

Technical factsheet

Summary

This document serves to assure users that NXPowerLite for Microsoft Exchange has been designed and built with safety in mind. It explains how the software uses proven technology and implementation methods to ensure the data integrity of the Exchange server. If there is information you need that is not included in the document, please [contact us](#) and we will be happy to discuss this in further detail.

Tried and tested technology

NXPowerLite uses the same file reduction technology as NXPowerLite for File Servers, which over 2,000 companies already rely on to reduce storage. This includes major organizations such as Nestle UK, ThyssenKrupp and the Canadian Department of National Defence.

Safety first

The guiding principle used when designing a solution to reduce attachments was to ensure that Exchange server databases or individual emails would remain uncorrupted and completely usable after NXPowerLite's processing has taken place. For this reason we took a safety led approach to development where any unexpected failures would result in the software terminating immediately without the loss of data.

Software Components

The application consists of two main components:

NXPowerLite Exchange Dashboard

Used to:

- Configure the connection to Exchange
- Manage optimization settings
- View reports

NXPowerLite Exchange Optimizer Windows Service

Responsible for:

- Maintaining the connection with the Exchange server
- Attachment processing
- Securely accessing credentials from Credential Manager. This means that user names and passwords can only be read by the user who originally set up the connection.
- Tracking data reduction and producing reports
- Writing key events and errors to Windows Application event log and custom log file

How NXPowerLite works

Installation & running

NXPowerLite is installed following Microsoft guidelines to ensure files are correctly stored. Only administrators have access to the NXPowerLite configuration. To ensure integrity of the installed application, NXPowerLite for Microsoft Exchange is built using signed executable files.

Connect to the Exchange server

1. Setup secure store for credentials for NXPowerLite Optimizer service to use - NXPowerLite uses the Windows Credential Manager to safely store the Active Directory and EWS credentials. This means NXPowerLite doesn't control storage of any credentials. The current user password is required in order to access the secure storage.
2. Connect to domain controller (Active Directory).
3. Connect to Exchange - NXPowerLite uses Microsoft's Exchange Web Services (EWS) Managed API via a secure SSL connection. By using EWS, NXPowerLite is a client of Exchange which means that emails are only manipulated using official methods. No databases are accessed directly.
4. NXPowerLite builds a list of all mailboxes on the Exchange server.

Identify email attachments to optimize

NXPowerLite tries to impersonate each Exchange user in turn (excluding system mailboxes), using the EWS user account configured by the administrator. For each user mailbox, NXPowerLite builds a list of candidate emails that conform to the following rules:

- NXPowerLite skips the following content when scanning a user mailbox to obtain the list:
 - Unread emails
 - Draft emails
 - Non-email items (for example contact, appointment and task items)
 - Inline attachments
- NXPowerLite only includes emails for processing that:
 - Contain file attachments of supported file type (PDF, PowerPoint, Word, Excel, JPEG, TIFF and Zip) provided they are configured in the Dashboard
 - Have not already been optimized
 - Are more than 7 days old

Replace attachments with smaller versions

NXPowerLite replaces email attachments using a process that actively prevents any email attachments being lost, corrupted or becoming unusable.

For safety reasons, optimized attachments are added to each email before the original versions are removed. This minimizes the risk of data loss, even in case of power failure, as there is never a point when any attachments are missing.

In detail, the process for optimizing each email is as follows:

- Attachments are downloaded to a temporary location on the machine where NXPowerLite is running. NXPowerLite then optimizes the downloaded copies in the temporary location.
- Once the optimization of all the attachments on the email is complete, the smaller versions of successfully optimized attachments are added to the email in one operation.
- Any attachments that fail to optimize are ignored - only the attachments that were optimized successfully are added back to the email.
- When the Add operation has completed successfully, a second Remove operation removes the original larger attachments from the email.

NXPowerLite can recover from a number of errors that might occur when updating the email, but if an unexpected error occurs it will write an event to the Application event log and stop processing immediately to support troubleshooting.

Changes to Exchange metadata

All property changes made during the course of optimization result from using the official Microsoft EWS API. NXPowerLite does not directly alter Exchange metadata with the exception of adding processing information to each email.

To improve performance, NXPowerLite adds a “tag” property called “NXOpt” to each email, which can then be used during subsequent runs to skip emails that have already been optimized.

More details of metadata changes are available at the following link:

<http://support.neuxpower.com/hc/en-us/articles/202257042-Does-NXPowerLite-for-Microsoft-Exchange-modify-any-Exchange-metadata->

Reporting

At the end of each run NXPowerLite produces a detailed report showing information about run. As well as information describing the amount of reduction achieved, the report also includes some key information about each run. Such as:

- Clear completion success indication
- Alert when all mailboxes configured cannot be accessed
- Analysis of processed and unprocessed mailboxes
- Detailed breakdown of emails that cannot be optimized
- Configuration details

[Download a sample report](#)

Logging

As well as information written to the Windows Application event log, NXPowerLite captures more detailed information about the processing of mailboxes and emails in the rolling log files.

The files are 'rolled' once they reach 1MB, and are numbered sequentially. NXPowerLite keeps a maximum of 10 log files.

By default these will capture such events as:

- Mailbox user
- Mailbox item
- Connection errors
- Processing errors

It is possible to increase the amount of information displayed in the log files by changing the logging level. This particularly helps with troubleshooting problems with connection or processing files.

Log files are located in the following directory: %PROGRAMDATA%\Neuxpower\NXPowerLite for Exchange v1\logs