

LDI Plus Agent Install Guide



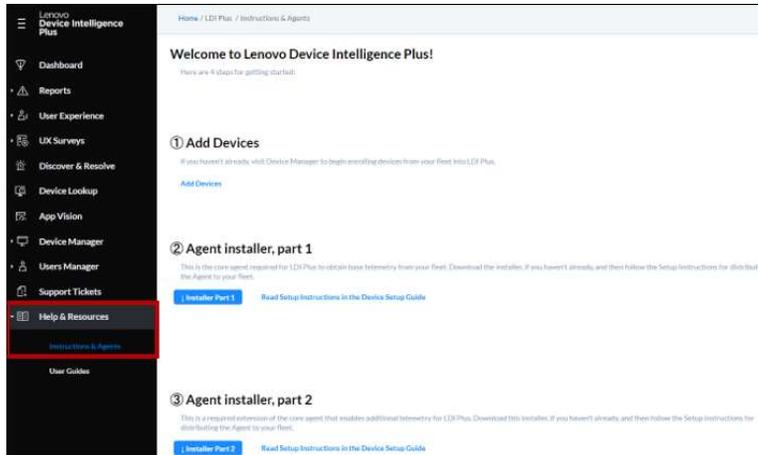
Contents

- Prerequisites 3
 - Enrolling Devices and Installation of Agents 3
- Known Issues 4
 - Installation and Prerequisites..... 4
- Supported Operating Systems 5
 - Valid Operating Systems for Child Systems 5
- LDI Plus Agent Simple Installation 6
 - Directions 6
 - Setup.exe 6
- LDI Plus Silent Installation 8
 - Directions 8
- Anti-Virus Instructions 9
 - Anti-Virus Exclusions 9
- Successful Installation..... 10
 - Task Manager and Log Files 10
- Failed Installation 11
 - Examples 11
- Uninstall Order 13
 - Reverse of Installation Order 13
- Uninstalling LDI Plus Through SMS 14
 - Order of Uninstallation 14
- Proxy Settings and Process 17
 - Standard Proxy Usage 17
 - Example 1 18
 - Example 2 19
 - Example 3 20
 - Example 4 20

Prerequisites

Enrolling Devices and Installation of Agents

1. From the Lenovo Device Intelligence menu:
 - a. Select Help & Resources to open the sub-menu
 - b. Select Instructions and Agents



2. Install the LDI Agent. This is the core agent required for LDI Plus to obtain base telemetry from your fleet. Download the installer and follow the Setup Instructions for distributing the Agent to your fleet. To get detailed instructions on this, refer to the LDI Agent Install Guide. (<https://support.lenovo.com/us/en/solutions/ht511072-lenovo-device-intelligence>)

② Agent installer, part 1

This is the core agent required for LDI Plus to obtain base telemetry from your fleet. Download the installer, if you haven't already, and then follow the Setup Instructions for distributing the Agent to your fleet.

[↓ Installer Part 1](#) [Read Setup Instructions in the Device Setup Guide](#)

3. Install the LDI Plus Agent. This is a required extension of the core agent that enables additional telemetry for LDI plus. Download the installer and follow the Setup Instructions for distributing the Agent to your fleet.

③ Agent installer, part 2

This is a required extension of the core agent that enables additional telemetry for LDI Plus. Download this installer, if you haven't already, and then follow the Setup Instructions for distributing the Agent to your fleet.

[↓ Installer Part 2](#) [Read Setup Instructions in the Device Setup Guide](#)

4. The dashboard will populate as device telemetry is collected and processed. Note that it may take up to 24 hours for some visualizations to display data. Consult the User Guide for Troubleshooting tips if you encounter any issues.

Known Issues

Installation and Prerequisites

1. Performing silent installations may cause the system to automatically restart at the end of the installation. You can suppress automatic and certain prompts for system restarts by setting the **REBOOT** property (See Command Line Properties).
2. User may be required to change UAC settings to allow MSI installation to occur.
3. **Never**, under any circumstances, **copy + paste** command lines from this or any document into a command prompt window. There are known issues with the characters not lining up correctly and in almost all cases, the command line will not function correctly.
4. Prerequisites are required to be installed before installing LDI PlusCloudEdition.msi or the service will fail to start resulting in a failed installation.
 - a. Microsoft Visual C++ 2015-2019 Redistributable (x86)
 - i. For 32-bit and 64-bit operating systems
 - ii. File name: VC_redist.x86.exe
 - b. Microsoft Visual C++ 2015-2019 Redistributable (x64)
 - i. For 64-bit operating systems only
 - ii. File name: VC_redist.x64.exe
5. For some SEP configurations, additional steps must be taken.

If any of the following options are turned on in the SEP policy, exceptions will have to be made to the Application and Device Control settings.

- Block Applications from running

LDI Plus agent and associated utilities must be allowed to run to collect data.

Supported Operating Systems

Valid Operating Systems for Child Systems

- Microsoft Windows 10 (version 1507 or higher)



Users may be required to run the files logged on and run with “Run as administrator”.

LDI Plus Agent Simple Installation

Directions

Important: Users may be required to run the files logged on and run with “Run as administrator”.

- **Simple Installation (Setup.exe)**



- **Important:** Only for (**Standard**) persistent desktops and regular physical workstations.
- **Important:** Not for “Pooled System” installations.
- **Important:** Not for “Pooled User” installations.
- **Important:** Not for “Cached Mode” installations.

Launch Setup.exe to install prerequisite runtime components of Visual C++ Libraries and LDI Plus Cloud Edition. Follow instructions under 5.0 Simple Installation (Setup.exe).

Setup.exe

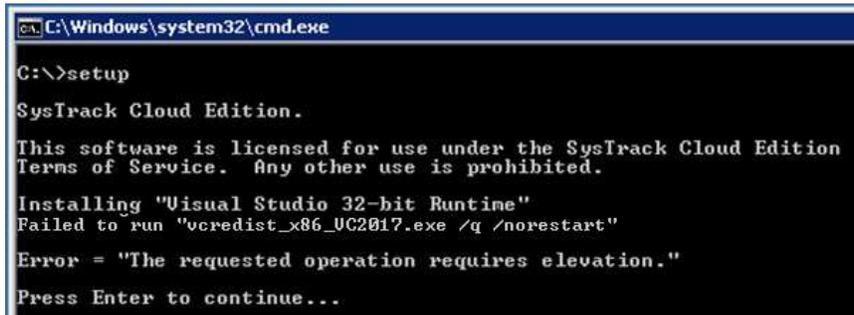
Important: Users may be required to run the files logged on and run with “Run as administrator”.

Important: Setup.exe is required to run in the same folder with the two (2) vcredist files and SysTrackCloudEdition.msi.

To install prerequisite runtime components of Visual C++ Libraries and LDI Plus Cloud Edition:

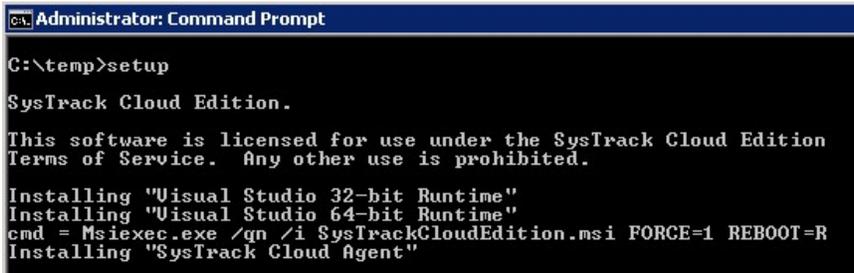
- **No Configuration Name (command line not required)**
 - Double-click or right-click Setup.exe and select “Run as administrator”.
- Result

- If Setup.exe fails, the command window will be left open until the Enter key is pressed:



```
C:\Windows\system32\cmd.exe
C:\>setup
SysTrack Cloud Edition.
This software is licensed for use under the SysTrack Cloud Edition
Terms of Service. Any other use is prohibited.
Installing "Visual Studio 32-bit Runtime"
Failed to run "vcredist_x86_VC2017.exe /q /norestart"
Error = "The requested operation requires elevation."
Press Enter to continue...
```

- If Setup.exe succeeds, the following 4 traces appear (3 on 32-bit systems) and the window will automatically disappear when finished:



```
C:\Administrator: Command Prompt
C:\temp>setup
SysTrack Cloud Edition.
This software is licensed for use under the SysTrack Cloud Edition
Terms of Service. Any other use is prohibited.
Installing "Visual Studio 32-bit Runtime"
Installing "Visual Studio 64-bit Runtime"
cmd = Msiexec.exe /qn /i SysTrackCloudEdition.msi FORCE=1 REBOOT=R
Installing "SysTrack Cloud Agent"
```

Setup Complete.

LDI Plus Silent Installation

Directions

You may need to add the full file path before Setup.exe depending on how it is deployed. The VC_* files also need to be installed before we install the agent.

VC_redist.x64.exe /q /norestart /log <enter path to an existing folder>\VC2019x64.log (log is optional)

VC_redist.x86.exe /q /norestart /log <enter path to an existing folder>\VC2019x86.log (log is optional)

Quiet install for physical device:

```
msiexec /qn /i SysTrackCloudEdition.msi ALLUSERS=1 REBOOT=R  
MSIRESTARTMANAGERCONTROL=Disable
```

Quiet install for physical device with logging:

```
msiexec /qn /i SysTrackCloudEdition.msi ALLUSERS=1 REBOOT=R  
MSIRESTARTMANAGERCONTROL=Disable /L*v C:\temp\ChildAgentMSI.log
```

Quiet install for physical device with cached mode:

```
msiexec /qn /i SysTrackCloudEdition.msi ALLUSERS=1 REBOOT=R  
MSIRESTARTMANAGERCONTROL=Disable CACHEDMODE=1
```

Quiet install for physical device with cached mode and logging:

```
msiexec /qn /i SysTrackCloudEdition.msi ALLUSERS=1 REBOOT=R  
MSIRESTARTMANAGERCONTROL=Disable CACHEDMODE=1 /L*v C:\temp\ChildAgentMSI.log
```

Quiet uninstall:

The ChildMsiUninstallString registry key value in
Computer\HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Lakeside Software\Deploy will
hold the child uninstall string

Anti-Virus Instructions

Anti-Virus Exclusions

Important: Make sure to check that the following anti-virus settings are excluded in the anti-virus console if the agent does not install correctly:

- <installation directory>\JETCOMP.exe
- <installation directory>\LogView.exe
- <installation directory>\LsiCol64.exe
- <installation directory>\LsiMods64.exe
- <installation directory>\Lsinotify.exe
- <installation directory>\Lsioverride.exe
- <installation directory>\LsiPowerOverride.exe
- <installation directory>\LsiUser.exe
- <installation directory>\LsiWakeup.exe
- <installation directory>\message.exe
- <installation directory>\LsiAgent.exe
- <installation directory>\lsiwebhookbroker.exe
- <installation directory>\collect.mdb

Successful Installation

Task Manager and Log Files

1. The process will display in Task Manager:
 - a. LsiAgent.exe (for 32-bit operating systems)
 - b. LsiAgent.exe*32 (for 64-bit operating systems)

Note: Once listed, the agent is running and collecting data.

2. If you launched the MSI with logging, the LOG file should show something like the following (toward the end):

MSI (s) (F0:90) [16:34:02:888]: Product: Systems Management Agent -- Installation operation completed successfully.

MSI (s) (F0:90) [16:34:02:888]: Windows Installer installed the product. Product Name: Systems Management Agent. Product Version: 5.00.0054. Product Language: 1033. Installation success or error status: 0.

MSI (s) (F0:90) [16:34:02:903]: MainEngineThread is returning 0

3. To determine if a system reboot is needed, simply add the /L*v switch to create a log file when performing a silent mode installation and search for entries that indicate a system reboot is required. Key words to search for are: System restart and Reboot.

Info 1903.Scheduling reboot operation: Deleting file c:\Config.Msi\3c4d50f.rbf. Must reboot to complete operation. MSI (s) (EC:A0) [16:38:48:595]: The Windows Installer initiated a system restart to complete or continue the configuration of 'Systems Management Agent'.

Property(S): MsiSystemRebootPending = 1

Failed Installation

Examples

A failed installation can occur. If it does, you should find the LOG file helpful in troubleshooting the problem. The log file location is: C:\Program Files (x86)\SysTrack\LsiAgent. You may also use the log viewer application (logView.exe) located in the same file location.

1. If the failure occurred during the installation, search for the phrase “return value 3” in the LOG file. Each action that takes place during an installation will return a value and log it as “return value #”. When an action fails, you should see the phrase “return value 3” and some other information immediately before or after this line and should help pinpoint where and why the installation failed.
2. If a failure occurs before the installation begins, the LOG file will have very few lines of information available and the phrase “return value 3” may not exist.

- a. Verify command line entered is correct including spelling of path entered to the MSI file.
- b. Example 1: UAC issue

```
MSI (s) (B8:D0) [08:57:16:681]: Note: 1: 2203 2:  
\\server\share\msi\SysTrackCloudEdition.msi 3: - 2147023570
```

```
MSI (s) (B8:D0) [08:57:16:681]: MainEngineThread is returning 1620
```

```
MSI (c) (4C:68) [08:57:16:697]: Decrementing counter to disable shutdown. If counter >=  
0, shutdown will be denied. Counter after decrement: -1
```

```
MSI (c) (4C:68) [08:57:16:697]: MainEngineThread is returning 1620
```

```
=== Verbose logging stopped: 7/9/2019 8:57:16 ===
```

- i. Information: User was logged on as local admin on a Vista system launching the MSI as administrator via command prompt window.
 - ii. Troubleshoot: the example above shows the following return codes:
 1. **-2147023570** means Unknown username or bad password
 2. **1620** means this installation package could not be opened
Troubleshoot the path used to launch the MSI file pointed to a network share (\\server\share...).
 - iii. Possible Solution:
 1. Change UAC settings to allow the MSI installation to occur.
 2. Do not use a shared path. Copy MSI file to your local system and launch the MSI pointing to the local path.
- c. Example 2: This is all the information displayed in the log:

```
MSI (s) (78:A0) [09:29:34:328]: Note: 1: 2203 2: c:\sms464\SysTrackCloudEdition.msi 3:  
-2147287038
```

```
MSI (s) (78:A0) [09:29:34:328]: MainEngineThread is returning 2
```

```
MSI (c) (A8:DC) [09:29:34:328]: Decrementing counter to disable shutdown. If counter >=  
0, shutdown will be denied. Counter after decrement: -1
```

MSI (c) (A8:DC) [09:29:34:328]: MainEngineThread is returning 2
=== Verbose logging stopped: 7/9/2019 9:29:34 ===

- i. Few lines of information in an installation log also may indicate the wrong path or incorrect syntax was entered in a command line.
- ii. The example above shows the return error **-2147287038** which translates to mean %1 could not be found.
- iii. In this case, an incorrect path to SysTrackCloudEdition.msi was entered in the command line.
- iv. Solution: Rewrite the command line with the correct path and restart the installation.

d. Example 3: **Did not** install prerequisites before installing SysTrackCloudEdition.msi

MSI (s) (A0:64) [11:34:06:483]: Executing op:
ServiceControl(Name=LsiAgent,Action=1,Wait=1,) MSI (s) (A0:64) [11:34:36:514]:
Product: Systems Management Agent -- Error 1920.Service Systems
Management Agent (LsiAgent) failed to start. Verify that you have sufficient privileges to start system services.

Error 1920.Service Systems Management Agent (LsiAgent) failed to start. Verify that you have sufficient privileges to start system services.

MSI (s) (A0:64) [11:34:36:514]: User policy value 'DisableRollback' is 0

MSI (s) (A0:64) [11:34:36:514]: Machine policy value 'DisableRollback' is 0 Action ended 11:34:36: InstallFinalize. **Return value 3.**

- i. Search for “return value 3” and read lines above where found.
- ii. Information indicates the Systems Management Agent (LsiAgent) failed to start.
- iii. This error does occur when SysTrackCloudEdition.msi is installed before the prerequisite vcredist executables are installed.
- iv. Possible Solution: Determine if the Visual C++ 2019 redistributables were successfully installed and if a reboot was required from them to complete their installations before installing SysTrackCloudEdition.msi.

Uninstall Order

Reverse of Installation Order

Important: Uninstall order is reverse of the Install Order. LDI Plus Cloud Edition must be uninstalled before uninstalling the Microsoft Visual C++ 2015-2019 Redistributable (x86 and x64).

Uninstall Order: (Opposite of the Installation Order)

- 1st: **SysTrackCloudEdition.msi**
- 2nd: **VC_redist.x86.exe** - 32-bit and 64-bit operating systems
- 3rd: **VC_redist.x64.exe** - 64-bit operating systems only

Important: You may be required to run the files logged on and run with “Run as administrator”.

Uninstalling LDI Plus Through SMS

Order of Uninstallation

Important: You may be required to run the files logged on and run with “Run as administrator”.

Important: Install, reinstall, upgrade, and uninstall **must** take place on the ****golden image**** for the **Non-persistent** desktop.s

1. Uninstallations must occur in the following order (seen in Programs and Features panel):
 - 1st: **Systems Management Agent**
 - 2nd: **Microsoft Visual C++ 2015-2019 Redistributable (x86)**
 - 3rd: **Microsoft Visual C++ 2015-2019 Redistributable (x64)**

2. The registry has an entry defining the command needed to uninstall via other method. You'll have to browse through the entries in this registry location until the specific GUID that refers to the LDI Plus Cloud Edition are located. Once found, use the value of the registry value named '**UninstallString**' to uninstall. Both Microsoft Visual C++ 2015-2019 Redistributable (x86) and Microsoft Visual C++ 2015-2019 Redistributable (x64) are given below.
 - a. Search registry key to get command line to uninstall LDI Plus Cloud Edition:
 - i. (32-bit OS) Registry
 1. HKEY_LOCAL_MACHINE\SOFTWARE\Lakeside Software\Deploy
 - a. Registry value named **ChildMsiUninstallString**

 - Or-
 2. HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\{<GUID>}
 - a. Registry value named **UninstallString**
 - ii. (64-bit OS) Registry
 1. HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Lakeside Software\Deploy
 - a. Registry value named **ChildMsiUninstallString**

 - Or-
 2. HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Microsoft\Windows\CurrentVersion\Uninstall\{<GUID>}
 - a. Registry value named **UninstallString**

 - b. **Uninstall LDI Plus Cloud Edition:** From the child system, open a command prompt window and enter the following command:

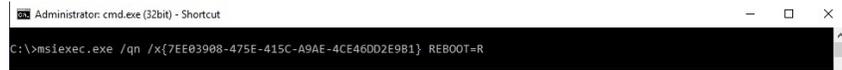
Registry:

Msiexec.exe /qn /x {<Registry GUID goes here>} REBOOT=R /L *v <enter path to an existing temp folder>\silentuninstall.log (logging optional)

Uninstall (no logging):

Uninstall (with logging, create team folder)

-Or-



```
Administrator: cmd.exe (32bit) - Shortcut
C:\>msiexec.exe /qn /x{7EE03908-475E-415C-A9AE-4CE46DD2E9B1} REBOOT=R
```

Point to the MSI file, if available:



```
Administrator: cmd.exe (32bit) - Shortcut
C:\>msiexec.exe /qn /x{7EE03908-475E-415C-A9AE-4CE46DD2E9B1} REBOOT=R /L*v c:\temp\silentuninstallclient.log
```

Msiexec.exe /x "<enter path>\SysTrackCloudEdition.msi" REBOOT=R

- i. A successful removal log entry toward the bottom should look similar to the following:

MSI (s) (18:14) [11:58:36:908]: Product: Systems Management Agent -- Removal completed successfully.

- c. **Uninstall Microsoft Visual C++ 2015-2019 Redistributable (x86):** From the child system, bring up a command prompt window and enter the following command:

- i. From registry example:

"C:\ProgramData\Package Cache\{Registry GUID goes here>}\VC_redist.x86.exe"
/uninstall /quiet /log%temp%\vc2019x86_uninstall.log

- ii. A successful removal log entry toward the bottom should look like the following:

Creates 3 log files:
vc2019x86_uninstall.log
vc2019x86_uninstall_000_vcRuntimeAdditional_x86.log
vc2019x86_uninstall_001_vcRuntimeMinimum_x86.log

[0C28:03F0][2020-02-20T11:13:47]i007: Exit code: 0x0, restarting: No

MSI (s) (0C:28) [11:13:46:133]: Product: Microsoft Visual C++ 2019 X86 Additional Runtime - 14.24.28127 -- Removal completed successfully.

MSI (s) (0C:F4) [11:13:47:428]: Product: Microsoft Visual C++ 2019 X86 Minimum Runtime - 14.24.28127 -- Removal completed successfully.

- d. **Uninstall Microsoft Visual C++ 2015-2019 Redistributable (x64):** From the child system, bring up a command prompt window and enter the following command:

- i. From registry example:

```
"C:\ProgramData\Package Cache\{Registry GUID goes here>}\VC_redist.x64.exe" /uninstall /quiet /log%temp%\vc2019x64_uninstall.log
```

- ii. A successful removal log entry toward the bottom should look like the following:

Creates 3 log files:

```
vc2019x64_uninstall.log  
vc2019x64_uninstall_000_vcRuntimeAdditional_x64.log  
vc2019x64_uninstall_001_vcRuntimeMinimum_x64.log
```

```
[0C28:03F0][2020-02-20T11:13:47]i007: Exit code: 0x0, restarting: No
```

```
MSI (s) (0C:28) [11:13:46:133]: Product: Microsoft Visual C++ 2019 X64  
Additional Runtime - 14.24.28127 -- Removal completed successfully.
```

```
MSI (s) (0C:F4) [11:13:47:428]: Product: Microsoft Visual C++ 2019 X64  
Minimum Runtime - 14.24.28127 -- Removal completed successfully.
```

e. **Switch Information:**

- i. **REBOOT=R:** to suppress automatic and certain prompts for system restarts.
- ii. /q – (q)silent mode (no user interaction); (n)no user interface
- iii. /x – uninstall
- iv. /L*v – verbose logging (optional): The L in L*v may use a lower case (l). For SysTrackCloudEdition.msi only.
- v. /log – path to create log file (for Visual C++ 2019 redistributable only)

f. For more information:

- i. [http://technet.microsoft.com/en-us/library/cc759262\(ws.10\).aspx#BKMK_Uninstall](http://technet.microsoft.com/en-us/library/cc759262(ws.10).aspx#BKMK_Uninstall)

Proxy Settings and Process

Standard Proxy Usage

LDI Plus uses proxies like any other networking tool; the agent will connect to the proxy itself, which will then connect to the desired endpoint. Proxy logic follows multiple steps. The agent and supervisor will attempt each step until either a successful connection is made, or no more steps are available, at which point the attempt cycle will begin again.

The following settings each map to standard proxy usage and operate independently of one another. Because they are independent, multiple settings can be attempted at once without overriding one another. The agent will iterate through these settings in the following order:

1. **AutoDetect**: A Boolean value that determines if the web proxy auto discovery (WPAD) protocol will be used to collect a list of proxies to attempt.
2. **AutoConfigScript**: The string value of the address where a PAC file is located, which can return a list of proxies to attempt.
3. **HTTPSPROXY**: The string value of the <url>:<port> of a proxy to try for HTTPS connections. If using an HTTPSPROXY setting, you need to specify the port of the proxy itself..

When the agent requests a connection to the master shortly after startup, the following process takes place. This process stops as soon as a valid connection is made. At any point in this process, if a proxy connection is made, it is saved as the last successful proxy connection.

1. The agent collects a list of preferred proxy settings. This includes any or all of the above AutoDetect, AutoConfigScript, and HTTPSPROXY settings.
2. If any preferred proxies exist, the agent iterates through them until a connection is made or there are no more to try.
3. Next, the agent attempts a direct connection with no proxy.
4. If no connection is made yet, the agent collects the last successfully used proxy and attempts a connection to that setting. This is a single proxy setting, but could be an
5. AutoDetect, AutoConfigScript, or HTTPSPROXY setting.
6. If a connection still hasn't been made, the agent collects proxy settings from the system, which includes any or all of the AutoDetect, AutoConfigScript, and HTTPSPROXY settings. These collections are then saved in case they cannot be collected at some point in the future. Any time a collection is successful, it overwrites the previous collected data.
7. If collected proxy data exists (either from a fresh collection or a previous collection), the agent iterates through them until a connection is made or there are none left to attempt.

Example 1

A company requires all of their outbound network traffic to be routed through a specific proxy. They don't use WPAD or have a PAC file; instead, the proxies are manually configured through group policy.

From an end-user's perspective, the following proxy is shown in the Windows Network & Internet settings in the Proxy tab:

Manual proxy setup

Use a proxy server for Ethernet or Wi-Fi connections. These settings don't apply to VPN connections.

Use a proxy server

On

Address	Port
<input type="text" value="https=exampleproxy.co"/>	<input type="text" value="8888"/>

In this case, `exampleproxy.company.com:8888` is the proxy that LsiAgent and LsiSupervisor should use. In order to ensure that LsiAgent and LsiSupervisor use the proxy, the install flag `HTTPSPROXY` should be used:

```
HTTPSPROXY="exampleproxy.company.com:8888"
```

Example 2

A company uses a PAC file to determine how network traffic should be routed. They also push out a proxy through group policy in case access to the PAC file should fail.

From an end-user's perspective, the following proxy is shown in the Windows Network & Internet settings in the Proxy tab:

The screenshot shows the Windows Network & Internet settings in the Proxy tab. It is divided into two sections: 'Use setup script' and 'Manual proxy setup'. In the 'Use setup script' section, a toggle switch is turned 'On', and the 'Script address' field contains 'http://company.com/example.pac'. A 'Save' button is visible below. The 'Manual proxy setup' section has a heading, a descriptive paragraph, and another 'Use a proxy server' toggle switch turned 'On'. Below this, there are two input fields: 'Address' with 'https=exampleproxy.co' and 'Port' with '8888'.

In this case, the autoconfig script is located at `http://company.com/example.pac` and the backup proxy is `exampleproxy.company.com:8888`.

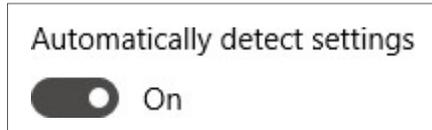
In order to ensure that LsiAgent and LsiSupervisor use these values to find a proxy, the install flags `AUTOCONFIGSCRIPT` and `HTTPS_PROXY` should be used:

```
AUTOCONFIGSCRIPT=" http://company.com/example.pac"  
HTTPS_PROXY="exampleproxy.company.com:8888"
```

Example 3

A company uses WPAD to determine how network traffic should be routed.

From an end-user's perspective, the following proxy is shown in the Windows Network & Internet settings in the Proxy tab:



In order to ensure that LsiAgent and LsiSupervisor use the auto detect WPAD protocol, the install flag AUTODETECTPROXY should be used:

```
AUTODETECTPROXY=1
```

Example 4

A customer does not require proxies to communicate outside of their network. No proxy specific settings are required to be in the install command line.