



Critical Vulnerability in Citrix NetScaler

CRITICALITY



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Recommendations



Prevention



Detection



Remediation



Response



MITRE ATT&CK

Summary

Citrix has patched two vulnerabilities in Citrix NetScaler ADC and NetScaler Gateway, including a critical exploited vulnerability that could allow the disclosure of sensitive information. The company highly recommends all customers upgrade to the fixed version that implements security updates addressing the two flaws.



Threat Details

Citrix has released a security update to address two vulnerabilities affecting NetScaler ADC and NetScaler Gateway.

- CVE-2023-4966 is an exploited critical vulnerability with a CVSS score of 9.4. The exploitation of the vulnerability can be done remotely through simple attacks without requiring high privileges, even without user interaction. Successful exploitation allows unauthenticated attackers to steal authentication sessions and hijack accounts, potentially bypassing multifactor authentication.
- CVE-2023-4967 has a CVSS score of 8.4 and it can potentially cause a Denial of Service (DoS) attack on the vulnerable appliances.

In order for the appliance to be vulnerable to attacks, it is a prerequisite that it is configured as a Gateway (VPN virtual server, ICA Proxy, CVPN, RDP Proxy) or an AAA virtual server.



Recommendations



Prevention

- **Appendix A** contains the recommendations to prevent such attacks.

References

NetScaler ADC and NetScaler Gateway Security Bulletin for CVE-2023-4966 and CVE-2023-4967. (2023, October). Retrieved from citrix:
<https://support.citrix.com/article/CTX579459/netscaler-adc-and-netscaler-gateway-security-bulletin-for-cve20234966-and-cve20234967>

Shetty, A. (2023, october). *CVE-2023-4966: Critical security update now available for NetScaler ADC and NetScaler Gateway.* Retrieved from netscaler:
<https://www.netscaler.com/blog/news/cve-2023-4966-critical-security-update-now-available-for-netscaler-adc-and-netscaler-gateway/>



Contact Us

Bahrain National CERT - National Cyber Security Center “NCSC”

Email: CERT@ncsc.gov.bh



Appendix A – Prevention

The National Cyber Security Center recommends the entities to:

- Update to the latest supported version.
- As a temporary solution, kill all active persistent sessions using the following commands:
 - kill icaconnection -all
 - kill rdp connection -all
 - kill pcoipConnection -all
 - kill aaa session -all
 - clear lb persistentSessions

The affected products:

- NetScaler ADC and NetScaler Gateway 14.1 before 14.1-8.50
- NetScaler ADC and NetScaler Gateway 13.1 before 13.1-49.15
- NetScaler ADC and NetScaler Gateway 13.0 before 13.0-92.19
- NetScaler ADC 13.1-FIPS before 13.1-37.164
- NetScaler ADC 12.1-FIPS before 12.1-55.300
- NetScaler ADC 12.1-NDcPP before 12.1-55.300

Note: NetScaler ADC and NetScaler Gateway version 12.1 is now End-of-Life (EOL) and is vulnerable.



Appendix B – Best Practices

Bahrain National CERT team recommends organizations to implement the following best security practices.

- Backup daily important new/changed data, software and configuration settings, store disconnected data retained for at least three months. Test restoration initially, annually, and when IT infrastructure changes.
- Patch operating systems. Patch/mitigate computers (including network devices) with 'extreme risk' vulnerabilities within 48 hours. Use the latest operating system version. Don't use unsupported versions.
- Patch applications e.g. Flash, web browsers, Microsoft Office, Java and PDF viewers. Patch/mitigate computers with 'extreme risk' vulnerabilities within 48 hours. Use the latest version of applications.
- Restrict administrative privileges to operating systems and applications based on user role. Regularly reassess the need for privileges. Don't use privileged accounts to read emails or to browse the web.
- Configure Microsoft Office macro settings to block macros from the Internet, and only allow vetted macros either in 'trusted locations' with limited write access or digitally signed with a trusted certificate.
http://www.asd.gov.au/publications/protect/Microsoft_Office_Macro_Security.pdf
- Whitelist applications of approved/trusted programs to prevent execution of unapproved/malicious programs including .exe, DLL, scripts (e.g. Windows Script Host, PowerShell and HTA) and installers.
- Harden user application. Configure web browsers to block Flash (ideally uninstall it), ads and Java on the Internet. Disable unneeded features in Microsoft Office (e.g. OLE), web browsers and PDF viewers.
- Activate multi-factor authentication for VPNs, Outlook Web Access (OWA), RDP, SSH and other remote access for all users when they perform a privileged action or access an important (sensitive or high-availability) data repository.
- Implement CIS Critical Security Controls while prioritizing the implementation of the top 5 CIS Controls. (<https://www.cisecurity.org/critical-controls.cfm>)
- Implement strategies to mitigate cyber security incidents.
(<http://www.asd.gov.au/infosec/mitigationstrategies.htm>)

CERT.bh recommends organizations to implement the following strategies to detect and respond to cyber security incidents:

- Use network-based intrusion detection/prevention system using signatures and heuristics to identify anomalous traffic both internally and crossing network perimeter boundaries.
- Use The host-based intrusion detection/prevention system to identify anomalous behaviour during program execution e.g. process injection, keystroke logging, driver loading and persistence mechanisms.
- Use endpoint detection and response software on all computers to centrally log systems' behaviour and facilitate incident response. Microsoft's free SysMon tool is an entry level option.



- Enhance visibility through PowerShell logging to provide investigators a detection mechanism for malicious activity and a historical record of how PowerShell was used on systems.
https://www.fireeye.com/blog/threat-research/2016/02/greater_visibility.html
- Hunt to discover incidents using threat intelligence consisting of analyzed threat data with indicators of compromise and mitigating threats based on behaviour patterns.
- Capture network traffic to and from internal systems that store important data or are considered critical assets, and network traffic traversing the network perimeter, to assist with incident detection and analysis.
- Detect and response to incidents continuously with automated immediate analysis of centralised time-synchronised logs of permitted and denied: computer events, authentication, file access, network activity.
- Refer to MITRE Corporation which provides a public repository that includes a model and framework for describing the actions attackers may take while operating within an enterprise network. These details can aid organizations in detecting attacker activities.
 - https://attack.mitre.org/wiki/Main_Page
 - https://car.mitre.org/wiki/Full_Analytic_List
 - <https://car.mitre.org/caret/#/>



Appendix C – TLP Definitions

RED

For the eyes and ears of individual recipients only, no further disclosure. Sources may use TLP:RED when information cannot be effectively acted upon without significant risk for the privacy, reputation, or operations of the organizations involved. Recipients may therefore not share TLP:RED information with anyone else. In the context of a meeting, for example, TLP:RED information is limited to those present at the meeting.

AMBER

Limited disclosure, recipients can only spread this on a need-to-know basis within their organization and its clients. Note that **TLP:AMBER+STRICT** restricts sharing to the organization only. Sources may use TLP:AMBER when information requires support to be effectively acted upon, yet carries risk to privacy, reputation, or operations if shared outside of the organizations involved. Recipients may share TLP:AMBER information with members of their own organization and its clients, but only on a need-to-know basis to protect their organization and its clients and prevent further harm. Note: if the source wants to restrict sharing to the organization only, they must specify TLP:AMBER+STRICT.

GREEN

Limited disclosure, recipients can spread this within their community. Sources may use TLP:GREEN when information is useful to increase awareness within their wider community. Recipients may share TLP:GREEN information with peers and partner organizations within their community, but not via publicly accessible channels. TLP:GREEN information may not be shared outside of the community. Note: when “community” is not defined, assume the cybersecurity/defense community.

CLEAR

Recipients can spread this to the world, there is no limit on disclosure. Sources may use TLP:CLEAR when information carries minimal or no foreseeable risk of misuse, in accordance with applicable rules and procedures for public release. Subject to standard copyright rules, TLP:CLEAR information may be shared without restriction