default: "~/.gotty") [$GOTTY_CONFIG]
   --version, -v                 print the version

Error: No command given.
ubuntu@jiguang:/var/jiguang/terminal_file$
```

通过 `main.go` 文件可知， `EnableBasicAuth` 选项取决于是否提供 `credential` 参数

对HTTP Basic的认证在 `middleware.go` 文件的 `wrapBasicAuth` 函数中，而 `wrapBasicAuth` 函数在文件 `server.go` 中第199行被调用，取决于 `options.EnableBasicAuth` 的值，该值默认为 `false`，所以当启动时不添加 `--credential` 参数即会造成未授权访问





通过对静态资源分析可知，Gotty服务的 `index.html` 文件包含以下指纹信息，即成功登陆后服务器会返回 `"./js/gotty-bundle.js"` 字符串

```
<!doctype html>
<html>
  <head>
    <title>{{ .title }}</title>
    <link rel="icon" type="image/png" href="favicon.png">
    <link rel="stylesheet" href="./css/index.css" />
    <link rel="stylesheet" href="./css/xterm.css" />
    <link rel="stylesheet" href="./css/xterm_customize.css" />
  </head>
  <body>
    <div id="terminal"></div>
    <script src="./auth_token.js"></script>
    <script src="./config.js"></script>
    <script src="./js/gotty-bundle.js"></script>
  </body>
</html>
```

复现过程

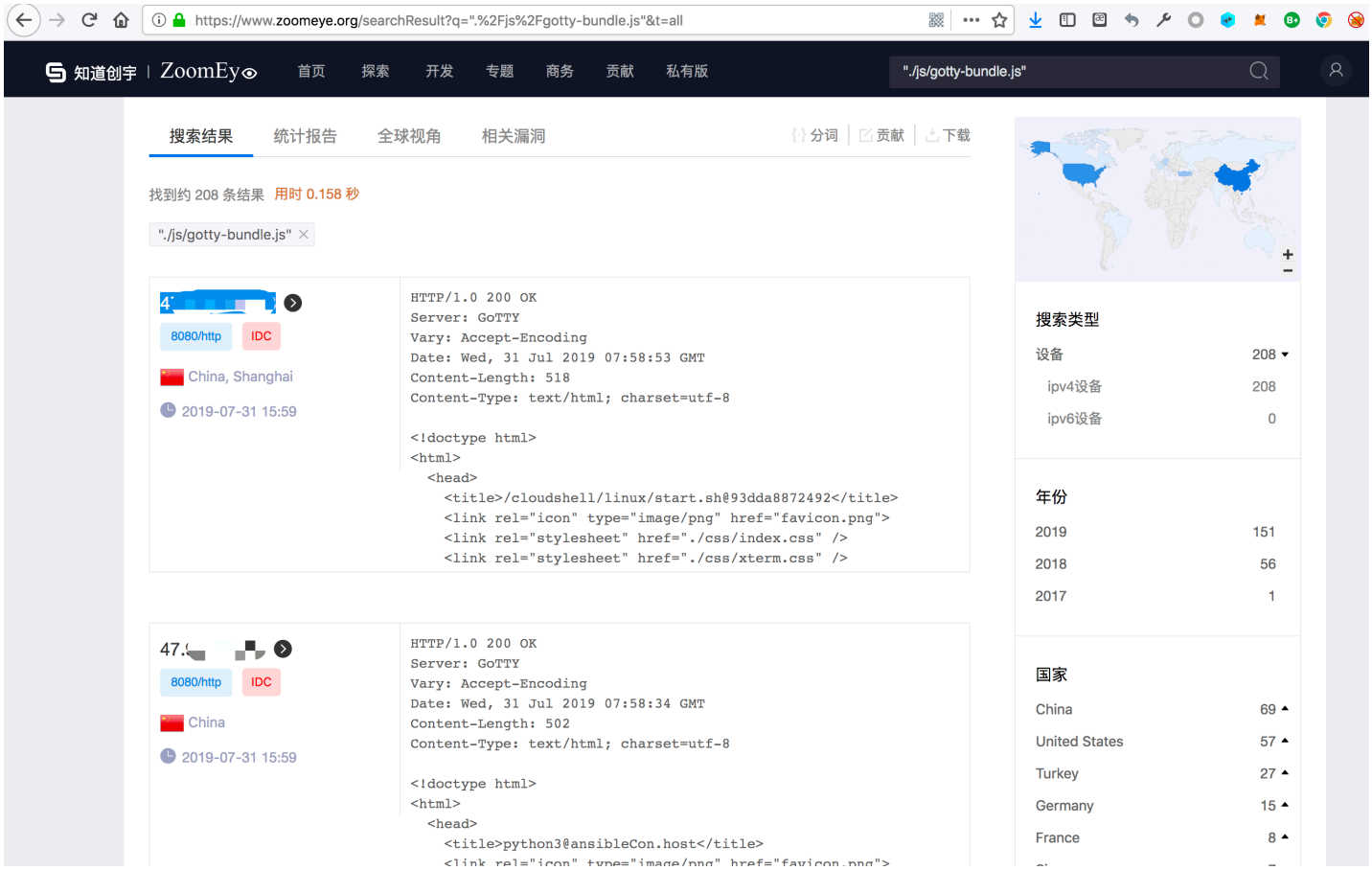
复现环境

- Firefox
- Zoomeye.org

复现过程

步骤1：

通过 `zoomeye.org` 搜索 `"./js/gotty-bundle.js"` 字符串，获得 `208` 个结果，分布还是挺广的



步骤2：

随机选择一个访问，可以成功执行命令

痕迹分析

在 `middleware.go` 文件中函数 `wrapLogger` 实现了对访问者的记录，可根据该记录和历史命令判断攻击的访问痕迹

防护方案

启动时通过命令行参数 `--credential` 实现HTTP Basic认证

参考链接

[1] Gotty

https://github.com/yudai/gotty

[2] Zoomeye.org

https://zoomeye.org

极光@知道创宇