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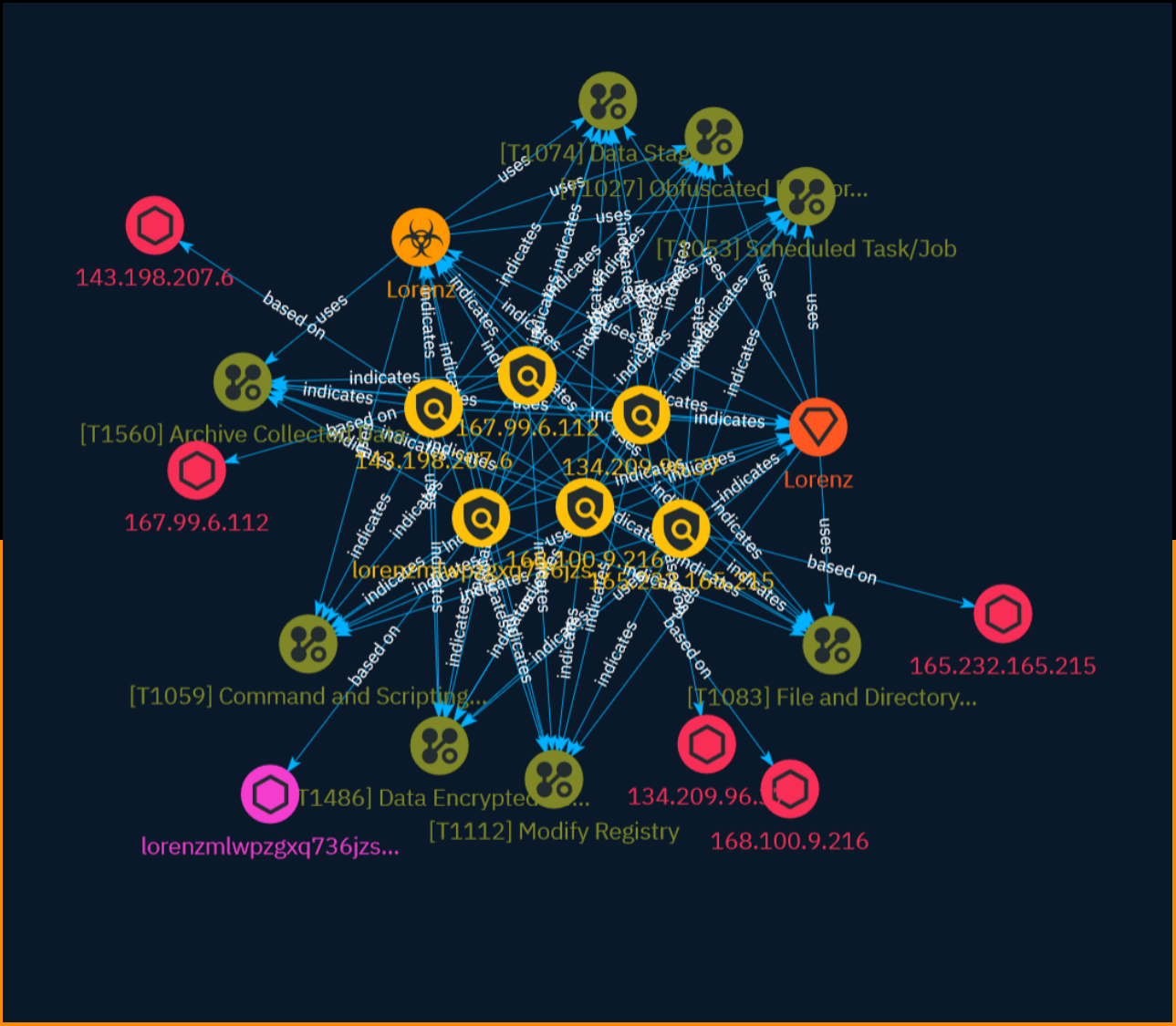
NETMANAGEIT

Intelligence Report

Unmasking Lorenz Ransomware: A Dive into Recent Tactics, Techniques and Procedures



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Overview

Description

Recent investigations by NCC Group's Digital Forensics and Incident Response (DFIR) Team in APAC have uncovered significant deviations in Lorenz's Tactics, Techniques, and Procedures (TTPs), shedding light on the group's evolving strategies. Key TTP changes include a new encryption extension, random strings for file and task names, binaries for persistence, scheduled tasks for enumeration, and a new encryption method using predictable seeds.

Confidence

This value represents the confidence in the correctness of the data contained within this report.

15 / 100

Content

N/A

Indicator

Name

168.100.9.216

Description

- **Zip Code:** N/A - **ISP:** BL Networks NL - **ASN:** 399629 - **Organization:** BL Networks NL - **Is Crawler:** False - **Timezone:** Europe/Amsterdam - **Mobile:** False - **Host:** 168.100.9.216 - **Proxy:** False - **VPN:** False - **TOR:** False - **Active VPN:** False - **Active TOR:** False - **Recent Abuse:** False - **Bot Status:** False - **Connection Type:** Premium required. - **Abuse Velocity:** Premium required. - **Country Code:** NL - **Region:** North Holland - **City:** Amsterdam - **Latitude:** 52.37 - **Longitude:** 4.89

Pattern Type

stix

Pattern

[ipv4-addr:value = '168.100.9.216']

Name

lorenzmlwpzgxq736jzseuterytjueszsvznuibanxomlpkyxk6ksoyd.onion

Description

- **Unsafe:** True - **Server:** - **Domain Rank:** 0 - **DNS Valid:** False - **Parking:** False - **Spamming:** False - **Malware:** True - **Phishing:** True - **Suspicious:** True - **Adult:** False - **Category:** N/A - **Domain Age:** {'human': 'N/A', 'timestamp': None, 'iso': None} - **IPQS: Domain:** lorenzmlwpzgxq736jzseuterytjueszsvznuibanxomlpkyxk6ksoyd.onion - **IPQS: IP Address:** N/A

Pattern Type

stix

Pattern

[domain-name:value = 'lorenzmlwpzgxq736jzseuterytjueszsvznuibanxomlpkyxk6ksoyd.onion']

Name

167.99.6.112

Description

- **Zip Code:** N/A - **ISP:** Digital Ocean - **ASN:** 14061 - **Organization:** Digital Ocean - **Is Crawler:** False - **Timezone:** America/New_York - **Mobile:** False - **Host:** 167.99.6.112 - **Proxy:** True - **VPN:** True - **TOR:** False - **Active VPN:** False - **Active TOR:** False - **Recent Abuse:** True - **Bot Status:** True - **Connection Type:** Premium required. - **Abuse Velocity:** Premium required. - **Country Code:** US - **Region:** New Jersey - **City:** North Bergen - **Latitude:** 40.79 - **Longitude:** -74.02

Pattern Type

stix

Pattern

[ipv4-addr:value = '167.99.6.112']

Name

165.232.165.215

Description

- **Zip Code:** N/A - **ISP:** Digital Ocean - **ASN:** 14061 - **Organization:** Digital Ocean - **Is Crawler:** False - **Timezone:** Asia/Singapore - **Mobile:** False - **Host:** 1179611.cloudwaysapps.com - **Proxy:** True - **VPN:** True - **TOR:** False - **Active VPN:** False - **Active TOR:** False - **Recent Abuse:** True - **Bot Status:** False - **Connection Type:** Premium required. - **Abuse Velocity:** Premium required. - **Country Code:** SG - **Region:** Singapore - **City:** Singapore - **Latitude:** 1.31 - **Longitude:** 103.68

Pattern Type

stix

Pattern

[ipv4-addr:value = '165.232.165.215']

Name

143.198.207.6

Description

- **Zip Code:** N/A - **ISP:** Digital Ocean - **ASN:** 14061 - **Organization:** Digital Ocean - **Is Crawler:** False - **Timezone:** Asia/Singapore - **Mobile:** False - **Host:** 143.198.207.6 - **Proxy:** True - **VPN:** True - **TOR:** False - **Active VPN:** False - **Active TOR:** False - **Recent Abuse:** False - **Bot Status:** False - **Connection Type:** Premium required. - **Abuse Velocity:** Premium required. - **Country Code:** SG - **Region:** Singapore - **City:** Singapore - **Latitude:** 1.31 - **Longitude:** 103.68

Pattern Type

stix

Pattern

[ipv4-addr:value = '143.198.207.6']

Name

134.209.96.37

Description

- **Zip Code:** N/A - **ISP:** Digital Ocean - **ASN:** 14061 - **Organization:** Digital Ocean - **Is Crawler:** False - **Timezone:** Asia/Singapore - **Mobile:** False - **Host:** 134.209.96.37 - **Proxy:** True - **VPN:** True - **TOR:** False - **Active VPN:** False - **Active TOR:** False - **Recent Abuse:** True - **Bot Status:** False - **Connection Type:** Premium required. - **Abuse Velocity:** Premium required. - **Country Code:** SG - **Region:** Singapore - **City:** Singapore - **Latitude:** 1.31 - **Longitude:** 103.68

Pattern Type

stix

Pattern

[ipv4-addr:value = '134.209.96.37']

Malware

Name
Lorenz

Intrusion-Set

Name
Lorenz

Attack-Pattern

Name
Data Encrypted for Impact
ID
T1486
Description
Adversaries may encrypt data on target systems or on large numbers of systems in a network to interrupt availability to system and network resources. They can attempt to render stored data inaccessible by encrypting files or data on local and remote drives and withholding access to a decryption key. This may be done in order to extract monetary compensation from a victim in exchange for decryption or a decryption key (ransomware) or to render data permanently inaccessible in cases where the key is not saved or transmitted.(Citation: US-CERT Ransomware 2016)(Citation: FireEye WannaCry 2017)(Citation: US-CERT NotPetya 2017)(Citation: US-CERT SamSam 2018) In the case of ransomware, it is typical that common user files like Office documents, PDFs, images, videos, audio, text, and source code files will be encrypted (and often renamed and/or tagged with specific file markers). Adversaries may need to first employ other behaviors, such as [File and Directory Permissions Modification](https://attack.mitre.org/techniques/T1222) or [System Shutdown/Reboot](https://attack.mitre.org/techniques/T1529), in order to unlock and/or gain access to manipulate these files.(Citation: CarbonBlack Conti July 2020) In some cases, adversaries may encrypt critical system files, disk partitions, and the MBR.(Citation: US-CERT NotPetya 2017) To maximize impact on the target organization, malware designed for encrypting data may have worm-like features to propagate across a network by leveraging other attack techniques like [Valid Accounts](https://attack.mitre.org/techniques/T1078), [OS Credential Dumping](https://attack.mitre.org/techniques/T1003), and [SMB/Windows Admin Shares](https://attack.mitre.org/techniques/T1021/002).(Citation: FireEye WannaCry 2017)(Citation: US-CERT NotPetya 2017) Encryption malware may also leverage [Internal

Defacement](https://attack.mitre.org/techniques/T1491/001), such as changing victim wallpapers, or otherwise intimidate victims by sending ransom notes or other messages to connected printers (known as "print bombing").(Citation: NHS Digital Egregor Nov 2020) In cloud environments, storage objects within compromised accounts may also be encrypted. (Citation: Rhino S3 Ransomware Part 1)

Name

Data Staged

ID

T1074

Description

Adversaries may stage collected data in a central location or directory prior to Exfiltration. Data may be kept in separate files or combined into one file through techniques such as [Archive Collected Data](https://attack.mitre.org/techniques/T1560). Interactive command shells may be used, and common functionality within [cmd](https://attack.mitre.org/software/S0106) and bash may be used to copy data into a staging location.(Citation: PWC Cloud Hopper April 2017) In cloud environments, adversaries may stage data within a particular instance or virtual machine before exfiltration. An adversary may [Create Cloud Instance](https://attack.mitre.org/techniques/T1578/002) and stage data in that instance. (Citation: Mandiant M-Trends 2020) Adversaries may choose to stage data from a victim network in a centralized location prior to Exfiltration to minimize the number of connections made to their C2 server and better evade detection.

Name

File and Directory Discovery

ID

T1083

Description

Adversaries may enumerate files and directories or may search in specific locations of a host or network share for certain information within a file system. Adversaries may use the information from [File and Directory Discovery](https://attack.mitre.org/techniques/T1083) during automated discovery to shape follow-on behaviors, including whether or not the adversary fully infects the target and/or attempts specific actions. Many command shell utilities can be used to obtain this information. Examples include `dir`, `tree`, `ls`, `find`, and `locate`.(Citation: Windows Commands JPCERT) Custom tools may also be used to gather file and directory information and interact with the [Native API](https://attack.mitre.org/techniques/T1106). Adversaries may also leverage a [Network Device CLI](https://attack.mitre.org/techniques/T1059/008) on network devices to gather file and directory information (e.g. `dir`, `show flash`, and/or `nvram`).(Citation: US-CERT-TA18-106A)

Name

Command and Scripting Interpreter

ID

T1059

Description

Adversaries may abuse command and script interpreters to execute commands, scripts, or binaries. These interfaces and languages provide ways of interacting with computer systems and are a common feature across many different platforms. Most systems come with some built-in command-line interface and scripting capabilities, for example, macOS and Linux distributions include some flavor of [Unix Shell](https://attack.mitre.org/techniques/T1059/004) while Windows installations include the [Windows Command Shell](https://attack.mitre.org/techniques/T1059/003) and [PowerShell](https://attack.mitre.org/techniques/T1059/001). There are also cross-platform interpreters such as [Python](https://attack.mitre.org/techniques/T1059/006), as well as those commonly associated with client applications such as [JavaScript](https://attack.mitre.org/techniques/T1059/007) and [Visual Basic](https://attack.mitre.org/techniques/T1059/005). Adversaries may abuse these technologies in various ways as a means of executing arbitrary commands. Commands and scripts can be embedded in [Initial Access](https://attack.mitre.org/tactics/TA0001) payloads delivered to victims as lure documents or as secondary payloads downloaded from an existing C2. Adversaries may also execute commands through interactive terminals/shells, as well as utilize various [Remote Services](https://attack.mitre.org/techniques/T1021) in order to achieve remote Execution.

(Citation: Powershell Remote Commands)(Citation: Cisco IOS Software Integrity Assurance - Command History)(Citation: Remote Shell Execution in Python)

Name

Obfuscated Files or Information

ID

T1027

Description

Adversaries may attempt to make an executable or file difficult to discover or analyze by encrypting, encoding, or otherwise obfuscating its contents on the system or in transit. This is common behavior that can be used across different platforms and the network to evade defenses. Payloads may be compressed, archived, or encrypted in order to avoid detection. These payloads may be used during Initial Access or later to mitigate detection. Sometimes a user's action may be required to open and [Deobfuscate/Decode Files or Information](https://attack.mitre.org/techniques/T1140) for [User Execution](https://attack.mitre.org/techniques/T1204). The user may also be required to input a password to open a password protected compressed/encrypted file that was provided by the adversary. (Citation: Volexity PowerDuke November 2016) Adversaries may also use compressed or archived scripts, such as JavaScript. Portions of files can also be encoded to hide the plain-text strings that would otherwise help defenders with discovery. (Citation: Linux/Cdorked.A We Live Security Analysis) Payloads may also be split into separate, seemingly benign files that only reveal malicious functionality when reassembled. (Citation: Carbon Black Obfuscation Sept 2016) Adversaries may also abuse [Command Obfuscation](https://attack.mitre.org/techniques/T1027/010) to obscure commands executed from payloads or directly via [Command and Scripting Interpreter](https://attack.mitre.org/techniques/T1059). Environment variables, aliases, characters, and other platform/language specific semantics can be used to evade signature based detections and application control mechanisms. (Citation: FireEye Obfuscation June 2017) (Citation: FireEye Revoke-Obfuscation July 2017)(Citation: PaloAlto EncodedCommand March 2017)

Name

Modify Registry

ID

T1112

Description

Adversaries may interact with the Windows Registry to hide configuration information within Registry keys, remove information as part of cleaning up, or as part of other techniques to aid in persistence and execution. Access to specific areas of the Registry depends on account permissions, some requiring administrator-level access. The built-in Windows command-line utility [Reg](https://attack.mitre.org/software/S0075) may be used for local or remote Registry modification. (Citation: Microsoft Reg) Other tools may also be used, such as a remote access tool, which may contain functionality to interact with the Registry through the Windows API. Registry modifications may also include actions to hide keys, such as prepending key names with a null character, which will cause an error and/or be ignored when read via [Reg](https://attack.mitre.org/software/S0075) or other utilities using the Win32 API. (Citation: Microsoft Reghide NOV 2006) Adversaries may abuse these pseudo-hidden keys to conceal payloads/commands used to maintain persistence. (Citation: TrendMicro POWELIKS AUG 2014) (Citation: SpectorOps Hiding Reg Jul 2017) The Registry of a remote system may be modified to aid in execution of files as part of lateral movement. It requires the remote Registry service to be running on the target system. (Citation: Microsoft Remote) Often [Valid Accounts](https://attack.mitre.org/techniques/T1078) are required, along with access to the remote system's [SMB/Windows Admin Shares](https://attack.mitre.org/techniques/T1021/002) for RPC communication.

Name

Archive Collected Data

ID

T1560

Description

An adversary may compress and/or encrypt data that is collected prior to exfiltration. Compressing the data can help to obfuscate the collected data and minimize the amount of data sent over the network. Encryption can be used to hide information that is being exfiltrated from detection or make exfiltration less conspicuous upon inspection by a

defender. Both compression and encryption are done prior to exfiltration, and can be performed using a utility, 3rd party library, or custom method.

Name

Scheduled Task/Job

ID

T1053

Description

Adversaries may abuse task scheduling functionality to facilitate initial or recurring execution of malicious code. Utilities exist within all major operating systems to schedule programs or scripts to be executed at a specified date and time. A task can also be scheduled on a remote system, provided the proper authentication is met (ex: RPC and file and printer sharing in Windows environments). Scheduling a task on a remote system typically may require being a member of an admin or otherwise privileged group on the remote system.(Citation: TechNet Task Scheduler Security) Adversaries may use task scheduling to execute programs at system startup or on a scheduled basis for persistence. These mechanisms can also be abused to run a process under the context of a specified account (such as one with elevated permissions/privileges). Similar to [System Binary Proxy Execution](https://attack.mitre.org/techniques/T1218), adversaries have also abused task scheduling to potentially mask one-time execution under a trusted system process. (Citation: ProofPoint Serpent)

Domain-Name

Value
lorenzmlwpzgxq736jzseuterytjueszsvznuibanxomlpkyxk6ksoyd.onion

IPv4-Addr

Value
143.198.207.6
168.100.9.216
167.99.6.112
165.232.165.215
134.209.96.37

External References

- https://research.nccgroup.com/2024/02/22/unmasking-lorenz-ransomware-a-dive-into-recent-tactics-techniques-and-procedures/
- https://otx.alienvault.com/pulse/65d858c13ba035a17b7ade40