NCP Secure Enterprise macOS Client
Release Notes

Service Release: **4.70 r30008**
Date: **April 2023**

Prerequisites

Apple macOS operating systems:
The following macOS operating systems are supported with this version on hardware with Apple silicon or Intel CPU:

- macOS 15 Sequoia (Supplement from September 16, 2024)
- macOS 14 Sonoma (Supplement from September 26, 2023)
- macOS 13 Ventura
- macOS 12 Monterey (no longer supported after September 16, 2024)
- macOS 11 Big Sur (no longer supported after September 26, 2023)

Prerequisites for operation with Secure Enterprise Management

NCP Secure Enterprise Management Server version 6.10 is required for central management of NCP Secure Enterprise Clients. The following plug-ins must be installed:

- Client Configuration Plug-in 13.10
- License Plug-in 13.00

Limitations since version 4.60

This version of the client, unlike previous client versions, does not include firewall functionality. Users who want to use this firewall functionality should - if possible - use the previous version 4.0 of the client.

1. New Features and Enhancements

User authentication via SAML protocol

With the availability of NCP Secure Enterprise Management Server 6.20, the NCP solution includes a new user authentication via SAML protocol. This enables user authentication to the identity services Microsoft Azure AD or Okta. The logon occurs after clicking on the Connect button of the NCP Secure Client, whereupon the standard web browser opens with the logon page of the configured identity service. A successful login is passed through to the NCP Secure Enterprise Management via the NCP Authentication Server and the connection setup is started in the NCP Secure Client.

2. Improvements / Problems Resolved

Update to zlib version 1.2.12

The zlib version used in the VPN client was raised to 1.2.12. This closed the zlib security vulnerability [CVE-2018-25032].

Incorrect display of the Connect/Disconnect button

Occasionally, an incorrect display of the Connect/Disconnect button was observed. This problem has been fixed.

The display of the PIN policy when changing the PIN has been revised.

Update to OpenSSL version 1.0.2zg

The OpenSSL version used in the NCP Secure Client has been upgraded to 1.0.2zg.

3. Known Issues

Location for certificate files

Along with customizations for macOS Catalina, p12 certificate files in the client cannot be used from arbitrary locations. In the case of automatically created directories in the user's home directory, such as `Documents`, `Desktop`, `Downloads`, etc., the error "Access denied" appears. If the certificate files are stored directly in a directory below the user home directory, access works.

Americas: NCP engineering, Inc. • 19321 US Highway 19 N, Suite 401 • Clearwater, FL 33764 • Phone: +1 (650) 316-6273 • www.ncp-e.com
Deutschland: NCP engineering GmbH • Dombühler Str. 2 • 90449 Nürnberg • Fon +49 911 9968-0 • Fax +49 911 9968-299

Service Release: **4.61 r29053**
Date: **December 2021**

Prerequisites

Apple macOS operating systems:
The following macOS operating systems are supported with this version on hardware with Apple M1 chip or Intel CPU:

- macOS 11 Big Sur
- macOS 12 Monterey

Prerequisites for operation with Secure Enterprise Management

NCP Secure Enterprise Management (SEM) version 5.30 is required for central management of NCP Secure Enterprise Clients. The following plug-ins must be installed:

- Client Configuration Plug-in 12.21
- License Plug-in 12.11

Limitations since version 4.60

This version of the client, unlike previous client versions, does not include firewall functionality. Users who want to use this firewall functionality should - if possible - use the previous version 4.0 of the client.

1. New Features and Enhancements

None.

2. Improvements / Problems Resolved

Split tunneling

Under certain circumstances not all split tunneling entries were executed correctly by the client. This problem has been fixed.

IKEv1 Rekeying

The client's compatibility regarding IKEv1 rekeying with third-party gateways has been improved.

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3. Known Issues

Location for certificate files

Along with customizations for macOS Catalina, p12 certificate files in the client cannot be used from arbitrary locations. In the case of automatically created directories in the user's home directory, such as `Documents`, `Desktop`, `Downloads`, etc., the error "Access denied" appears. If the certificate files are stored directly in a directory below the user home directory, access works.

Service Release: **4.60 r29048**
Date: **October 2021**

Prerequisites

Apple macOS operating systems:
The following macOS operating systems are supported with this version on hardware with Apple M1 chip or Intel CPU:

- macOS 11 Big Sur
- macOS 12 Monterey

Prerequisites for operation with Secure Enterprise Management

NCP Secure Enterprise Management (SEM) version 5.30 is required for central management of NCP Secure Enterprise Clients. The following plug-ins must be installed:

- Client Configuration Plug-in 12.21
- License Plug-in 12.11

Limitations in this version 4.60

This version of the client, unlike previous client versions, does not include firewall functionality. Users who want to use this firewall functionality should - if possible - use the previous version 4.0 of the client.

1. New Features and Enhancements

Adaptation to macOS 11 Big Sur and macOS 12 Monterey as well as Apple M1 chip

From this version on, the client is compatible with the Apple M1 chip as well as the previous Intel CPU. The operating systems macOS 11 Big Sur and macOS 12 Monterey are required.

2. Improvements / Problems Resolved

The user rights of the installation directory have been adjusted

Unintendedly it was possible for a user to perform actions in the root context due to incorrectly set user rights of the installation directory. This problem has been fixed.

MFA dialog is not displayed completely

Display errors occurred when using multi-factor authentication. The previous display window was too small for particularly long texts. This problem has been fixed.

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Incorrect caching of domain names when changing profile

Domain names are incorrectly cached after profile change. This problem has been fixed.

Configuration Split Tunneling: "Also redirect local networks in the tunnel" added

Until now, it was only possible to forward local networks in the tunnel in the Windows client. This is now also possible in the macOS client.

Problems with the configuration change from IPv4 to IPv6

After switching from IPv4 to IPv6 in the profile, the IPv6 table was not available under Split Tunneling. This problem has been fixed.

Support for PEM and DER format regardless of file extension

Previously, only files with .pem file extension were read as PEM format, all others were read as binary DER format only. Now both DER and PEM formats are supported for .cer and .crt file extensions as well.

Missing menu bar after starting the computer

After starting the computer, under certain circumstances the client menu bar was not displayed in the foreground despite the client GUI being active. This problem has been fixed.

Error importing the configuration locks

Importing configuration locks via INI configuration file was incorrect. This problem has now been fixed.

Update to OpenSSL version 1.0.2u-8

The OpenSSL version used in the NCP Secure Client was upgraded to 1.0.2u-8. This closed the OpenSSL vulnerability CVE-2020-1971.

Optimized DNS request handling

The newly implemented network adapter enables the handling of DNS requests.

Improvements in VPN Path Finder in connection with a configured proxy

If a VPN connection was previously established using Pathfinder and a proxy for Pathfinder, no request was made to the proxy server. This is now possible because of an improvement in the dynamic configuration transfer.

Crash of the ncprwsmac service.

In rare cases, the ncprwsmac service crashed. This problem has been fixed.

3. Known Issues

Location for certificate files

Along with customizations for macOS Catalina, p12 certificate files in the client cannot be used from arbitrary locations. In the case of automatically created directories in the user's home directory, such as `Documents`, `Desktop`, `Downloads`, etc., the error "Access denied" appears. If the certificate files are stored directly in a directory below the user home directory, access works.

Major Release: **4.00 r46079**
Date: **October 2019**

Prerequisites

Apple macOS operating systems:
The following Apple macOS operating systems are supported with this release:

- macOS Catalina 10.15
- macOS Mojave 10.14
- macOS High Sierra 10.13

Prerequisites for operation with the Secure Enterprise Management

Centralized management of NCP Secure Enterprise Clients requires NCP Secure Enterprise Management (SEM) version 5.20. The following plug-ins must be installed:

- Client Configuration Plug-in 12.01
- License Plug-in 12.01
- Firewall Plug-in 12.00

1. New Features and Enhancements

Update for macOS Catalina 10.15

The macOS client is certified by Apple from this version and is therefore fully compatible with macOS Catalina 10.15. Permission to install the kernel extension must be granted explicitly during installation in the “Security and Privacy” settings.

Virtual Network Adapter

The macOS client has its own virtual network adapter. This allows VoIP applications to route data through the VPN tunnel. It also means that the client can use the IP protocol within the VPN tunnel even when this protocol is not used in the physical network. Example: IPv6 can be used within the VPN Tunnel although the physical network only supports IPv4.

Connect/Disconnect Dock Menu

If a VPN profile is configured for the VPN client, the selected connection can be connected or disconnected via a right click on the Dock menu icon.

2. Improvements / Problems Resolved

Optimized DNS Request Handling

With the implementation of the new network adapter, the handling of DNS requests has been improved. This supports two different modes:

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1. Split tunneling disabled
   If split tunneling is disabled, all communication to other IP addresses that are not within the current IP address range is routed via the VPN tunnel. This also to DNS requests.
2. Split tunneling enabled
   In this mode the IP remote networks are defined in the split tunneling configuration. If the destinations are addressed within the remote network, the data is routed via the VPN tunnel. All other data – in particular DNS requests – bypass the VPN tunnel. This means that destinations on the remote network cannot initially be reached via their domain names, as public DNS servers do not usually resolve internal company DNS names.
   This problem can be avoided by explicitly adding internal domain names that are used within the remote network to the configuration. For example, adding the entry `company.local` will ensure that relevant DNS requests such as `intranet.company.local` are correctly routed through the VPN tunnel to the internal company DNS server.
   This configuration option enables the separation of data which is routed through the VPN tunnel and data that bypasses the VPN tunnel.

New Connection Mode

The “Automatic” connection mode has been removed and the “Always” connection mode has been added. If the connection mode is set to “Always” the client will continuously attempt to establish a connection. In comparison to the “Automatic” mode, the connection attempt will be made even without pending data transfer.

3. Known Issues

Certificate File Location

Following the updates for macOS Catalina, p12 certificate files may no longer be stored in any location. If the user attempts to store the certificate file in a system folder created automatically in the home directory such as `Documents`, `Desktop` or `Downloads`, the message "Permission denied" will be displayed. Users can only save certificate files in a folder directly beneath the home directory.

4. Getting Help for the NCP Secure Enterprise macOS Client

To ensure that you always have the latest information about NCP's products, always check the NCP website at:
https://www.ncp-e.com/en/service-resources/download-vpn-client/version-information/

E-Mail: support@ncp-e.com

5. Features

Operating Systems

See Prerequisites on page 1.

Central Management

As the Single Point of Management, NCP's Secure Enterprise Management (SEM) provides functionality and automation for the rollout, commissioning and efficient use of Secure Enterprise Clients.

Using the VPN connection or the LAN (when on the company network), the Secure Enterprise Management (SEM) provides Enterprise Clients automatically with:

- configuration updates
- certificate updates

Network Access Control / Endpoint Security

The policies for Endpoint Security (Endpoint Policy Enforcement)) are created centrally at the Secure Enterprise Management (SEM) and each NCP Secure Enterprise Client is only permitted access to the company network in accordance with the corresponding rules.

High Availability Services

The NCP Secure Enterprise Client supports the NCP HA Services. These services are client / server based and can be used in two different operating modes: load balancing or failsafe mode. Regardless of the load on the server or whether a server has failed, the VPN connection to the corporate network is established and maintained reliably, in the background and without any delay for the user of the NCP Secure Enterprise Client.

Security Features

Support of the Internet Society's Security Architecture for IPsec and all the associated RFCs.

Virtual Private Networking / RFC conformant IPsec (Layer 3 Tunneling)

- IPsec Tunnel Mode
- IPv4/6 dual stack support
- IPsec proposals are negotiated via the IPsec gateway (IKE Phase 1, IPsec Phase 2)
- Communication only in the tunnel
- Message Transfer Unit (MTU) size fragmentation and reassembly

Encryption

Symmetric processes:
AES-CBC 128, 192, 256 Bit;
AES-CTR 128, 192, 256 Bit;
AES-GCM 128, 256 Bit (only IKEv2);
Blowfish 128, 448 Bit;
Triple-DES 112, 168 Bit;

Dynamic processes for key exchange:
RSA to 4096 Bit;
ECDSA to 521 Bit, Seamless Rekeying (PFS);
Hash Algorithms: SHA, SHA-256, SHA-384, SHA-512, MD5;
Diffie Hellman groups: 1, 2, 5, 14-21, 25-30 (starting from group 25: brainpool curves);

Key exchange

IKEv1 (Aggressive Mode and Main Mode): Pre-shared key, RSA, XAUTH;
IKEv2: Pre-shared key, RSA, EAP-MS CHAPv2, EAP-MD5, EAP-TLS, EAP-PAP,
Signature Authentication (RFC 7427), IKEv2 fragmentation (RFC 7383);

VPN Path Finder

NCP Path Finder Technology: Fallback to HTTPS (port 443) from IPsec if neither port 500 nor UDP encapsulation are available*

FIPS Inside

The Secure Client incorporates cryptographic algorithms conformant to the FIPS standard. The embedded cryptographic module incorporating these algorithms has been validated as conformant to FIPS 140-2 (certificate #1051).
FIPS conformance will always be maintained when any of the following algorithms are used for establishment and encryption of the IPsec connection:

- Diffie Hellman Group: Group 2 or higher (DH starting from a lenght of 1024 Bit)
- Hash Algorithms: SHA1, SHA 256, SHA 384, or SHA 512 Bit
- Encryption Algorithms: AES with 128, 192, 256 Bit or Triple DES

Split Tunneling

When using Split-Tunneling, those domains whose DNS packets are to be routed via the VPN Tunnel can be specified exactly.

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Authentication

Internet Key Exchange (IKE):
Aggressive Mode, Main Mode,
Quick Mode, IKEv2
Perfect Forward Secrecy (PFS),
IKE config mode for dynamic assignment of a virtual address from the internal address pool (private IP),
Pre-shared secrets or RSA signatures (with corresponding Public Key Infrastructure);

User authentication:
XAUTH for extended user authentication,
One-time passwords and challenge response systems,
Authentication details from certificate (prerequisite PKI);

Support for certificates in a PKI:
Multi Certificate Configurations for PKCS#11 and PKCS#12;

Machine Authentication:
Authentication with certificates from filesystem or the macOS key ring;

Seamless Rekeying (PFS);

IEEE 802.1x:
EAP-MD5: Extensible Authentication Protocol (Message Digest 5), extended authentication relative to switches and access points (Layer 2);
EAP-TLS: Extensible Authentication Protocol (Transport Layer Security), extended authentication relative to switches and access points on the basis of certificates (Layer 2);

RSA SecurID Ready;

IP Address Allocation

DHCP (Dynamic Host Configuration Protocol);
IKE Config Mode (IKEv1);
Config Payload (IKEv2);
DNS (Domain Name Service): gateway selection using public IP address allocated by querying DNS server. When using Split-Tunneling, those domains whose DNS packets are to be routed via the VPN Tunnel can be specified exactly;

Strong Authentication (Standards)

X.509 v.3 Standard;

Support for certificates in a PKI:
PKCS#11 interface for 3rd party authentication solutions (Tokens / Smartcards)
PKCS#12 interface for private keys (soft certificates);

Line Management

DPD (Dead Peer Detection) with configurable time interval;
Timeout;
VPN on demand for the automatic construction of the VPN tunnel and the exclusive communication about it;

Internet Society, RFCs and Drafts

RFC 4301 (IPsec), RFC 4303 ESP, RFC 3947 (NAT-T negotiations), RFC 3948 (UDP encapsulation), IKEv1, RFC 3526, ISAKMP, RFC 7296 (IKEv2), RFC 4555 (MOBIKE), RFC 5685 (Redirect), RFC 7383 (Fragmentation), RFC 7427, 3279 Section 2.2.3, 3447 Section 8 (Signature Authentication), RFC 5903, 6954, 6989, 4754 (ECC), RFC 2451, 3686 (AES with ESP), 5930 (AES-CTR), 4106 (AES-GCM), 5282, 6379 (Suite B), RFC 3447 Section 8 (Padding)

Client Monitor
Intuitive GUI

English, German;
Configuration update;
Connection control and management;
Connection statistics, log files;
Trace tool for error diagnostics;
Network information;

* Prerequisites: NCP Secure Enterprise VPN Server

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