

Binary Tree® Migrator for Notes 20.14.2

## Requirements



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## Legend



**CAUTION:** A CAUTION icon indicates potential damage to hardware or loss of data if instructions are not followed.



**IMPORTANT, NOTE, TIP, MOBILE, or VIDEO:** An information icon indicates supporting information.

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# Section 1. Introduction

Migrator for Notes features a new name and logo, but is the same, trusted product previously known as CMT for Exchange (CMTe).

This document details the requirements for implementing Binary Tree Migrator for Notes. These include the requirements for the Migration Control Center and Migrations Workstations, as well as any environmental requirements.

These requirements are intended to cover migrations from HCL Domino mail and archive files to Microsoft PST files, Exchange on premise mailboxes and Office 365 mailboxes (also known as Microsoft 365).

For details regarding HCL Notes local workstation archive mail files please refer to the Archive Migrator for Notes Guide.

Migrator for Notes should be installed on robust workstations. Faster CPUs, disks, and network all equate to better migration performance and less time is required to complete a migration. In addition, several migration workstations can be deployed and the migration workload distributed between them. This gives more flexibility and control over scheduling migrations and the time required to complete them.

Please refer to the Migrator for Notes Installation, Configuration, and User Guides for details on implementing this solution.

# Section 2. Migration Control Center and Workstation Requirements

## Hardware

- Pentium IV Class or higher
- Hard Disk Drive: 80 - 100 GB + free space
- Migration Control Center: 2 Cores, 4GB of RAM
- Migration Workstations: Single Core, 2 GB of RAM

## Operating Systems

- Migration Control Center
  - Windows Server 2019
  - Windows Server 2016
  - Windows Server 2012 R2

**Note: US English version and US English regional setting must be used.**

- Migration Workstations
  - Windows Server 2019
  - Windows Server 2016
  - Windows Server 2012 R2
  - Windows 10 (64-bit)

**Note: US English version and US English regional setting must be used.**

**Double byte character set language packs should not be installed.**



The operating system time zone must have a valid offset (e.g. UTC +00:00 Dublin, Edinburgh, Lisbon, London). UTC Coordinated Time is not supported.

## Outlook Client Requirements

- Supported versions:
  - Outlook 2016 (32-bit), Outlook Professional Plus 2013 SP1 which is part of Microsoft Office Professional Plus 2013 SP1 (32-bit only) (most recent version of Microsoft Outlook, via Windows Update, is required). Office 365 ProPlus and Click-to-Run 2016 and 2019 versions are also supported.

**Note: This must be the 32-bit version of Outlook Professional. Home, Workgroup or any other specialized version is not supported on any migration workstation.**

- All reminders are shut-off (click Tools -> Options -> Other -> Reminder Options)
- Auto-archiving is disabled (click Tools -> Options -> Other -> Auto Archive)
- Programmatic warnings disabled (click Tools -> Trust Center -> Programmatic Access -> Never warn me about suspicious activity (not recommended))
- Cache mode must not be enabled because the migration data will not be written directly to the server store
- Outlook should be updated to the current patch levels, at the time of this product release



For Office 365 migrations the Outlook client should be activated for best performance.



In testing, there have been performance loss for throughput between Outlook 2016 or Outlook 2019 and Outlook 2013 with 2013 showing better performance.

## Notes Requirements

Notes is also known as Lotus Notes, IBM Notes, and HCL Notes.

- Supported versions:
  - Notes version 12 is supported for Windows 10, Windows Server 2016 and Windows Server 2019
  - Notes version 11 is supported for Windows 10, Windows Server 2012, Windows Server 2016 and Windows Server 2019
  - Notes version 10 is supported for Windows 10, Windows Server 2012, Windows Server 2016 and Windows Server 2019
  - Notes version 9.0.1 FP10 is supported for Windows 10, Windows Server 2012, Windows Server 2016 and Windows Server 2019
  - Notes version 8.5.3 Fix Pack 6 is supported for Windows Server 2012
  - Notes must be installed as a single user installation (multi-user installations are not supported)
  - Notes Designer must be installed for Notes links to migrate properly
  - The Notes Designer client must be installed in the migration workstation for doc links to migrate properly

### **\*Notes 7.0.4 is NOT supported**

### **\*If you are using Notes 8.5.3, Fix Pack 6 is required due to a product defect that could impact data fidelity**

\*If you are using Notes 9.0.1, Fix Pack 10 is required due to a product defect that could impact data fidelity

- Ensure that you enable the Notes ID security for the option “Do not prompt for password from other Notes-based programs (Reduces security)”
- Ensure that you turn off Notes mail reminders in the Notes client preferences mail section
- Ensure that you enable TCP/IP as the only port in the Notes client install preferences
- On each migration workstation, Server Connection documents may be required to provide access to some of the Notes/Domino servers; if connection documents are required, it is the customer's responsibility to provide the appropriate Destination server address
- A standard HCL Domino mail template is required to be applied to the .nsf email databases for migration; mail templates from R6.5 to R12 are supported; R8.5 to R12 mail templates are recommended



HCL Notes Fix Packs are provided by the product vendor (HCL) as patches to address issues found within the Notes client and by extension the Notes Application Programming Interface (API) that are used by the migration system to access and process Notes mail file data. The Migrator for Notes product is verified and tested at the time of release with the Fix Packs specified for standard Notes mail, calendar, contact and task data.

If issues are encountered with accessing or processing specific data within the Notes/Domino environment a newer Fix Pack from HCL may be required. In these cases, the items addressed by a Fix

Pack should be verified with HCL support to confirm the details of any fixes and HCL recommendations should be followed. The data migration should be validated in the Notes/Domino environment if any changes are made to Notes Fix Pack versions.

## General Requirements

- For the Migration Control Center only:
  - IIS with web service components (SMTP and FTP components not needed); for more details, refer to the next section
  - English version of SQL Server 2012 (for upgrades only), SQL Server 2012 Express (for upgrades only), SQL Server 2016, SQL Server 2016 Express, or SQL Server 2019\*; if SQL Server is not detected during installation, the installer will provide the option to install SQL Server 2016 Express

**\*Internet access is required for the installer to install SQL Server 2016 Express**

**\*Non-English versions of SQL Server are not supported**

**\*Before installing SQL Server Express, complex password requirements must be disabled on the server**

**\*SQL Server 2016 Express is not compatible for installation with Windows Server 2012 R2**

**\*TLS 1.0 should be enabled on the controller for the installation process to access the SQL server and create the database**

  - For the installation of Migrator for Notes, you will need Microsoft Visual C++ 2019 runtime (both x86 and x64 on Migration Control Center) and .NET 4.8; if any of the additional packages are not installed, the Installer will automatically install them
  - You must disable any applications which take over or block the use of port 80 on the Migration Control Center
  - Windows PowerShell 2.0 Engine must be enabled on the Control Center to allow PowerShell matching; to enable PowerShell 2.0, navigate to Add Roles and Features Wizard > Features > Windows PowerShell and check Windows PowerShell 2.0 Engine
- For the Migration Workstations:
  - For the installation of Migrator for Notes, you will need Microsoft Visual C++ 2019 runtime (only x86 on Workstations) and .NET 4.8

**The installer will not install these items and they will need to be installed separately**
- For both Migration Control Center and Migration Workstations:
  - To use the import users with Excel feature or export users to Excel feature, Microsoft Excel must be installed and properly registered with the operating system; typically, this is only needed on the Migration Control Center, or where the import is going to be performed from
  - Do not have restrictions in your Group Policies or workstation policies that prevent the automatic creation of MAPI profiles or .pst files on the migration workstations
  - Ensure that any personal firewalls and the Windows firewall are OFF and disabled as a service
  - Ensure that Antivirus software is disabled, specifically, the real time scanning protection; otherwise, migration throughput will be reduced and other issues can occur such as crashes in stressful states of migration workload. If it cannot be disabled, please exclude the following directories from scanning:
    - C:\windows\temp and (%TEMP% if different)
    - C:\Program Files (x86)\Binary Tree\CMT for Exchange

- C:\Exported PSTs (or the directory specified by the user for storing PSTs)
- C:\windows\temp and (%TEMP% if different)
- C:\Program Files (x86)\Binary Tree\CMT for Exchange (Migration Worker)
- C:\Program Files\Binary Tree\CMT for Exchange (Migration Controller)
- C:\Exported PSTs (or the directory specified by the user for storing PSTs)
- %LocalAppData%\Binary Tree (eg C:\Users\Administrator\AppData\Local\Binary Tree)
- Ensure that WSUS, Intel LanDesk, and other such programs are excluded from running on the migration workstations. These programs can halt migrations as their screens pop up to run tasks, as well as unscheduled re-boots caused by these processes can interrupt migrations.
- Ensure that User Account Control (UAC) is disabled to allow Migrator for Notes to communicate with other applications and temporary folders
- The Windows workstation login account should be a Local Administrator
- Ensure that you turn off Automatic Windows updates



Windows Updates can be processed on migration machines but these should be completed in a planned method without migrations in progress

## IIS and ASP.NET in Windows

- For the Migration Control Center only:
  - .NET Framework 4.7 or 4.8
  - Base version (v10.0) within Windows Server 2019
  - Base version (v10.0) within Windows Server 2016
  - Base version (v8.5) within Windows Server 2012 R2
  - IIS Server installed with the default website, settings and default locations including:
    - Default Weblog Path: C:\WINDOWS\system32\LogFiles
    - ISAPI Objects Enabled (filters must be disabled)
    - Unlimited web site connections
    - No bandwidth throttling
    - Home directory: C:\inetpub\wwwroot
    - Directory Security: SSL Disabled
    - ASP
    - ASP.NET version 4.0
    - .NET 4.5.2 or higher

- To avoid installation issues, IIS 6 Management Compatibility components should be installed and enabled if using Windows Server 2012 R2

In Windows Server 2012 R2, enable IIS 6 Management Compatibility and all sub-options under Management Tools in Web Server (IIS) server role

- For both Migration Control Center and Migration Workstations:
  - The machines must be logged into the destination Exchange Domain if migrating to an on-premise Exchange environment (does not apply to MS365 migrations)
    - You cannot have restrictions on any workstation policy that can prevent the



automatic creation of MAPI profiles or .pst files

- All workstation names must be excluded from group policies that restrict local account privileges; It is recommended that all workstation names be excluded from Group Policy Objects (GPOs)
- All migration workstations must be able to talk with each other over Port 80
- XML calls must make connections between the Migration Control Center and All Migration Workstations using Anonymous Access

## Migration Account Permission Requirements

- There are two accounts used on the migration workstations for the actual migration of data: Exchange migration account and the Notes ID.

Exchange Migration Account:

- Must be a mailbox enabled user object
- Password should be set to never expire
- Must be used to log into each of the migration worker machines
- Is set to have Full Access to Exchange mailboxes during the Provisioning process



When multiple migration workstations are configured, several Migration accounts can be used and configured individually for migration workstations. This can be used to minimize the impact of Exchange or Office 365 throttling policies.

Notes Migration ID:

- Must have Manager Access to all mail files being migrated
  - Manager Access allows you to migrate unread marks and update source file ACL
- Must be configured on each of the migration worker machines
- Must be used to perform the Mail File Audit
- For the person(s) performing the migration process there are two accounts to consider when performing migrations: The Active Directory account (or Office 365 Administration account) that is logged into the machine being used and the Notes ID that is being used to access the Migrator for Notes Domino application.

Active Directory Migration Operator Requirements:

(PS represents PowerShell and ADO represents direct calls to Active Directory):

- Ability to run Exchange PowerShell scripts (either remote or local to the workstation), generally the Exchange roles Organization and Recipient Management (PS)
- Ability to manipulate user objects, specifically modify the targetAddress, proxyaddresses, mail and msExchPoliciesExcluded attributes (ADO)
- Ability to delete contact objects created by the directory synchronization process (ADO)
- Ability to create and modify Mail Contact objects (PS)

Notes Migration Operator ID Requirements:

- Manager with Delete access to the Notes Migrator.nsf Domino application database (EMM).
- Manager access to all mail files.
- Editor access to the Domino Directory
- The Person Modifier Role is required to set the Mail Forwarding in the Domino directory
- Right to issue console replication commands to Domino Mail and Staging server(s)

- Right to create new replicas on Domino Staging server(s)
- Right to create new databases on Domino Staging server(s) (required for Rooms and Resources migration)
- Domino server security rights to run agents

## Delegation Migration Requirements

The following is required if using Access and Delegation Migration.

- PowerShell 4.0 or 5.0 must be installed on workstations used for delegation migration, and on the Domino server if access delegation will be run as a scheduled agent on the server (this requirement is only for running scheduled agents in the local notes workspace)
- When running delegation locally as a scheduled agent, the following conditions must be met:
  - **Enable local scheduled agents** must be set in the Notes Preferences of the workstation
  - A replica of the EMM database must be located under the workstations Notes data directory
  - The workstation and Notes client must be running for a locally scheduled agent to run
  - An Exchange or Office 365 account with the Application Impersonation role for access to the CAS Server and EWS

## Ports and Endpoints

General Requirements:

- DNS (Port 53) for workstation name and autodiscover resolution
- Windows Active Directory for workstation login processing ([Service overview and network port requirements for Windows](#))
- Microsoft SQL Server (Ports 1433, 1434) for back end database access (Migration Controller only)
- IIS Web Server access (Port 80) for Migration Worker communication to the Migration Controller



The IIS server on the Migration Controller is only used for connectivity between Notes and the Migration Workers to the SQL backend server. This does not require direct exposure to the Internet.

HCL Domino Requirements:

- Domino server access for mail files and the Notes Migrator.nsf (Port 1352)

Microsoft Exchange and Office 365:

- Port requirements are available in the 'NM: What ports need to be open for Notes Migrator?' Knowledgebase article.



Microsoft requirements for port connectivity to Exchange and Office 365 should be followed. This is provided by Microsoft in their online documentation.

### [Microsoft 365 endpoints](#)

The following service endpoints are required for Exchange and Office 365 connectivity:

- Autodiscover

- MAPI
- OutlookService
- PowerShell
- REST
- EWS
- RPC



For Office 365 the endpoint connectivity can vary for regional data centers. Microsoft provide details for endpoints in their online documentation which should be verified for the target tenant location.



For Office 365 Multi-Geo tenants the accounts used for Migration workers must be in the same locations as the target mailboxes to be migrated.

#### Proxy Servers:

Migrator for Notes will utilize the default browser proxy configuration where this is configured on Migration Controllers or Migration Workers.

Proxy auto configuration files are not supported, the proxy has to be directly configured for the default workstation browser.



Based on experience, the use of Proxy Servers does impact on the migration throughput (speed). It is recommended where possible to avoid the use of proxy connections to the target system and to exclude communications between the Migration Controller and Migration Workers from using proxy servers.



Setup and configuration of Proxy Servers is not covered by Product Support

## Section 3. Supporting Source and Target Platforms

### Domino

- Domino versions for Migrator to Notes Installation 12, 11, 10, 9.0.1, 8.5 are supported.
- Domino versions for mail files 12, 11, 10, 9.0.1, 8.5, 8, 7, 6.5 are supported.
- The Notes ID used to sign the Migrator for Notes database requires Domino server security rights to run agents. This can be updated on the Domino Server document Security tab.

### Microsoft Exchange

- Microsoft Exchange versions Office 365, 2019, 2016, 2013 are supported
- MAPI must be enabled on the target mailbox.
- Outlook desktop integration must be allowed for migration accounts and target mailboxes.
- If migrating to Exchange 2013 or higher or Office 365, the privilege level required to migrate user mailboxes is Full Access.
- If migrating to Exchange 2013, you must ensure that the migration workstation(s) being used have Outlook 2013 (32-bit).
- MAPI over HTTP should be enabled on the Exchange server for migrations. RPC is no longer supported by the migration engine.
- The migration engine utilizes MAPI over HTTP and performs an Autodiscover lookup to identify the target mailbox on Exchange (or Office 365). For this to function properly, all DNS configuration must be completed following Microsoft's best practices for Autodiscover with a CNAME record added for the Autodiscover domain(s).
- Exchange should be updated to the current patch levels, at the time of this product release.



Be sure that enough disk space is available on the destination Exchange servers.

### Office 365 Migration Requirements

There are additional requirements for the use of Microsoft Office 365 / Microsoft 365 Modern Authentication for the Migration Controller and Migration Workers.

The target tenant does require Modern Authentication to be enabled to use this migration processing.

The following software is required on the Migration Control Center to allow the operator to use PowerShell related agents in the Notes Migrator.nsf database with Modern Authentication:

- Windows Management Framework 5.1 (PowerShell 5.1)
- Microsoft Graph PowerShell Module
- Microsoft ExchangeOnlineManagement Module (V3 required for WinRM without 'Basic' setting)
- Microsoft Azure AD Application (Client) ID for Microsoft Graph
- Microsoft Identity Client PowerShell Module
- .Net 4.7.1 or .Net 4.8
- TLS 1.2 enabled for .Net Framework
- MSAL PowerShell Module

### Migration Worker Requirements:

- Outlook 2016 or Outlook 2019 (Outlook 2013 is not supported for migrations with Modern Authentication)
- Windows Server 2012 R2, Windows Server 2016, Windows Server 2019 or Windows 10
- Outlook profile configured for the worker migration account and named Migrate

With the change to support MAPI over HTTP, the migration engine performs a DNS lookup to identify the target mailbox and configure the mail profile. For this to function properly, all DNS must be completed following Microsoft's best practices for the MS365 tenant. Below is a link to a Microsoft support document for how to create the DNS entries for MS365. For the DNS action performed by the Migration engine, a CNAME record for Autodiscover needs to be created for all primary SMTP domains pointing to the MS365 Autodiscover A record.

<https://support.office.com/en-us/article/Create-DNS-records-for-Office-365-using-Windows-based-DNS-9eec911d-5773-422c-9593-40e1147ffbde>

For Office 365 migrations the Migrator for Notes system is supported for building a migration staging farm in Microsoft Azure. It is recommended for Azure system builds that the Azure environment be created in the same location as the target mailboxes where possible to allow for best migration throughput processing. For information on the use of the Azure platform at the operating system level please refer to Microsoft documentation.

**NOTE !**

Third party online hosting platforms such as Amazon AWS can be used but are not covered by Product Support. These are not recommended as there can be negative impacts to migration throughput (speed).

**NOTE !**

For migration system upgrades, please see Upgrading a Migration Farm section of the Installation and Configuration Guide.

**NOTE !**

Multi-Factor Authentication is not supported.

## Section 4. Onsite System Administrator

An onsite Domino System Administrator should be available to provide assistance with the Notes ID, Server Connection Documents, Mail-in Database Documents, signing of the Migrator for Notes database and any other system or network tasks. As indicated above, proper access rights are necessary for the migration to be performed and an onsite System Administrator can help ensure the migration completes in a timely fashion.

## About us

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## Technical support resources

Technical support is available to Quest customers with a valid maintenance contract and customers who have trial versions. You can access the Quest Support Portal at <https://support.quest.com>.

The Support Portal provides self-help tools you can use to solve problems quickly and independently, 24 hours a day, 365 days a year. The Support Portal enables you to:

- Submit and manage a Service Request
- View Knowledge Base articles
- Sign up for product notifications
- Download software and technical documentation
- View how-to-videos
- Engage in community discussions
- Chat with support engineers online
- View services to assist you with your product.

# Appendix A: Reduced RBAC model for MS365 Migrations

This section outlines the minimal requirements for provisioning mailboxes in MS365 and performing migration activities in the HCL Domino environment based on the security policies that exclude provisioning of a Global Admin account. Environmental issues could require adjustments to these rights and should always be validated by testing pilot migrations.



**The minimum requirements listed below have not undergone formal QA testing. Adjustments might be required for your environment.**

## MS365 Accounts Roles Requirements

- Account for Running Provisioning and Match
  - MS365 Roles
    - Exchange Administrator Role
    - User Management Role
  - Actions required for this role:
    - Enable the MS365 Mailbox
    - Set Full Access Account for the accounts being migrated
    - Perform a match of the accounts being migrated
    - Perform MEU validation
- Migration workstation accounts -
  - Need to be listed in the security group that will be applied to the mailboxes being migrated
  - Need to be a mailbox-enabled user in the MS365 tenant



Worker migration accounts do not require Administrator Roles

## Notes Accounts

- Migration accounts created in the customer environment
  - Editor rights to the Domino Directory with the 'User Modifier' role; this will be used for the following actions:
    - Import users
    - Perform Routing Flips
  - Manager rights to all HCL Notes mailboxes being migrated; the following actions require rights:
    - Audit the mail files
    - Send COMM's for decrypt and contact sync (when they need to be deposited directory in the mail file)
    - Create staging replicas
    - Replica Audit
    - Contact and group fix
    - If using Rich COEX, update the BTCache Database on the BT Notes Integration



server

- Sync Read/unread marks
- Set Reader access



Manager ACL access does not require the Delete documents right

- Rights to issue Domino server commands on mail servers
  - Issue a command to initiate a PUSH replication command for individual databases.

## Appendix B: Supported Environments

This section outlines the minimal requirements for provisioning mailboxes in MS365 and performing migration activities

A = Supported

B = No known issues, not tested

C = Not Supported

### Migration Control Center Operating System Versions

(US English with US Regional Settings)	20.14	20.13	Notes
Windows Server 2012 R2	B	B	Upgrades Only
Windows Server 2016	A	A	
Windows Server 2019	A	A	

### Workstation Operating System Versions

	20.14	20.13	Notes
Windows 10	A	A	
Windows Server 2012 R2	B	B	Upgrades Only
Windows Server 2016	A	A	
Windows Server 2019	A	A	Outlook 2019 Only

### Outlook Versions

	20.14	20.13	Notes
Outlook 2013 32 Bit SP1	B	B	Not supported for Modern Authentication
Outlook 2016 32 Bit	A	A	
Microsoft Office 2013 365 ProPlus 32 Bit	B	B	Not supported for Modern Authentication
Microsoft Office 2016 ProPlus-Office 365 Click to Run 32 Bit	A	A	
Microsoft Office 2019 ProPlus-Office 365 Click to Run 32 Bit	A	A	Supported for Windows Server 2019
Outlook 64 Bit All Versions	C	C	

<b>Domino/Notes Versions</b>	<b>20.14</b>	<b>20.13</b>	<b>Notes</b>
Domino/Notes 8.x	B	B	Upgrades Only
Domino/Notes 9.x	A	A	Release 9.0.1 Fix Pack 9 not supported
Domino/Notes 10.x	A	A	
Domino/Notes 11.x	A	A	
Domino/Notes 12.x	A	C	

<b>SQL Server Versions</b>	<b>20.14</b>	<b>20.13</b>	<b>Notes</b>
SQL Server 2012	B	B	Upgrades Only
SQL Server 2012 Express SP2 64Bit	B	B	Upgrades Only
SQL Server 2016	A	A	
SQL Server 2016 Express	A	A	
SQL Server 2019	A	A	

<b>Exchange Versions (Target)</b>	<b>20.14</b>	<b>20.13</b>	<b>Notes</b>
Exchange 2013	B	B	
Exchange 2016	A	A	
Exchange 2019	A	A	
Microsoft 365 (Office 365)	A	A	
Microsoft 365 GCC High	A	A	Requires Modern Authentication Configuration

<b>Messaging Environment (Source)</b>	<b>20.14</b>	<b>20.13</b>	<b>Notes</b>
Domino 6.5.x	B	B	
Domino 7.x	B	B	
Domino 8.x	A	A	
Domino 9.x	A	A	
Domino 10.x	A	A	
Domino 11.x	A	A	
Domino 12.x	A	C	
Domino Mail Template 4.5.x	B	B	Specific KLS for folder references and data formatting
Domino Mail Template 5.x	B	B	Specific KLS for folder references and data formatting

Domino Mail Template 6.0.x	B	B	Specific KLS for folder references and data formatting
Domino Mail Template 6.5.x	A	A	
Domino Mail Template 7.0.x	A	A	
Domino Mail Template 8.0.x	A	A	
Domino Mail Template 8.5.x	A	A	
Domino Mail Template 9.x	A	A	
Domino Mail Template 10.x	A	A	
Domino Mail Template 11.x	A	A	
Domino Mail Template 12.x	A	C	

<b>Character Support</b>	<b>20.14</b>	<b>20.13</b>	<b>Notes</b>
Double Byte Character Set Support	B	B	

Note: Versions not listed are considered as unsupported.

Note: Vendor supportability for Microsoft and HCL products should be followed.