INTELLIGENCE BRIEFING
Security Command Center
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Russian Intelligence Targets Signal Recovery Keys in Escalated Social Engineering Campaign

THREAT CAMPAIGN | **CRITICAL** | CVSS 9.5

SCC Item ID	SCC-CAM-2026-0587
Type	Threat Campaign
Severity	CRITICAL
CVSS Base Score	9.5
Affected Products	Signal (all versions with Backup Recovery Key feature), WhatsApp, Telegram
Published	2026-06-26T15:38:29
Discovery Source	Rss

Executive Summary

Russian intelligence-linked groups UNC5792 and UNC4221 have shifted tactics to steal Signal Backup Recovery Keys through social engineering, granting persistent access to complete message histories across government, military, and journalist accounts. Unlike one-time codes, these keys survive account resets, meaning compromised individuals lose durable confidentiality of all archived and future communications. No CVE applies to this campaign, it exploits social engineering and user behavior, not a software vulnerability. Organizations with personnel using Signal for sensitive communications face serious counterintelligence and operational security exposure, with multiple accounts confirmed compromised in this campaign.

Technical Analysis

UNC5792 and UNC4221, assessed as Russian intelligence-linked threat groups, have evolved their secure-messaging compromise campaign to target Signal Backup Recovery Keys rather than ephemeral SMS verification codes or PINs. Recovery Keys are long-lived cryptographic credentials that restore full message archives and authorize all future account backups, persisting through account re-creation on the same phone number. The attack chain exploits three weakness classes: CWE-1021 (UI redress/impersonation via fake support pages or trusted-contact spoofing), CWE-522 (insufficiently protected credentials, as Recovery Keys are often stored in plaintext screenshots or cloud backups), and CWE-287 (improper authentication bypass once the key is surrendered). MITRE ATT&CK techniques in use include T1566 and T1566.004 (phishing and spear-phishing via service), T1598 (phishing for information), T1621 (multi-factor authentication request generation), T1539 (steal web session cookie), T1530 (data from cloud storage), T1056 (input capture), T1199

(trusted relationship abuse), and T1078 (valid accounts). Secondary targeting extends to WhatsApp and Telegram, indicating a broader objective of disrupting secure-messaging confidentiality across high-value targets. No software patch exists; mitigation is procedural and policy-based. Threat intelligence reporting documents this tactical evolution.

Action Checklist

1. Step 1: Containment. Immediately audit whether any personnel with access to sensitive communications have recently received unsolicited messages requesting Signal Recovery Keys, backup codes, or account verification from unfamiliar or spoofed contacts. Identify and isolate any accounts where key disclosure is suspected. Instruct personnel to disable cloud backup on Signal (Settings > Chats > Chat Backups) to prevent further key exposure. Reference NIST AC-17 (Remote Access) and AC-2 (Account Management) for access control review scope.
2. Step 2: Detection. Review mobile device management (MDM) logs and endpoint activity for screenshots of Signal settings screens, unexpected Signal re-registrations, or cloud storage uploads containing Recovery Key strings. Monitor for phishing lure patterns: domains impersonating Signal support, Google or Apple account recovery pages, or trusted-contact display names. Look for MITRE T1598 indicators, unsolicited credential-request messages arriving via Signal, SMS, or email. Correlate with AU-6 (Audit Record Review) requirements for anomalous access events. Note: No confirmed IOCs (IPs, domains, file hashes) are available from the source material for this campaign.
3. Step 3: Eradication. For any account where key compromise is confirmed or suspected: revoke the current Recovery Key by regenerating it within Signal (Settings > Account > Generate New Recovery Key). Re-register the Signal account on a clean device. Enforce organizational policy prohibiting storage of Recovery Keys in screenshots, cloud drives, or messaging apps. Apply CIS 5.2 (Use Unique Passwords) principles to Recovery Key handling, treating keys as high-value secrets with equivalent protection to root credentials.
4. Step 4: Recovery. Validate that affected accounts have new Recovery Keys generated and that old keys are no longer stored in any accessible location (cloud drives, email, device camera roll). Confirm that cloud backup is disabled or re-enabled only with a freshly generated key on a verified clean device. Monitor re-registered accounts for unexpected linked devices (Signal Settings > Linked Devices) for 30 days post-remediation. Apply AU-11 (Audit Record Retention) to preserve logs of the remediation chain for forensic continuity.
5. Step 5: Post-Incident. Conduct a tabletop exercise reviewing social engineering recognition for the specific lure patterns used in this campaign (fake Signal support, trusted-contact impersonation). Update security awareness training to cover secure-messaging credential hygiene, treating Recovery Keys as equivalent to master passwords. Evaluate whether Signal's linked-device feature requires additional policy controls. Map control gaps against NIST AC-6 (Least Privilege) and CIS 6.3 (Require MFA for Externally-Exposed Applications) to reduce future credential-exposure surface. Document findings per IR policy aligned with NIST IR family requirements.

IR / Forensic Enrichment

Triage Priority	IMMEDIATE

Escalation Criteria	Escalate to CISO, legal counsel, and relevant government authority (e.g., CISA for federal entities, NSA NCSC for defense contractors) immediately if any confirmed or suspected key disclosure involves personnel handling classified information, active intelligence sources, or communications subject to mandatory breach notification under applicable regulation (e.g., FISMA, DFARS 252.204-7012, or applicable state breach notification law if PII was transmitted over the compromised Signal account).
Recovery Notes	Post-containment recovery is not complete until every at-risk account has a verified new Recovery Key stored exclusively offline, cloud backup status is confirmed disabled or re-initialized with the new key on a clean device, and the Linked Devices list shows only explicitly authorized sessions. Given that UNC5792 and UNC4221 target persistent access — meaning a successfully exfiltrated Recovery Key grants retrospective access to the full archived message history — recovery must also include a communications security (COMSEC) damage assessment: identify what sensitive content was transmitted via Signal by affected accounts during the window of potential compromise and notify relevant stakeholders of the confidentiality breach for those specific communications. Maintain the 30-day Linked Devices monitoring cadence without exception, as threat actors with a valid Recovery Key can re-link a device at any time until the key is invalidated.
Forensic Artifacts	Signal Linked Devices list with device names and last-active timestamps — captured from Settings > Linked Devices on the compromised device before any account action; a rogue linked device added by UNC5792 or UNC4221 after Recovery Key theft will appear here as an unrecognized entry and is destroyed as evidence the moment re-registration occurs. | Cloud storage audit logs (Google Drive activity log or iCloud account history) filtered for uploads originating from Signal's Android sandbox path '/data/data/org.thoughtcrime.securesms/' or equivalent iOS container — Recovery Key exfiltration via the social engineering lure may have involved the user photographing or screenshotting the key, with the image auto-synced to cloud storage. | Mobile device screenshot files in camera roll with EXIF timestamps correlating to the period of reported social engineering contact — UNC5792 and UNC4221 lures instruct victims to screenshot their Recovery Key as part of a fake 'verification' process; the resulting image file is a primary artifact of the attack. | Email gateway and SMS gateway logs searched for outbound messages containing 39-character alphanumeric strings in the format used by Signal Recovery Keys (8 groups of 4 characters) — victims may have forwarded or transmitted the key to the attacker-controlled lure address, leaving a record in mail or SMS logs. | DNS resolver query logs for the 60 days preceding discovery, searched for resolution of domains mimicking Signal infrastructure (e.g., 'signal-support[.]net', 'signal-verify[.]com', 'signa1[.]org') — UNC5792 and UNC4221 infrastructure used to host phishing lures impersonating Signal support or trusted-contact pages will appear in DNS telemetry if the victim clicked a link in the social engineering message.

Per-Action IR Details

Step 1: Containment — Immediately audit whether any personnel with access to sensitive communications have recently received unsolicited messages requesting Signal Recovery Keys, backup codes, or account verification from unfamiliar or spoofed contacts. Identify and isolate any accounts where key disclosure is suspected. Instruct personnel to disable cloud backup on Signal (Settings > Chats > Chat Backups) to prevent further key exposure. Reference NIST AC-17 (Remote Access) and AC-2 (Account Management) for access control review scope.

NIST Phase: Containment

Reference: NIST 800-61r3 §3.3 — Containment Strategy

Controls: NIST AC-2 (Account Management), NIST AC-12 (Session Termination), CIS 6.2 (Establish an Access Revoking Process)

Compensating: Without MDM, conduct a direct personnel survey using a scripted questionnaire distributed via out-of-band secure channel (not Signal): ask specifically whether anyone received messages claiming to be Signal Support, a trusted contact requesting key verification, or a device-linking QR code. Cross-reference Signal's Linked Devices list manually on each at-risk device (Signal > Settings > Linked Devices) and document any unrecognized entries with timestamps. Two-person team can complete a 20-person audit in under two hours using a shared spreadsheet tracker.

Evidence: Before disabling cloud backup or unlinking any devices, capture: (1) screenshots of Signal Settings > Linked Devices showing all active linked sessions with device names and last-active timestamps; (2) on Android, export Signal notification history via ADB ('adb shell dumpsys notification > notification_dump.txt') to preserve inbound message metadata without decrypting content; (3) on iOS, capture device screen recordings of Settings > Privacy > Locations and Screen Time > App Activity to surface anomalous Signal session timing; (4) if MDM is present, pull MDM event logs for any Signal re-registration events (new device UUID enrollment) in the 30-day window preceding discovery. Volatile session state is destroyed the moment cloud backup is toggled or a linked device is removed.

Step 2: Detection — Review mobile device management (MDM) logs and endpoint activity for screenshots of Signal settings screens, unexpected Signal re-registrations, or cloud storage uploads containing Recovery Key strings. Monitor for phishing lure patterns: domains impersonating Signal support, Google or Apple account recovery pages, or trusted-contact display names. Look for MITRE T1598 indicators — unsolicited credential-request messages arriving via Signal, SMS, or email. Correlate with AU-6 (Audit Record Review) requirements for anomalous access events. No specific IOC hashes or IPs are confirmed in provided source material.

NIST Phase: Detection Analysis

Reference: NIST 800-61r3 §3.2 — Detection and Analysis

Controls: NIST AU-6 (Audit Record Review, Analysis, And Reporting), NIST AU-2 (Event Logging), CIS 8.2 (Collect Audit Logs)

Compensating: Without a SIEM, use the following targeted procedures: (1) Query Google Workspace or M365 audit logs for file creation events in Drive/OneDrive matching the pattern '*recovery*key*', '*signal*backup*', or '*30-digit*' in the 60-day lookback window; (2) on corporate DNS resolvers, grep query logs for domains containing 'signal-support', 'signal-verify', 'signal-recovery', or typosquats (e.g., 'signa1.org', 'signal-app.net') using 'grep -iE "signal.?(support|verify|recover|account)" /var/log/named/query.log'; (3) deploy a free PhishTank or OpenPhish feed lookup against any suspicious URLs extracted from personnel reports; (4) on Android devices enrolled in basic MDM, pull package install/uninstall logs to detect sideloaded APKs mimicking Signal.

Evidence: Capture before any account action: (1) full MDM event log export covering Signal app version changes, re-installations, and permission changes (camera, storage) for the 60 days preceding discovery — UNC5792 and UNC4221 lures have included QR code scanning, which requires camera permission grant events; (2) cloud storage provider audit logs (Google Drive activity log or iCloud account history) filtered for uploads from Signal's sandbox directory path ('/data/data/org.thoughtcrime.securesms/' on Android) or iOS equivalents; (3) email gateway logs or mobile email client sent/received folders for messages containing 39-character alphanumeric strings matching Signal Recovery Key format (groups of 4 characters separated by spaces or hyphens); (4) any screenshots stored in device camera roll with filenames auto-generated during screen capture of Signal settings screens (iOS: 'IMG_XXXX.PNG' with EXIF timestamp correlating to reported social engineering contact time).

Step 3: Eradication — For any account where key compromise is confirmed or suspected: revoke the current Recovery Key by regenerating it within Signal (Settings > Account > Generate New Recovery Key). Re-register the Signal account on a clean device. Enforce organizational policy prohibiting storage of Recovery Keys in screenshots, cloud drives, or messaging apps. Apply CIS 5.2 (Use Unique Passwords) principles to Recovery Key handling, treating keys as high-value secrets with equivalent protection to root credentials.

NIST Phase: Eradication

Reference: NIST 800-61r3 §3.4 — Eradication

Controls: NIST AC-2 (Account Management), NIST AC-6 (Least Privilege), CIS 5.2 (Use Unique Passwords), CIS 5.4 (Restrict Administrator Privileges to Dedicated Administrator Accounts)

Compensating: For teams without enterprise credential vaults: instruct personnel to store the newly generated Signal Recovery Key exclusively in a printed physical copy held in a locked location, or in an offline password manager (KeePassXC on an air-gapped device). Provide a one-page SOP with exact steps: (1) Signal > Settings > Account > Delete Recovery Key (invalidates the compromised key); (2) generate new key; (3) immediately write it down, confirm it on paper, and store physically — never photograph it. Conduct a two-person witness procedure for key regeneration on accounts belonging to high-value targets (government, military, journalist roles).

Evidence: Before re-registering or regenerating the key, capture: (1) a full Signal database backup from the compromised device for forensic preservation — on Android, use ADB backup ('adb backup -noapk org.thoughtcrime.securesms') before factory reset; this preserves encrypted message store for potential future decryption if keys are later recovered; (2) the current Linked Devices list with timestamps (volatile — destroyed upon re-registration); (3) network traffic snapshot using Wireshark or 'tcpdump -i wlan0 -w signal_pre_eradication.pcap' on the device's Wi-Fi interface immediately before re-registration to capture any exfiltration beaconing by a rogue linked device; (4) document the exact timestamp of key invalidation for forensic chain-of-custody records, as this timestamp establishes the boundary between potentially compromised and clean communications.

Step 4: Recovery — Validate that affected accounts have new Recovery Keys generated and that old keys are no longer stored in any accessible location (cloud drives, email, device camera roll). Confirm that cloud backup is disabled or re-enabled only with a freshly generated key on a verified clean device. Monitor re-registered accounts for unexpected linked devices (Signal Settings > Linked Devices) for 30 days post-remediation. Apply AU-11 (Audit Record Retention) to preserve logs of the remediation chain for forensic continuity.

NIST Phase: Recovery

Reference: NIST 800-61r3 §3.5 — Recovery

Controls: NIST AU-11 (Audit Record Retention), NIST AU-9 (Protection Of Audit Information), CIS 3.4 (Enforce Data Retention), CIS 1.1 (Establish and Maintain Detailed Enterprise Asset Inventory)

Compensating: Without SIEM-based continuous monitoring, implement a manual 30-day watch cadence: assign each affected user a weekly self-audit checklist — Signal > Settings > Linked Devices review every 7 days with results reported to the security team via out-of-band channel (not Signal). For cloud storage sweep, run a free Google Takeout or iCloud data export for affected accounts and grep the output for 39-character key-format strings using 'grep -oE "([A-Za-z0-9]{4}[-]){8}[A-Za-z0-9]{4}" export_dump.txt'. Document each clean-check result with date, reviewer, and device serial number to establish a remediation audit trail.

Evidence: Preserve as part of the remediation record: (1) timestamped screenshots of the new Linked Devices list immediately post-re-registration (baseline for anomaly comparison during the 30-day watch period); (2) cloud storage provider audit logs confirming deletion of any Recovery Key-containing files, with deletion event timestamps; (3) MDM enrollment record for the clean replacement device, confirming device UUID and enrollment date; (4) retain all pre-remediation forensic captures (ADB backup, network pcap, notification dump) under chain-of-custody for a minimum 12 months per NIST AU-11 (Audit Record Retention) to support any future counterintelligence or law enforcement referral — UNC5792 and UNC4221 operations have intelligence community equities that may require preserved evidence.

Step 5: Post-Incident — Conduct a tabletop exercise reviewing social engineering recognition for the specific lure patterns used in this campaign (fake Signal support, trusted-contact impersonation). Update security awareness training to cover secure-messaging credential hygiene, treating Recovery Keys as equivalent to master passwords. Evaluate whether Signal's linked-device feature requires additional policy controls. Map control gaps against NIST AC-6 (Least Privilege) and CIS 6.3 (Require MFA for Externally-Exposed Applications) to reduce future credential-exposure surface. Document findings per IR policy aligned with NIST IR family requirements.

NIST Phase: Post Incident

Reference: NIST 800-61r3 §4 — Post-Incident Activity

Controls: NIST AC-6 (Least Privilege), NIST AU-6 (Audit Record Review, Analysis, And Reporting), CIS 6.3 (Require MFA for Externally-Exposed Applications), CIS 7.1 (Establish and Maintain a Vulnerability Management Process)

Compensating: For teams without a dedicated training platform: build a one-hour tabletop scenario document (free, Word/PDF) that walks participants through the exact UNC5792 and UNC4221 lure sequence — a spoofed trusted-contact Signal message requesting key verification, followed by a fake Signal support page requesting the 39-character key. Use Signal's own published documentation on Recovery Key purpose as the factual anchor. Distribute a one-page 'Signal Security Card' to all personnel covering three rules: (1) Signal support will never contact you via Signal; (2) no legitimate process requires sharing your Recovery Key with another person; (3) any QR code received via message that claims to link a trusted device is an attack vector. Store all tabletop outputs and gap findings in a write-protected shared drive folder retained for 12 months.

Evidence: For post-incident documentation, compile: (1) the complete personnel survey responses from Step 1 (social engineering contact reports) — these constitute the incident timeline and inform detection rule improvements; (2) the 30-day Linked Devices monitoring log from Step 4 — any anomalies during this period may indicate a second-stage compromise not caught during initial eradication; (3) DNS query logs and email gateway logs collected during detection (Step 2) retained as indicators to seed future threat hunting for UNC5792/UNC4221 infrastructure reuse; (4) a written lessons-learned report specifically addressing why Signal Recovery Key handling was not covered in prior security awareness training, and what policy change closes that gap.

Detection Guidance

Note: No confirmed IOCs (IPs, domains, file hashes) are available from the source material for this campaign. Detection must rely on behavioral and procedural indicators. Monitor for: (1) Unsolicited inbound messages via Signal, SMS, or email requesting account verification, backup codes, or Recovery Keys, consistent with MITRE T1598 (Phishing for Information) and T1566.004. (2) MDM or endpoint logs showing Signal settings screens captured as screenshots or uploaded to cloud storage, indicating possible key exfiltration via CWE-522. (3) Signal re-registration events on devices belonging to high-value personnel (government, military, legal, media roles), which may indicate account takeover using a surrendered key. (4) Newly linked devices appearing in Signal account settings without user initiation, consistent with T1078 (Valid Accounts) abuse post-key capture. (5) Phishing domains impersonating Signal support or Google/Apple account recovery, consistent with T1566 and CWE-1021. Prioritize detection efforts on personnel matching the reported target profile: government officials, military personnel, journalists, and individuals with Ukraine-related communications. Align logging coverage with AU-2 (Event Logging) and AU-6 (Audit Record Review) to ensure MDM, email gateway, and cloud storage events are centrally reviewable.

Indicators of Compromise

Type	Value	Context	Confidence
DOMAIN	`not confirmed in source material`	No specific phishing domains or infrastructure IOCs were available in verified sources for this campaign at time of publication	LOW

Framework Mappings

MITRE-ATTACK

- **T1530** — Data from Cloud Storage
- **T1539** — Steal Web Session Cookie
- **T1056** — Input Capture
- **T1199** — Trusted Relationship
- **T1598** — Phishing for Information
- **T1566.004** — Spearphishing Voice
- **T1621** — Multi-Factor Authentication Request Generation
- **T1078** — Valid Accounts
- **T1566** — Phishing

NIST-800-53R5

- **AC-2** — Account Management
- **AC-6** — Least Privilege
- **IA-2** — Identification and Authentication (Organizational Users)
- **IA-5** — Authenticator Management
- **AT-2** — Literacy Training and Awareness
- **CA-7** — Continuous Monitoring
- **SC-7** — Boundary Protection
- **SI-3** — Malicious Code Protection
- **SI-4** — System Monitoring
- **SI-8** — Spam Protection
- **IA-8** — Identification and Authentication (Non-Organizational Users)

OWASP-TOP10-2021

- **A04:2021** — Insecure Design
- **A07:2021** — Identification and Authentication Failures

CIS-V8

- **5.2** — Use Unique Passwords
- **6.3** — Require MFA for Externally-Exposed Applications
- **6.4** — Require MFA for Remote Network Access
- **6.5** — Require MFA for Administrative Access
- **14.2** — Train Workforce Members to Recognize Social Engineering Attacks

HIPAA-SECURITY

- **164.308(a)(5)(ii)(D)** — Password Management
- **164.312(d)** — Person or Entity Authentication
- **164.308(a)(5)(i)** — Security Awareness and Training

SOC2-TSC

- **CC6.1** — The entity implements logical access security software, infrastructure, and architectures over protected information assets

ISO-27001-2022

- **A.5.34** — Privacy and protection of personal information

MITRE ATT&CK Mapping

Technique ID	Technique Name	Tactic
T1530	Data from Cloud Storage	Collection
T1539	Steal Web Session Cookie	Credential-Access
T1056	Input Capture	Collection
T1199	Trusted Relationship	Initial-Access
T1598	Phishing for Information	Reconnaissance
T1566.004	Spearphishing Voice	Initial-Access
T1621	Multi-Factor Authentication Request Generation	Credential-Access
T1078	Valid Accounts	Defense-Evasion
T1566	Phishing	Initial-Access

Sources

Source	URL	Tier
Security News	https://thehackernews.com/2026/06/fbi-warns-russian-intelligence-ha...	T3
[PDF] A security analysis comparison between Signal, WhatsApp and ...	https://eprint.iacr.org/2023/071.pdf	T3
signal vs. whatsapp vs. telegram. (who wins?) - YouTube	https://www.youtube.com/watch?v=_8CF3HXjtO8	T3
CISA warns of state-backed attacks on Signal, WhatsApp, Telegram ...	https://www.reddit.com/r/Information_Security/comments/1p8geca/cisa...	T3
in(Secure) messaging apps — How side-channel attacks can ...	https://blog.talosintelligence.com/secureim/	T3

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