

Common client requirements



Summary

Prerequisites and dependencies that are common to all client features and modules of the 1E Client.

This section is part of the design phase of implementation.

Review [Design Considerations](#) first if you need to design and plan the deployment of 1E Client and the 1E solutions it supports in your organization.



1E Client contains client features and modules for Tachyon, Nomad, Shopping/WSA and WakeUp clients. You can optionally enable and configure clients during and after installation.

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Installation account for Windows

The 1E Client installer installs a service as local system, therefore the installation account for Windows clients must be capable of being elevated in order to run the installer. The simplest way of achieving this is for the account to have full local administrator rights (as a member of the localgroup administrators, either directly or indirectly).

Installation account for non-Windows

To install the 1E Client on a non-Windows client the installation account must have privileges to run the **sudo** command.

1E Client supports only Tachyon client features on non-Windows devices.

Supported platforms

Windows client

Category	Product	Notes
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<p>Operating System</p>	<ul style="list-style-type: none"> • Windows Server 2022 • Windows Server 2019 • Windows Server 2016 • Windows 11 CB 21H2 • Windows 10 CB 21H1 • Windows 10 CB 20H2 • Windows 10 CB 2004 • Windows 10 CB 1909 • Windows 10 CB 1809 	<p>The zip for 1E Client for Windows is available for download from the 1E Support Portal.</p> <p>Professional and Enterprise editions of Windows 10 are supported.</p> <p>All versions are provided with 32-bit & 64-bit installers, and can be installed on physical and virtual computers.</p> <div style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;"> <p> This list is automatically updated to show only those OS versions in mainstream support by Microsoft, and therefore supported by 1E, and by 1E Client 5.2.</p> <p>Please refer to Constraints of Legacy OS regarding end of mainstream support.</p> <p>For Microsoft product lifecycle details, please refer to https://support.microsoft.com/en-us/lifecycle/search.</p> <p>Please refer to https://1eportal.force.com/s/support-for-msft-rapid-release-cycle for details of which Current Branch versions are supported by 1E products, and known issues regarding specific versions.</p> </div> <p>For installation guidance on Windows, please refer to Deploying 1E Client on Windows.</p> <p>The following 1E Client features and modules are supported on Windows OS:</p> <ul style="list-style-type: none"> • Tachyon client • Nomad client • PXE Everywhere Agent • Shopping client • Shopping WSA (workstation OS only, not server OS) • WakeUp client
<p>Runtime libraries</p>	<ul style="list-style-type: none"> • .NET Framework 4.8 	<p>.NET Framework is required only for the following features of 1E Client:</p> <ul style="list-style-type: none"> • The 1E Client UI (User Interaction) component of the Interaction module, which supports the notification and survey features • Windows Servicing Assistant (WSA) feature of the Shopping client module, which supports OS deployment, upgrades and migrations <div style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;"> <p> This list is automatically updated to show only those .NET Framework versions in mainstream support by Microsoft, and therefore supported by 1E, and by 1E Client 5.2.</p> <p>For Microsoft product lifecycle details, please refer to https://support.microsoft.com/en-us/lifecycle/search.</p> </div>

Other Windows Software	<ul style="list-style-type: none"> Visual C++ 2013 Redistributable Nomad 7.0 (or later) PowerShell 3.0 (or later) 	<p>1E Client installer includes the redistributable package for Visual C++ 2013.</p> <p>1E Client provides Tachyon client features. It also includes the Nomad client module which replaces the legacy Nomad Branch client. Tachyon client features can optionally use Nomad to download content (feature enabled by default) if the Nomad client module in 1E Client is enabled (module disabled by default) or Nomad Branch 7.0 or later is running.</p> <p>PowerShell is not a prerequisite for installation of the 1E Client. PowerShell is used by some Tachyon instructions (that have PowerShell commands embedded or scripts that are downloaded) and some of these require PowerShell 3.0 or later.</p> <p>For more details please refer to Design Considerations: Downloading Tachyon client content and Nomad integration.</p> <p>For useful information about PowerShell versions please refer to PowerShell on Windows OS.</p>
Microsoft Endpoint Configuration Manager Client	<ul style="list-style-type: none"> SCCM CB 2107 SCCM CB 2103 SCCM CB 2010 SCCM CB 2006 SCCM CB 2002 SCCM CB 1910 	<p>The following client features work with these versions of Configuration Manager on Windows computers:</p> <ul style="list-style-type: none"> Tachyon client - instructions used by Tachyon Configuration Manager Console extensions Nomad client - all Nomad features PXE Everywhere Agent - N/A Shopping client - N/A WakeUp client - 1E WakeUp Policy Refresh and REFRESHONSUBNETCHANGE <p>Configuration Manager is not a prerequisite for installation of the 1E Client, and except for above features, the 1E Client, its features and modules, have no dependency on Configuration Manager.</p> <p>Tachyon, Nomad, WakeUp, and Application Migration have Configuration Manager Console extensions which are available separately.</p> <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;"> <p> This list is automatically updated to show only those Configuration Manager versions in mainstream support by Microsoft, and therefore supported by 1E, and by 1E Client 5.2.</p> <p>For Microsoft product lifecycle details, please refer to https://support.microsoft.com/en-us/lifecycle/search.</p> <p>Please refer to https://1eportal.force.com/s/support-for-msft-rapid-release-cycle for details of which Current Branch versions are supported by 1E products, and known issues regarding specific versions.</p> </div> <p>(Microsoft Endpoint Manager Configuration Manager is also known as Configuration Manager, ConfigMgr, Config Man, CM and SCCM among other names. Version names include 2012 and Current Branch or CB.)</p>

macOS clients

Category	Product	Notes
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Operating System	<ul style="list-style-type: none"> mac OS Big Sur 11.0 mac OS Catalina 10.15 mac OS Mojave 10.14 	<p>1E Client supports only Tachyon features on non-Windows devices. Other versions of these non-Windows OS should work but have not been tested by 1E.</p> <p>1E Client packages for macOS, Linux and Solaris are included in the non-Windows zip available for download from the 1E Support Portal.</p> <div style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;"> <p> 1E Client for macOS is written for Intel and supported on Apple devices using Intel processors. It is also supported on Apple devices using the M1 chip, provided you have installed Rosetta 2, which is included with Big Sur. 1E Client is a daemon (not an app), therefore, during installation or running it will <i>not</i> prompt for Rosetta 2, which does not get installed on-demand.</p> <p>You only need to install Rosetta 2 once, using one of the following commands, but repeating the command will safely reinstall it. The second version of the command requires root permission. Attempting to install on an Intel device will issue a harmless "unrecognized option" usage message.</p> <pre style="border: 1px solid #ccc; padding: 5px;">/usr/sbin/softwareupdate --install-rosetta /usr/sbin/softwareupdate --install-rosetta --agree-to-license</pre> </div> <p>For installation guidance, please refer to Deploying 1E Client on non-Windows: Mac installation.</p>
Other Software	<ul style="list-style-type: none"> Bash Perl Rosetta 2 (on non-Intel) 	<p>Bash and perl are required for installation of 1E Client on all non-Windows OS, except not for the 1E Client for Android.</p> <p>Tachyon instructions support the use of Bash scripts on all supported non-Windows OS.</p> <p>To see if an Instruction requires a Bash script, look in its Instruction Definition XML file for Bash script resources defined under the <Resources> tag. Bash is the preferred choice when developing custom instructions for non-Windows OS.</p> <p>There are slight differences between OS implementations of Bash, particularly on the Mac. Therefore, 1E recommends testing custom Bash scripts on each supported OS.</p> <p>Rosetta 2 must be installed before installing 1E Client for macOS on an Apple device using a non-Intel processor such as M1 chip. Please see note above about installing Rosetta 2.</p>

Linux clients

Category	Product	Notes
Operating System	<ul style="list-style-type: none"> CentOS 8.1 Debian 10.4 Fedora 32 openSUSE Leap 15.1 Red Hat Enterprise Linux 7.1 Red Hat Enterprise Linux 8.1 SUSE Linux Enterprise 15.1 Ubuntu 18.04 	<p>1E Client supports only Tachyon features on non-Windows devices. Other versions of these non-Windows OS should work but have not been tested by 1E.</p> <p>1E Client packages for macOS, Linux and Solaris are included in the non-Windows zip available for download from the 1E Support Portal.</p> <p>The 1E Client for Linux supports the following architectures:</p> <ul style="list-style-type: none"> Linux variations on Intel 64-bit platforms <p>Also included in the download are 1E Client packages for the following legacy Linux distributions:</p> <ul style="list-style-type: none"> Fedora 21 openSUSE Leap 42.1 <p>1E Client packages for other Linux distributions can be requested, including Raspbian for Raspberry Pi.</p> <p>For installation guidance on the following OS, please refer to Deploying 1E Client on non-Windows: Red Hat Enterprise Linux installation.</p>

Other Software	<ul style="list-style-type: none"> • Bash • Perl 	<p>Bash and perl are required for installation of 1E Client on all non-Windows OS, except not for the 1E Client for Android.</p> <p>Tachyon instructions support the use of Bash scripts on all supported non-Windows OS.</p> <p>To see if an Instruction requires a Bash script, look in its Instruction Definition XML file for Bash script resources defined under the <Resources> tag. Bash is the preferred choice when developing custom instructions for non-Windows OS.</p> <p>There are slight differences between OS implementations of Bash, particularly on the Mac. Therefore, 1E recommends testing custom Bash scripts on each supported OS.</p>
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Solaris clients

Category	Product	Notes
Operating System	<ul style="list-style-type: none"> • Solaris 11.4 • Solaris 11.3 	<p>1E Client supports only Tachyon features on non-Windows devices. Other versions of these non-Windows OS should work but have not been tested by 1E.</p> <p>1E Client packages for macOS, Linux and Solaris are included in the non-Windows zip available for download from the 1E Support Portal.</p> <p>The 1E Client for Solaris supports for the following architectures:</p> <ul style="list-style-type: none"> • Solaris on Intel 64-bit and SPARC platforms <div style="border: 1px solid #f96; padding: 10px; margin: 10px 0;"> <p> For Solaris, the following specific libraries are required, but are usually installed by default:</p> <ul style="list-style-type: none"> • libcurl • zlib </div> <p>For installation guidance, please refer to Deploying 1E Client on non-Windows: Solaris installation.</p>
Other Software	<ul style="list-style-type: none"> • Bash • Perl 	<p>Bash and perl are required for installation of 1E Client on all non-Windows OS, except not for the 1E Client for Android.</p> <p>Tachyon instructions support the use of Bash scripts on all supported non-Windows OS.</p> <p>To see if an Instruction requires a Bash script, look in its Instruction Definition XML file for Bash script resources defined under the <Resources> tag. Bash is the preferred choice when developing custom instructions for non-Windows OS.</p> <p>There are slight differences between OS implementations of Bash, particularly on the Mac. Therefore, 1E recommends testing custom Bash scripts on each supported OS.</p>

Feature dependencies

Products and Features with dependencies on the 1E Client.

Supported versions of 1E companion products with features that depend on 1E Client 5.2.

Products and features that depend on 1E Client	Supported versions of companion products
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Tachyon	<p>Tachyon requires the 1E Client (with Tachyon client features enabled) to be installed on all client computers. This replaces the legacy Tachyon Agent.</p> <p>Tachyon client features:</p> <ul style="list-style-type: none"> • Real-time response to instructions, which supports the retrieval of information using questions, and running actions • Device tags (freeform and coverage), Criticality and Location • Interaction feature to support the 1E Client UI, Surveys and the Sentiment feature of the Experience application # • Inventory, including process usage, to support: <ul style="list-style-type: none"> • the Tachyon Activity Record feature • the Inventory and other consumer applications • Performance metrics features to support the Experience application # • Policy feature to support consumer applications: Guaranteed State ##, Experience #, and (new in 5.2) Nomad # • Modules to support: <ul style="list-style-type: none"> • the Patch Success application # • command and script execution • content distribution • device criticality • manipulation of files and processes • manipulation of registry and WMI # • security # • software uninstallation • user sessions, including Primary User <p># not supported on non-Windows, ## partially supported on non-Windows</p> <p>Tachyon clients can optionally use the Nomad client module of 1E Client to more efficiently download content.</p>	<ul style="list-style-type: none"> • Tachyon Platform 5.2 • Tachyon Platform 5.1 • Tachyon Platform 5.0 • Tachyon Platform 4.1
Nomad	<p>Nomad requires the 1E Client (with Nomad client module enabled) to be installed on all client computers, and on Distribution Points if Configuration Manager is used.</p>	<ul style="list-style-type: none"> • Nomad 7.1
Nomad	<p>Nomad Download Pause is an optional feature of Nomad. It requires the 1E Client (with Nomad client module enabled) to be installed on all client computers, and a Tachyon server infrastructure.</p>	<ul style="list-style-type: none"> • Tachyon 5.2 • Tachyon 5.1 • Tachyon 5.0 • Tachyon 4.1 • Tachyon 4.0 • Tachyon 3.3 • Nomad 7.1 • Nomad 7.0.200 • Nomad 7.0.100 • Nomad 7.0
PXE Everywhere	<p>PXE Everywhere requires the 1E Client (with PXE Everywhere Agent client module enabled) to be installed on all client computers.</p>	<ul style="list-style-type: none"> • PXE Everywhere 4.0
Shopping	<p>Shopping requires the 1E Client (with Shopping client module enabled) to be installed on all client computers. This replaces the legacy Shopping Agent.</p>	<ul style="list-style-type: none"> • Shopping 6.0 • Shopping 5.6 • Shopping 5.5.200 • Shopping 5.5.100 • Shopping 5.5
Shopping	<p>Windows Servicing Assistant (WSA) is an optional feature of Shopping that supports OS Deployment.</p> <p>Please refer to Shopping 6.0 - Preparation: Windows Servicing Assistant (WSA) for WSA features in different versions of Tachyon Agent and 1E Client.</p>	<ul style="list-style-type: none"> • Nomad 7.1 • Nomad 7.0.200 • Nomad 7.0.100 • Nomad 7.0 • Shopping 6.0 • Shopping 5.6 • Shopping 5.5.200 • Shopping 5.5.100 • Shopping 5.5
WakeUp	<p>WakeUp requires the 1E Client (with WakeUp client module enabled) to be installed on all client computers, and WakeUp Servers. This replaces the WakeUp component of the 1E Agent.</p>	<ul style="list-style-type: none"> • WakeUp 7.3 • WakeUp 7.2.500

Supported versions of 1E companion products that 1E Client 5.2 features depend on.

Products and features that 1E Client depends on		Supported versions of companion products
Tachyon	Tachyon real-time and other features require a full Tachyon infrastructure including a Tachyon Server and a Tachyon license.	<ul style="list-style-type: none"> • Tachyon Platform 5.2 • Tachyon Platform 5.1 • Tachyon Platform 5.0 • Tachyon Platform 4.1
Nomad	Tachyon clients can optionally use Nomad (1E Client with Nomad client features enabled) to provide more efficient downloading of content.	<ul style="list-style-type: none"> • 1E Client 5.1 (with Nomad client module enabled) • 1E Client 5.0 (with Nomad client module enabled) • 1E Client 4.1 (with Nomad client module enabled)

Firewall ports

1E does not provide a combined diagram showing all components and features. Please refer to the communications reference page for each product:

- [Tachyon communication ports](#) — A diagram and a table with a list of all the Tachyon communication ports.
- [Nomad communication ports](#) — Diagrams and tables with lists of all the Nomad communication ports.
- [PXE Everywhere communication ports](#) — A list of communication ports used by PXE Everywhere. Useful, if needed, for network and device firewalls.
- [Shopping communication ports](#) — A diagram and a table with a list of all the Shopping communication ports.
- [NightWatchman Enterprise communication ports](#) — Tables with lists of all the NightWatchman Enterprise components and their communication ports.

Anti-Virus and Malware

The following should be excluded from scans to prevent file locking and resource deletion.

- 1E log files. See [Log files](#).
- The 1E Client temporary directory. We recommend modifying the TemporaryDirectory 1E Client configuration setting to `%programdata%\1EClientTemp` and excluding that directory. See [1E Client settings](#).



TemporaryDirectory must be specified as an absolute path. The directory is not automatically created by 1E Client. It must be created before being set otherwise 1E Client will use its default.

Digital signing certificates

On Windows computers, the installation MSIs, executables and DLLs of the 1E software are digitally signed by 1E using the **1E Limited** SHA1 and SHA256 signature certificates.

These signing certificates are issued by the **Symantec Class 3 SHA256 Code Signing CA**, which in turn is issued by the root CA **VeriSign Class 3 Public Primary Certification Authority - G5**.

The SHA1 and SHA256 signature certificates are each countersigned with the same Timestamp signature certificate **Starfield Timestamp Authority - G2**, itself issued by **Starfield Secure Certificate Authority - G2**, in turn issued by the root CA **Starfield Root Certificate Authority - G2**.

The root CA certificates (for signing and countersigning) must exist in the **Third-Party Root Certification Authorities** store (which is replicated in the Trusted Root Certification Authorities store). These root CA certificates are normally automatically provided by Microsoft's Update Root Certificates feature, however for legacy OS computers in a lab environment that are not connected to the Internet, see [Constraints of Legacy OS](#).

Constraints of Legacy OS

In this documentation, the following are referred to as legacy OS. Below are described some known issues for these OS.

1E does not provide support for 1E products on the following OS unless the OS is explicitly listed as being supported for a specific 1E product or product feature. This is because Microsoft has ended mainstream support for these OS or they are not significantly used by business organizations.

- | | |
|---|---|
| <ul style="list-style-type: none"> • Windows XP • Windows Vista • Windows 7 • Windows 8.0 | <ul style="list-style-type: none"> • Windows Server 2003 • Windows Server 2008 • Windows Server 2008 R2 • Windows Server 2012 • Windows Server 2012 R2 |
|---|---|

Please contact 1E if you require support for these legacy OS. If you experience an issue on these OS, then please try replicating the issue on a supported OS.

For Microsoft product lifecycle details, please refer to <https://support.microsoft.com/en-us/lifecycle/search>.

PowerShell limitations

PowerShell version 3.0 (required by some Tachyon instructions) is not supported on Windows XP, Vista and Server 2003. However, PowerShell 2.0 is supported on the following OS versions:

- Windows XP SP3
- Vista SP1 & SP2
- Windows Server 2003 R2 & SP2

Certificate limitations - SHA2

Like most software vendors, 1E software requires the OS to support SHA2. If your organization has a PKI configured to use SHA2 256 or higher encryption, then your legacy OS may have already been updated to support it.

Windows XP and Server 2003 require an update as described in **KB968730**. Microsoft no longer provides this hotfix as a download. You must contact Microsoft Support if you need it.

Windows 7 and Server 2008 R2 require an update as described in **KB3033929**. This update is not available for Vista and Server 2008.

Windows 8, 8.1, Server 2012, Server 2012 R2 and later OS already support SHA2.

Certificate limitations - encrypted certificate requests

Windows XP and Server 2003 are unable to encrypt certificate requests, whereas later OS are able to support higher more secure RPC authentication levels. If you are using a Microsoft CA and expect these clients to request (enrol) certificates then the CA must have its IF_ENFORCEENCRYPTICERTREQUEST flag disabled. It is disabled by default on Windows 2003 and 2008 CA, but is enabled by default on Windows 2012 CA.

To determine which InterfaceFlags are set, execute the following command on the CA server:

```
certutil -getreg CA\InterfaceFlags
```

If the following is specified then it means the flag is enabled.

```
IF_ENFORCEENCRYPTICERTREQUEST -- 200 (512)
```

To disable the encrypt certificate requests flag, execute the following commands on the CA server:

```
certutil -setreg CA\InterfaceFlags -IF_ENFORCEENCRYPTICERTREQUEST
sc stop certsvc
sc start certsvc
```

Certificate limitations - signing certificates missing

On Windows computers, the installation MSI files, and binary executable and DLL files of 1E software are digitally signed. The 1E code signing certificate uses a timestamping certificate as its countersignature. 1E occasionally changes its code signing certificate, and uses it for new releases and patches for older versions, as shown in the table(s) below.

Root Certificate Authorities are implicitly trusted to validate certificates, and their certificates must be correctly installed to do this. Your computers should already have the necessary **root CA** certificates installed, however this may have been prevented by your organization's security policies, or inability to connect to the Internet, or they are legacy OS. In general this is not an issue because by default Windows allows software to be installed and run without validation, although you may see a warning or experience a delay. However, you *must* have relevant CA certificates installed if you are using 1E Client (which self-validates its own files), or your organization has applied more secure policies (for example UAC, AppLocker or SmartScreen).

Typical reasons for issues with signing certificate are:

- If your organization has disabled **Automatic Root Certificates Update** then you must ensure the relevant **root CA** certificates are correctly installed on each computer
- If computers do not have access to the Internet then you must ensure the relevant **root and issuing CA** certificates are correctly installed on each computer, numbered in the table(s) below.

The signature algorithm of the 1E code signing certificate is SHA256RSA. In most cases the file digest algorithm of an authenticode signature is SHA256, and the countersignature is a RFC3161 compliant timestamp. The exception is on legacy OS (Windows XP, Vista, Server 2003 and Server 2008) which require the file digest algorithm of an authenticode signature to be SHA1, and a legacy countersignature.

The table below applies to software and hotfixes released in 2020.

2020	Signing certificate	Timestamping certificates
Certificate	1E Limited	TIMESTAMP-SHA256-2019-10-15 <i>and</i> DigiCert Timestamp Responder
Issuing CA	DigiCert EV Code Signing CA (SHA2) Thumbprint: 60ee3fc53d4bdfd1697ae5beae1cab1c0f3ad4e3	DigiCert SHA2 Assured ID Timestamping CA Thumbprint: 3ba63a6e4841355772debef9cdf4d5af353a297 <i>and</i> DigiCert Assured ID CA-1 Thumbprint: 19a09b5a36f4dd99727df783c17a51231a56c117
Root CA	DigiCert High Assurance EV Root CA Thumbprint: 5fb7ee0633e259dbad0c4c9ae6d38f1a61c7dc25	DigiCert Assured ID Root CA Thumbprint: 0563b8630d62d75abbc8ab1e4bdfb5a899b24d43

This is described in [Common client requirements: Digital signing certificates](#). To verify if you affected by this issue see [Client issues: 1E Digital Signing Certificates](#).

Certificate limitations - expired root certificates

Ensure that your Root CA Certificates are up-to-date on clients and servers. The **Automatic Root Certificates Update** feature is enabled by default on these legacy OS but its configuration may have been changed or restricted by Group Policy **Turn off Automatic Root Certificates Update**.

If this GPO is enabled then you will see `DisableRootAutoUpdate = 1 (dword)` in `HKLM\Software\Policies\Microsoft\SystemCertificates\AuthRoot`.